

A regional scan of available data on

Food Security, Access, & Equity

In West Virginia and the Appalachian regions of North Carolina, Virginia,
Tennessee, Kentucky, and Ohio

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Appalachia Funders
NETWORK

**Appalachian**
FOODSHED PROJECT
Cultivating Community Food Security

Introduction

In 2014, the New York Times released an article entitled, “What’s the Matter with Eastern Kentucky?”¹ A team at the paper crunched some numbers and designated the hardest places to live in the United States. Six counties in eastern Kentucky made it into the top-ten. As many of us who live in Appalachia know, those numbers, the six equally weighted indicators, and the stories you can write about them, do an injustice to the many varied realities of living and working in Central Appalachia. Unsurprisingly, the New York Times article was the recipient of poignant backlash from eastern Kentucky and beyond. People responded with their experiences as Appalachians, and the stories presented a reality overwhelmingly different and more complex than that of the Times.

The data contained in this report is a quick picture, a snapshot. It may be worth a thousand words, but it only captures one particular way of seeing Central Appalachia and the state of food and health equity. From our vantage point, it is only useful data to the degree that it helps us think differently and more creatively about many potentially positive futures for Central Appalachia. As carte blanc data, it does not do this, but the questions we aim at the data, and the gaps that we might envision, can point us in generative and creative directions.

When looking at the data, the numbers for Appalachia are not considerably that different from national trends. But as a region, Appalachia has a history of resource extraction and public and private underinvestment. Nationally, 19.1% of the population live in rural areas, but only 6% of all U.S. grant dollars benefit rural populations². This is especially true in Central Appalachia, where the percentage of the population living in rural areas is 2 to 3.7 times the national rate (see page 4). While billions of dollars have been extracted from the region, residents have seen few philanthropic and federal dollars invested. As a result, Central Appalachia has existed in a state of perpetual marginalization and exploitation, supplying raw materials and energy for the rest of the country, with

limited benefits and significant costs to the people who live here.

The authors recommend two approaches to creating and utilizing data as a means of understanding and addressing food, health, and quality of life issues in Appalachia. The first approach would be to launch a coordinated effort across the Central Appalachian region to gather detailed data on the issues at hand, data that can fill in the gaps of the meta-data that is already available at the national level. This region has a number of academic institutions that could contribute to the data collection process, but the task will require coordination and resources. There are several models of useful data collection (see the “Additional Examples of Data Sources” on page 15 for some examples), but most are not available across states or the region. Building our collective knowledge of the region may be as simple as replicating these data collection processes across the region.

In tandem with the first, more quantitative approach, we also recommend a second effort to qualitatively explore the complexities of the health and food system intersections at the community level. The existing data explains little about how this intersection might be leveraged to create communities that are healthier and nourished. These systems are too dynamic to be solved by linear connections between data points. Understanding the positive futures for our communities means experimenting in different ways in different communities, expecting different results each time. The learnings from more targeted, community-level explorations can be translated back out to the larger region, contextualizing and complicating the data showcased in this report.

In many ways, the data in this report highlights the gaps in our understanding. It emphasizes the need to dig deeper, so that we can better understand how food, agriculture, economic development, and health intersect in the Appalachian context. We see this as an important starting point for exploring, imagining, and creating a stronger, more resilient Appalachia.

¹ <http://www.nytimes.com/2014/06/29/magazine/whats-the-matter-with-eastern-kentucky.html>

² <http://blog.ncrp.org/2016/05/reversing-current-underinvestment-rural-communities.html>

About the data

This report is composed of data snapshots related to the food, agriculture, poverty, and health of the Central Appalachian region--western North Carolina, east Tennessee, eastern Kentucky, southwest Virginia, West Virginia, and southern Ohio--as identified by the Appalachian Regional Commission. Most of the data used in this report is available at the county level, from the Census Bureau and the USDA. For the purpose of this document, the authors have aggregated data from the Appalachian counties in each state, and then compared the results to the state, and when possible, the nation.

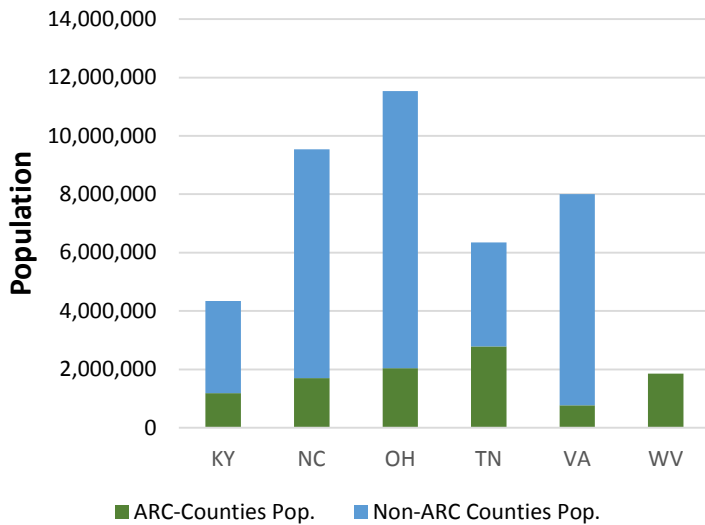
It is important to note that all counties in West Virginia are within the region covered by the Appalachian Regional Commission (ARC). The tables and charts reflect this, often including a zero or "N/A" for the non-ARC West Virginia counties.

Measure	What it helps us show	Data source	Page #
Population	Demographics, rurality	Census Bureau	4
Poverty rates	Poverty	ARC	5
Unemployment	Poverty/economic status	Bureau of Labor Statistics	6
Food Insecurity Rates	Food/health	Feeding America	7
Low income, low store access	Food access/insecurity	Economic Research Service	8
SNAP & WIC	Poverty/health/food	Economic Research Service	9
Child free and reduced lunch	Food/poverty	Kids Count Data Center	10
Total farms farm acres	Agriculture	Agricultural Census	11
Farms with direct sales	Local food markets	Agricultural Census	12
Farms producing fruits and vegetables	Agriculture – food production	Agricultural Census	13
School districts with farm to school activities	Food access	Farm to School Census	14

Preferred citation: *Appalachia Funders Network. (2016). A regional scan of available data on food security, access, and equity in West Virginia and the Appalachian regions of North Carolina, Virginia, Tennessee, Kentucky, and Ohio. Blacksburg, VA: P. D'Adamo-Damery, N. D'Adamo-Damery, & P. Ziegler.*

Population

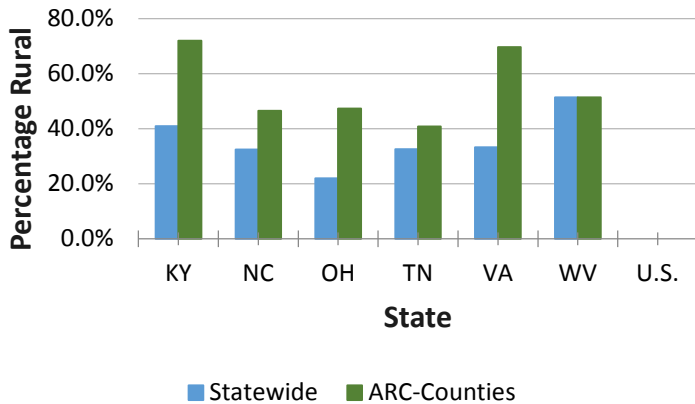
Total Population



Total Population

	ARC-Counties	Non-ARC Counties	Total State
KY	1,184,278	3,155,089	4,339,367
NC	1,698,908	7,836,575	9,535,483
OH	2,042,040	9,494,464	11,536,504
TN	2,785,342	3,560,763	6,346,105
VA	770,044	7,230,980	8,001,024
WV	1,852,994	0	1,852,994

Rural Population (percentage)



Rural Population (percentage)

	Statewide	ARC-Counties
KY	40.9%	72.0%
NC	32.5%	46.5%
OH	22.0%	47.3%
TN	32.6%	40.8%
VA	33.3%	69.6%
WV	51.4%	51.4%

National Percentage Rural Population

U.S.	19.1%
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Sources

U.S. Department of Commerce, Census Bureau, 2000 and 2010 Decennial Censuses, via Appalachian Regional Commission. Retrieved from: http://www.arc.gov/assets/research_reports/chapter1--appalachianregion2010censusreport.pdf

County Health Rankings. Retrieved from: <http://www.countyhealthrankings.org/rankings/data>

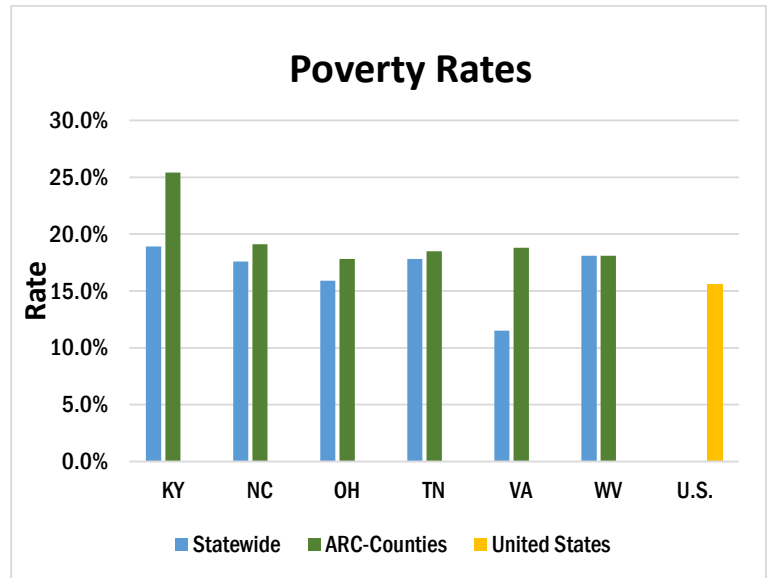
Highlights

- In every instance the **Central Appalachia counties have a higher percentage of the rural population**, compared to their non-Appalachian counterparts
- Compared to Central Appalachia, the U.S. has a much lower percentage of the rural populace – 19.1 percent.

Poverty Rates

Highlights

- In every instance the **Central Appalachia counties have a higher poverty rate** than their non-Appalachian counterpart counties.
- In each state, the Central Appalachian counties report rates of poverty greater than the U.S. average.



Comments

Whereas related categories (like unemployment and food insecurity) fall closely in line with national numbers, Central Appalachia experiences consistently higher rates of poverty than the rest of the nation.

The poverty rate in Kentucky is considerably higher than the surrounding Appalachian states, and more so, the U.S. rate. Though high rates like this might be used to seek outside funding for work around wealth inequality, it is important to note that these poverty rates overlook other community wealth that is not quantified monetarily.

	Statewide	ARC-Countries	Percentage of Avg. U.S Rate
KY	18.9%	25.4%	163.0%
NC	17.6%	19.1%	122.3%
OH	15.9%	17.8%	113.9%
TN	17.8%	18.5%	118.4%
VA	11.5%	18.8%	120.5%
WV	18.1%	18.1%	116.3%

	National Rate
U.S.	15.6%

Sources

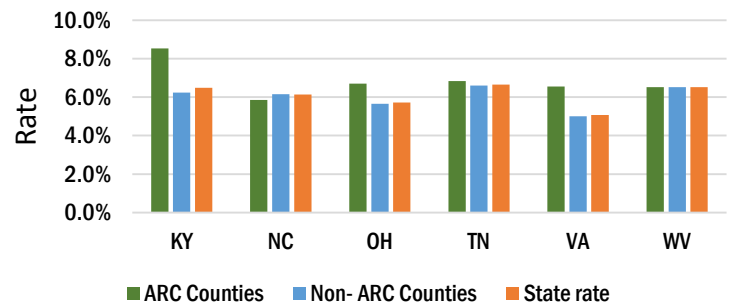
Appalachian Regional Commission. Retrieved from: http://www.arc.gov/reports/custom_report.asp?REPORT_ID=64

Unemployment

Highlights

- The 2014 unemployment rate across Appalachia was similar to the rate across the United States (6.5 and 6.2, respectively).
- With the exception of North Carolina, ARC counties have a higher rate of unemployment than their non-ARC counterparts.

Unemployment Rates Central Appalachia



Comments

The unemployment rate is based on the number of people who are unemployed, are available for work, and have been actively seeking work during the 4 week period prior to the reference week, when the data was collected.

Because of this, the unemployment rate does not include people who have been chronically unemployed and have stopped looking for work, those who are under-employed, and those who are unable or unavailable to work, due to illness or other circumstances (transportation or family issues, for example).

	ARC Counties	Non-ARC Counties	Statewide
KY	8.5%	6.2%	6.5%
NC	5.9%	6.2%	6.1%
OH	6.7%	5.7%	5.7%
TN	6.8%	6.6%	6.7%
VA	6.6%	5.0%	5.1%
WV	6.5%	6.5%	6.5%

	National Rate
U.S.	6.2%

Sources

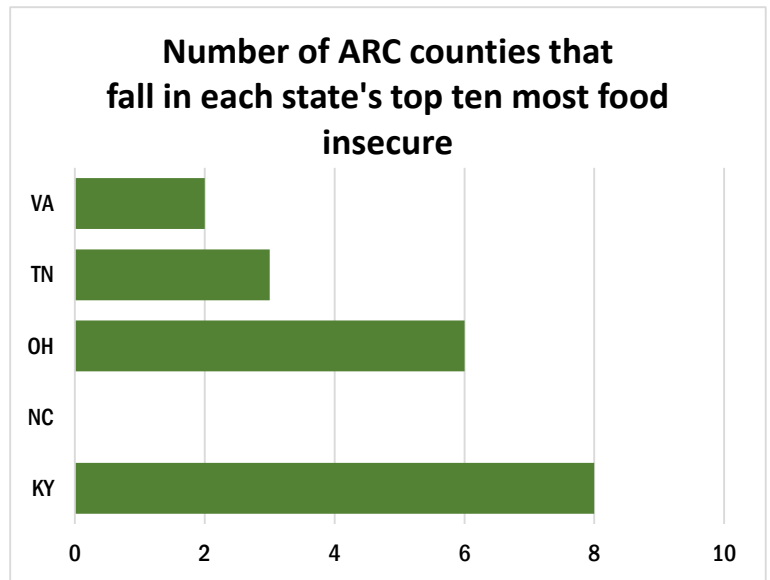
County Health Rankings:
<http://www.countyhealthrankings.org/>

Bureau of Labor Statistics:
<http://data.bls.gov/map/MapToolServlet?survey=la&map=county&seasonal=u>

Food Insecurity Rates

Highlights

- Though roughly 27 percent of the Kentucky population lives in Appalachia, eight of the top ten most food insecure KY counties are in the ARC region.
- In North Carolina, none of the ten most food insecure counties are in the ARC region.



Comments

Food insecurity is complex to measure. Different agencies and organizations have different understandings of the concepts and thus resulting in various means of measurement. For example, the USDA collects information on food insecurity, but it is only collected at the household level and made available, as data, at the state level.

The most comprehensive data available is from Feeding America's Mapping the Meal Gap. Their data, which is reported at the county level, is a product of a model that uses U.S. Census data: unemployment rate, the poverty rate, median income, the homeownership rate, the percent African American and the percent Hispanic.

Though this information is used routinely to document food insecurity rates, the models are done in a manner that does not allow for regional aggregation. Thus the information here is documented by taking the top ten food insecure counties in a state and tallying the number of those counties that fall within the ARC regions.

	Statewide Food Insecurity Rates
KY	18.9%
NC	17.6%
OH	15.9%
TN	17.8%
VA	11.5%
WV	18.1%

	National Food Insecurity Rate
U.S.	15.4%

Sources

Feeding America Mapping the Meal Gap. Retrieved from: <http://map.feedingamerica.org/county/2014/overall>

Low Income & Low Store Access

Highlights

- Even though Kentucky's ARC counties account for 8 of the 10 most food insecure in the state, relatively few ARC Kentuckians have low income and low-store access.

Comments

This data reports the number of people who have low-incomes and low-access to grocery stores. In these instances individuals might have access to conveniences stores. Convenience stores tend to have less non-canned fruits and vegetables and prices at these types of retailers tend to be higher than their supermarket counterparts.

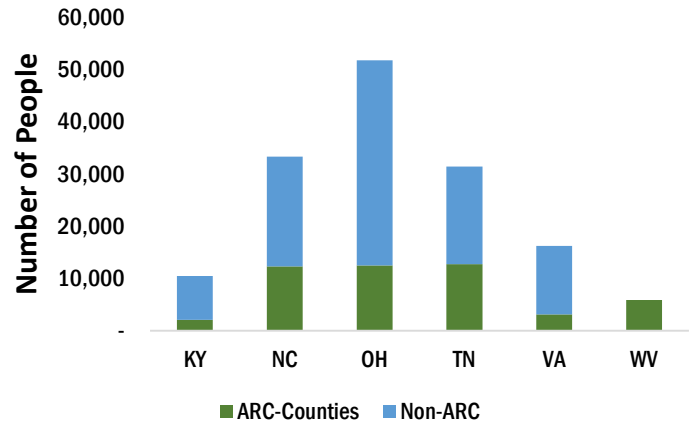
This information is available in multiple ways:

E.g.:

- Population, low access to store, 2010
- Population, low access to store (%), 2010
- Low income & low access to store, 2010
- Low income & low access to store (%), 2010
- Children, low access to store, 2010
- Children, low access to store (%), 2010
- Seniors, low access to store, 2010
- Seniors, low access to store (%), 2010
- Households, no car & low access to store, 2010
- Households, no car & low access to store (%), 2010

Additionally, the data is also available based on distance from the store (1 mile, 10 miles, etc.). The data reported here is an amalgamation of distance, based on region.

Low Income, Low-Store Access (Population Number)



Number of People with Low Income, Low-Store Access

	ARC-Counties	Statewide Total
KY	2,050	5,564
NC	12,295	18,515
OH	12,485	29,529
TN	12,761	15,381
VA	3,134	10,645
WV	5,859	5,859

Sources

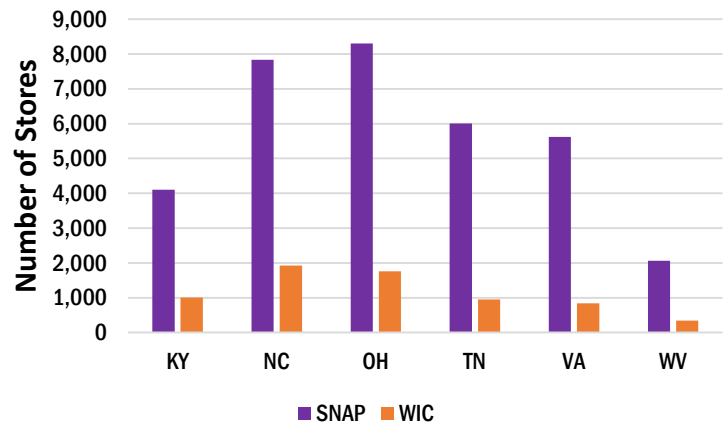
Economic Research Service. Retrieved from: <http://www.ers.usda.gov/data-products/food-environment-atlas/data-access-and-documentation-downloads.aspx>

SNAP & WIC Authorized Stores

Highlights

- Compared to WIC, a greater number of stores accept SNAP benefits in Central Appalachia.
- The USDA authorizes stores for participation in SNAP, while state WIC offices oversee the authorization of WIC retailers.

Number of Stores Accepting SNAP & WIC



Comments

Though federally-funded, individual SNAP and WIC eligibility are determined by local and state offices.

Stores apply for SNAP eligibility through the USDA. The process is online and can be done in “as little as 15 minutes.”¹

WIC stores are authorized at the state level. States are not required to authorize all stores that apply, but only enough to ensure that WIC participants have “adequate” access to food and to ensure that they can “effectively manage.”²

The causes for the disproportionate number of SNAP vs. WIC stores are not clear. But the different approaches and standards for authorization may play a role.

Number of Stores Accepting SNAP and WIC in the ARC Region of Each State

	SNAP	WIC
KY	4,103	1,003
NC	7,837	1,929
OH	8,305	1,757
TN	6,007	951
VA	5,624	836
WV	2,065	343
Regional Total	33941	6819

Sources

Economic Research Service (ERS) Food Environment Atlas. Retrieved from: <http://www.ers.usda.gov/data-products/food-environment-atlas/go-to-the-atlas.aspx>

1. “Supplemental Nutrition Assistance Program: Retailers.” Retrieved from: SNAP<http://www.fns.usda.gov/snap/retailers-0>

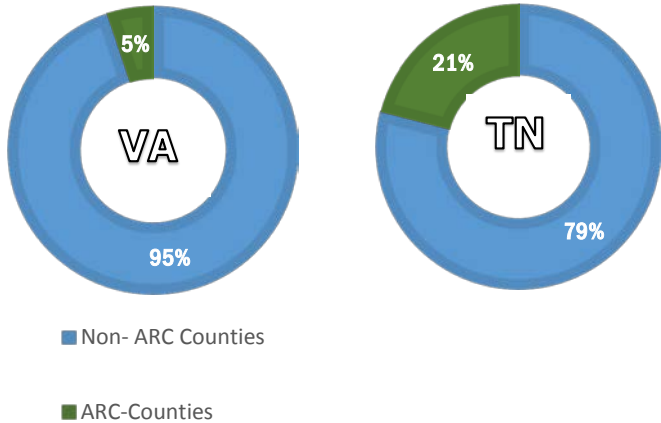
2. “WIC and Retail Grocery Stores.” Retrieved from: <http://www.fns.usda.gov/sites/default/files/WICRetailStoresfactsheet.pdf>

Children on Free & Reduced Lunch

Highlights

- There is a rich set of data available regarding Free and Reduced Lunch Programs. But the collection and reporting strategies vary from state-to-state, making comparisons difficult.
- This data is collected by various organizations in each state and aggregated by the Kids Count Data Center.

Virginia Eligibility & Tennessee Participation



Comments

There is not a consistent approach for collecting and reporting data on free and reduced lunch programs. West Virginia and Kentucky do not publicly report any data on this category and the other four Central Appalachian states, are idiosyncratic in their data collection.

For example:

VA: The number or percentage of Virginia public school students in grades K-12 who were approved for free or reduced-price school lunches according to federal guidelines.

OH: The annual estimate is generated by collecting participation information for the month of October and extrapolating that data.

NC: Determines the percentage of students that are enrolled in free and reduced lunch programs

TN: Reports the number of students who actually participated in the free and reduced meal program during a school year.

	Non- ARC Counties (number of students)	ARC-Counties (number of students)
KY	Unreported	
NC	Unable to aggregate – reported as a percentage at the county level	
OH	Unable to aggregate – reported as a percentage at the county level	
TN (yr. 2012-13)	680,408	18,0762
VA (yr. 2014-15)	993,532	53,406
WV	Unreported	

Sources

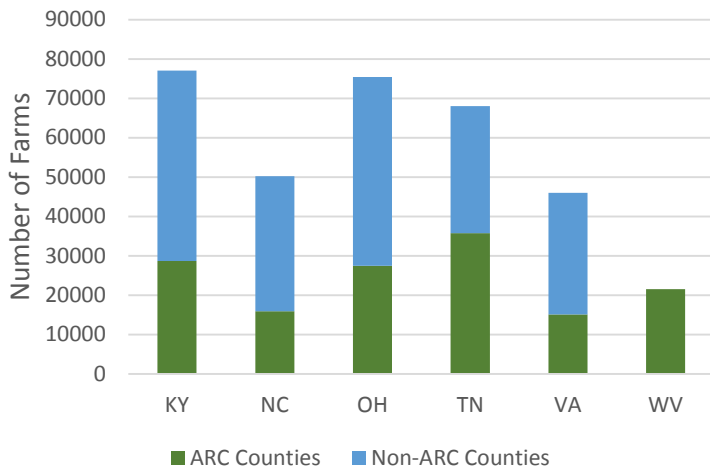
Kids Count Data Center (A Project of the Annie E. Casey Foundation). Retrieved from: <http://datacenter.kidscount.org/>

Total Farms and Farm Acres

Total Number of Farms

	ARC Counties	Statewide	% of farms in ARC counties
KY	28,653	77,064	37.2%
NC	15,951	50,218	31.8%
OH	27,422	75,462	36.3%
TN	35,774	68,050	52.6%
VA	15,103	46,030	32.8%
WV	21,489	21,489	N/A
Regional Total	144,392	338,313	42.7%

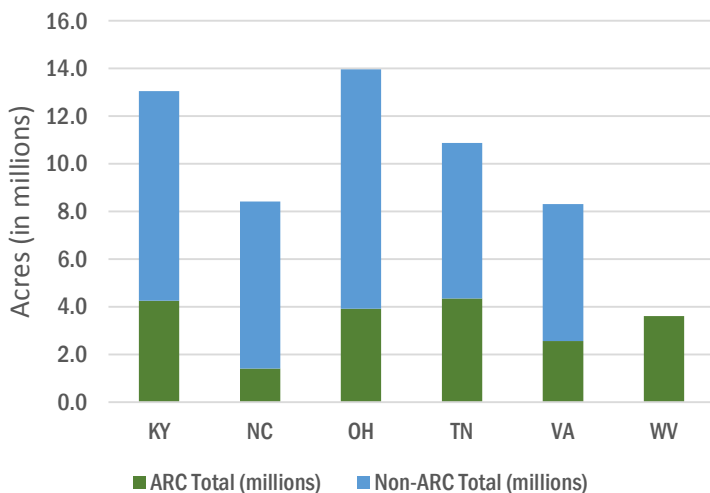
Total Number of Farms



Acres of Farmland (in millions)

	ARC total	Statewide total	% of farmland in ARC counties
KY	4.25	13.05	32.6%
NC	1.41	8.41	16.8%
OH	3.92	13.96	28.1%
TN	4.35	10.87	40.0%
VA	2.56	8.30	30.8%
WV	3.61	3.61	N/A
Regional Total	20.09	58.20	34.5%

Acres of Farmland



Total Acres of Farmland (millions)

U.S.	914.53
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Highlights

- Excepting West Virginia, ARC-counties have fewer farms and farmland than their non-ARC counterparts.
- The total number of farms and total acres of farmland are relative mirrors of one another.

Sources

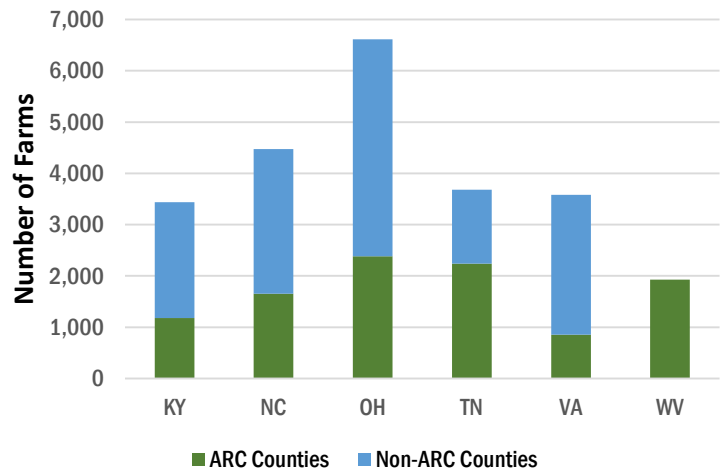
Agricultural Census, National Agricultural Statistics Service. Retrieved from: <https://www.agcensus.usda.gov/>

Farms with Direct Sales

Highlights

- Even though ARC North Carolina only accounts for 16 percent of NC’s farmland, and 31 percent of the farms, they account for almost 37 percent of the state’s direct-selling farms. This phenomenon is fairly similar in Tennessee.

Number of Farms with Direct Sales



Comments

The farm-related data all comes from the Agricultural Census conducted by the National Agricultural Statistics Services (NASS).

	ARC Counties	State Total	Percentage ARC
KY	1,180	3,438	34.3%
NC	1,652	4,475	36.9%
OH	2,382	6,612	36.0%
TN	2,240	3,679	60.9%
VA	854	3,581	23.8%
WV	1,926	1,926	N/A
Regional Total	10,234	23,711	43.2%

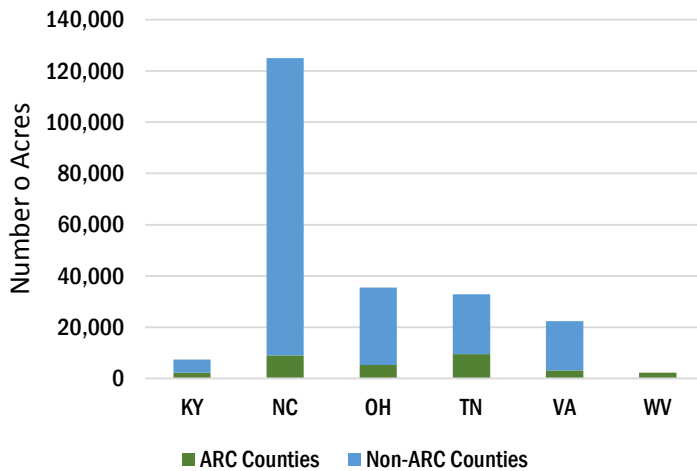
	National Total
U.S.	144,530

Sources

Agricultural Census, National Agricultural Statistics Service. Retrieved from: <https://www.agcensus.usda.gov/>

Farms Producing Fruit and Vegetables

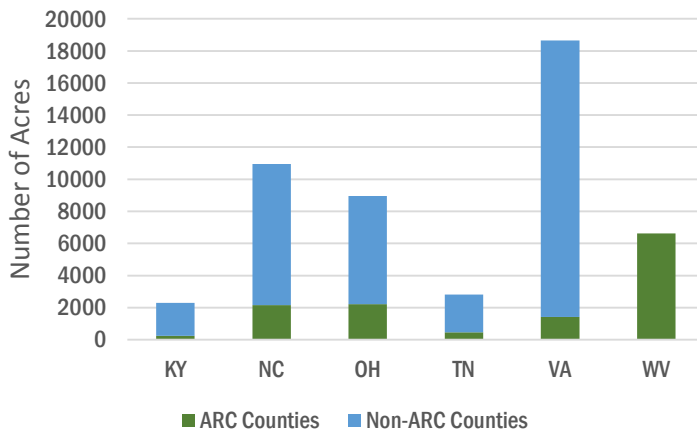
Acres in Vegetable Production



Acres in Vegetable Production

	ARC Counties	State Total
KY	2336	7474
NC	9041	124936
OH	5298	35556
TN	9554	32854
VA	3196	22454
WV	2257	2257
Regional total	31682	225531

Acres in Fruit Production



Acres in Fruit Production

	ARC Counties	State Total
KY	243	2296
NC	2160	10944
OH	2209	8965
TN	453	2807
VA	1413	18643
WV	6621	6621
Regional total	13099	50276

Highlights

- With the exception of fruit in West Virginia, the vast majority of fruit and vegetable production are occurring in non-ARC counties.

Sources

Agricultural Census, National Agricultural Statistics Service. Retrieved from: <https://www.agcensus.usda.gov/>

School Districts with Farm-to-School Activities

Highlights

- In KY, NC, TN, VA, and WV, school districts are largely organized by state or independent city. In OH, school districts are organized independent of county lines, resulting in a greater number of school districts.
- The ARC region of NC reported higher rates of farm to school participation than the state rate.
- Appalachian VA reported lower Farm-to-School (F2S) participation rates than the overall state rate
- NC reported the highest participation rates, followed by WV, VA, TN, KY, and OH.

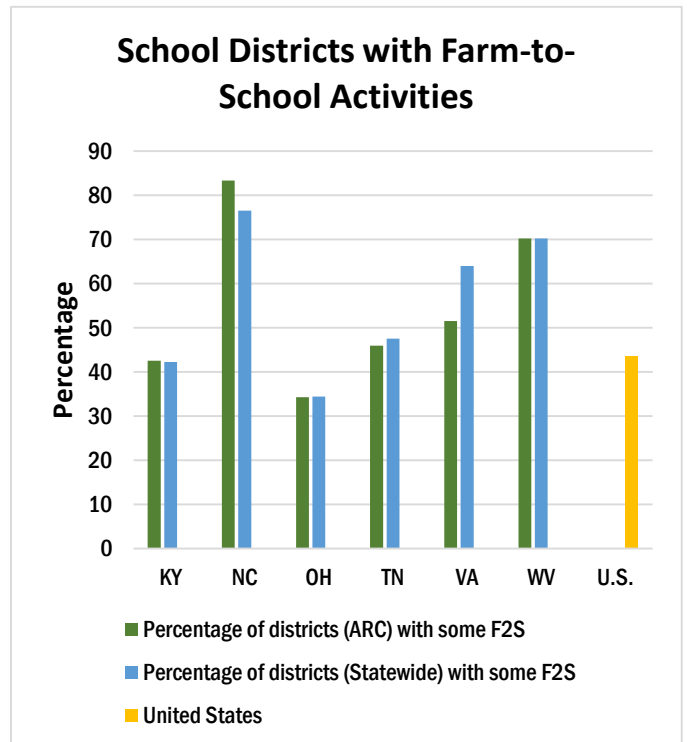
Comments

The 2013 Farm to School (F2S) Census surveyed all school districts in the US, though not all districts responded. The numbers here are representative of districts that participated in the survey. According to the census, school districts were considered “participating” if one or more school in the district conducted F2S activities.

F2S activities generally center on procurement of local or regional foods and related educational activities such as:

- Serving local food products in school meals and snacks
- Conducting educational activities related to local foods; field trips to farms, farmers' markets, or food processing facilities; and educational sessions for parents and community members
- Creating and tending school gardens

For the purpose of this report, districts that indicated farm to school participation in 2011-2012, or began activities in 2012-2013, were considered “participating”.



	Total districts reporting in ARC region	# of districts (ARC region) with farm to school activities	% of districts in ARC region with farm to school activities	% of districts statewide with farm to school activities
KY	54	23	42.6%	42.3%
NC	30	25	83.3%	76.5%
OH	134	46	34.3%	34.5%
TN	50	23	46.0%	47.6%
VA	33	17	51.5%	64.0%
WV	47	33	70.2%	70.2%

% of districts nationwide with farm to school activities	
U.S.	43.7%

Sources

The 2013 Farm to School Census (USDA)
<https://farmtoschoolcensus.fns.usda.gov/home>

*The 2015 Farm to School Census data will be available in June 2016.

Additional Examples of Data Sources

KIDS COUNT is a project of the [Annie E. Casey Foundation](#) to track the well-being of children in the United States. In addition to including data from the most trusted national resources, the KIDS COUNT Data Center draws from more than 50 [KIDS COUNT state organizations](#) that provide state and local data, as well publications providing insights into trends affecting child and family well-being.

<http://datacenter.kidscount.org>

Measure of America provides easy-to-use yet methodologically sound tools for understanding the distribution of well-being and opportunity in America and stimulating fact-based dialogue about issues we all care about: health, education, and living standards. *This site is worth exploring as is the data portal they created: [DATA2GO.NYC](#).*

<http://www.measureofamerica.org>

The **Virginia Department of Social Services (VDSS)** is a state supervised and locally administered social services system. Providing oversight and guidance to 120 local offices across the state, VDSS delivers a wide variety of services and benefits to over 1.6 million Virginians each year. *The Interactive Excel spreadsheets are excellent examples of making data accessible.*

https://www.dss.virginia.gov/geninfo/reports/agency_wide/asr.cgi

Cross Validated is a question and answer site for people interested in statistics, machine learning, data analysis, data mining, and data visualization. It's 100% free, no registration required. *There are a number of these sites out there providing helpful statistical support to anyone interested in analyzing datasets.*

<http://stats.stackexchange.com>

The North Carolina Health Data Query System is a web-based interactive database system that provides customized reports of health data based on user-specified selection of variables (e.g. age, race, county). *A good example of a health data resource.*

<http://www.schs.state.nc.us/interactive/query>

Acknowledgements

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