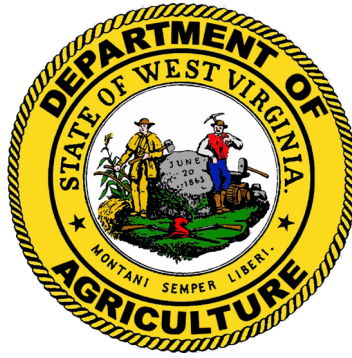


A SHARED AGENDA FOR GROWING WEST VIRGINIA'S AGRICULTURAL ECONOMY

FULL REPORT

**WEST VIRGINIA DEPARTMENT OF AGRICULTURE
WEST VIRGINIA UNIVERSITY EXTENSION SERVICE**

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A SHARED AGENDA FOR GROWING WEST VIRGINIA'S AGRICULTURAL ECONOMY

EXECUTIVE SUMMARY

**WEST VIRGINIA DEPARTMENT OF AGRICULTURE
WEST VIRGINIA UNIVERSITY EXTENSION SERVICE**



www.fourtheconomy.com



THE AGRICULTURAL ECONOMY STRATEGIC PLANNING PROCESS

The West Virginia Agricultural Advisory Board, comprised of Governor Jim Justice, Commissioner of Agriculture Kent Leonhardt, and Dean of WVU Extension Service Steven Bonanno, appointed a steering committee of West Virginia stakeholders to lead a process to develop a long-term sustainable plan to maximize the agricultural sector in West Virginia. The following agencies were represented on the committee:

- West Virginia Department of Agriculture
- West Virginia University Extension Service
- West Virginia Farm Bureau
- USDA West Virginia Natural Resources Conservation Service
- West Virginia Conservation Agency
- West Virginia University Davis College of Agriculture, Natural Resources and Design
- West Virginia State University Extension Service

PROCESS

500

Participants shared their insights on the Agricultural Economy Survey.



There were numerous interviews with stakeholders in the Agricultural Economy.

350

Stakeholders attended meetings in the 14 conservation districts.



Market analysis was conducted to deepen understanding and identify emerging agriculture sectors.

Following receipt of these findings, the Steering Committee and consulting team defined the strategies and goals to best support West Virginia's agricultural economy.

"A Shared Agenda for Growing West Virginia's Agricultural Economy" is the result of their work, and fulfills the directive provided by the Agriculture Advisory Board.



LETTER FROM THE AGRICULTURAL ADVISORY BOARD

AGRICULTURE AND SMALL FARMS ARE ESSENTIAL PIECES OF THE ECONOMIC FABRIC OF WEST VIRGINIA.

From our history of growing sheep, apples, and poultry, West Virginia's agricultural economy has historically brought families and communities together. As times change with technological improvements and access to new markets, we have a chance to work together and take advantage of opportunities to better support our fellow farmers.

During the past couple of years, production of sugar maple, lavender, and hemp have expanded due to new technology. West Virginia's future looks bright with a diversified market basket of locally-grown fresh foods and value-added products. Developing these opportunities will require committed individuals and a strong network of collaborators working together. This plan, **A Shared Agenda for Growing West Virginia's Agricultural Economy**, is a guide to align and organize these efforts.

The plan offers recommendations that were crafted through a lengthy community engagement process. We want to express our gratitude to the many stakeholders and more than 500 people who responded to the survey about opportunities and challenges facing our agricultural economy. We also want to thank the participants and facilitators who took time out of their busy evenings to attend one or more of the 14 community meetings that were held throughout the state. And finally, we want to recognize staff members of the various agencies and organizations who were interviewed and provided invaluable feedback to create this plan. Your support made these recommendations actionable, with greater ability for implementation.

We have great confidence in our ability to work together to put this plan into action. To learn more, please visit www.wvagadvisory.com.

Regards,



Kent Leonhardt
Commissioner, West Virginia Department of Agriculture



Steve Bonanno
Dean, West Virginia University Extension Service

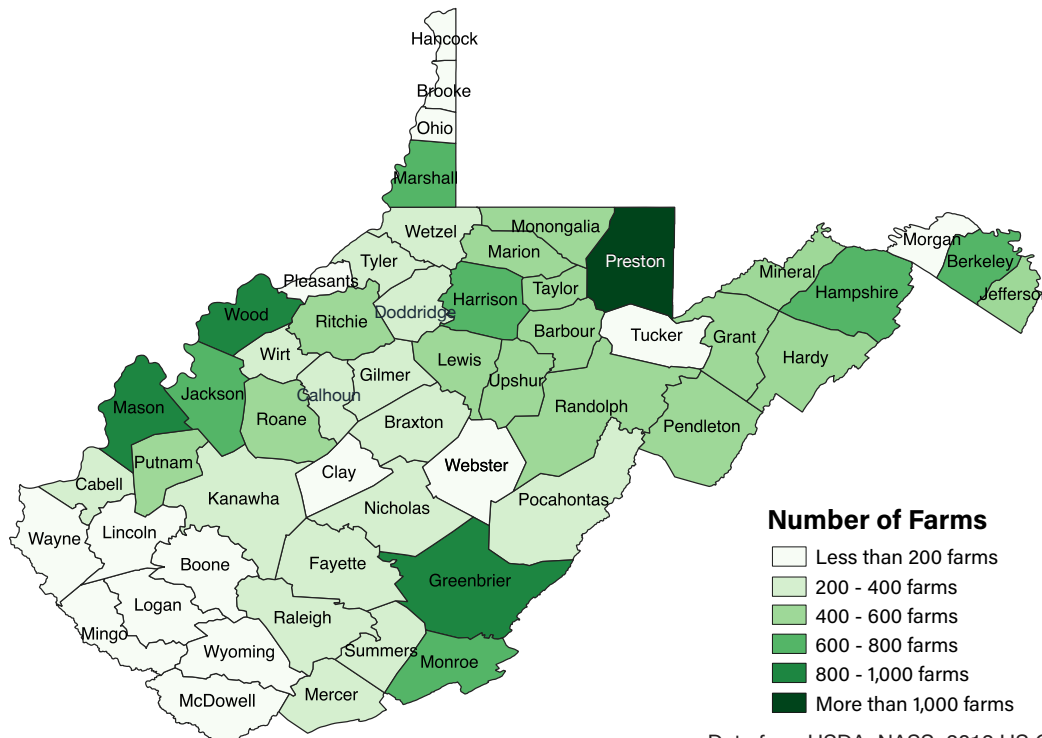


INTRODUCTION

A Shared Agenda for Growing West Virginia's Agricultural Economy is designed to focus the organizations and agencies in the agricultural economy on the same goals and objectives. West Virginia already has a vibrant ecosystem of communities, small farms, and innovative organizations that support the agricultural economy. As agriculture across the United States changes through consolidation, shifts in land use, technological improvements like drones and automation, West Virginia has an opportunity to shape its agricultural economy for the future. The Mountain State's deep communal roots foster self-driven, action-oriented solutions to the everyday challenges facing members of the agricultural community. The strategic actions highlighted in this plan are not soloed efforts but involve all the dedicated organizations serving the agricultural economy. Collectively, they aim to ensure that all of West Virginia benefits economically from the efforts of its hard-working agricultural community.

ABOUT THE AGRICULTURAL ECONOMY IN WEST VIRGINIA

Figure 1. Number of Farms in West Virginia By County

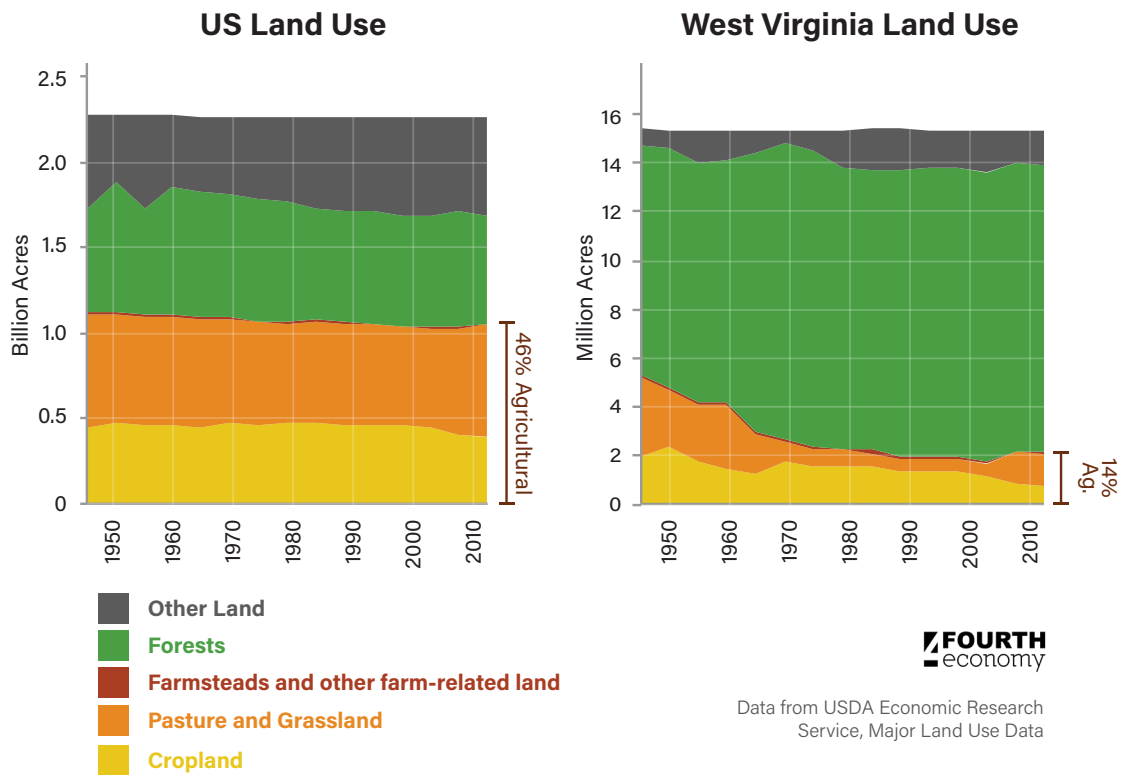


Data from USDA, NASS, 2012 US Census of Agriculture

West Virginia's agricultural economy benefits every part of the state and is characterized by the following summary points:

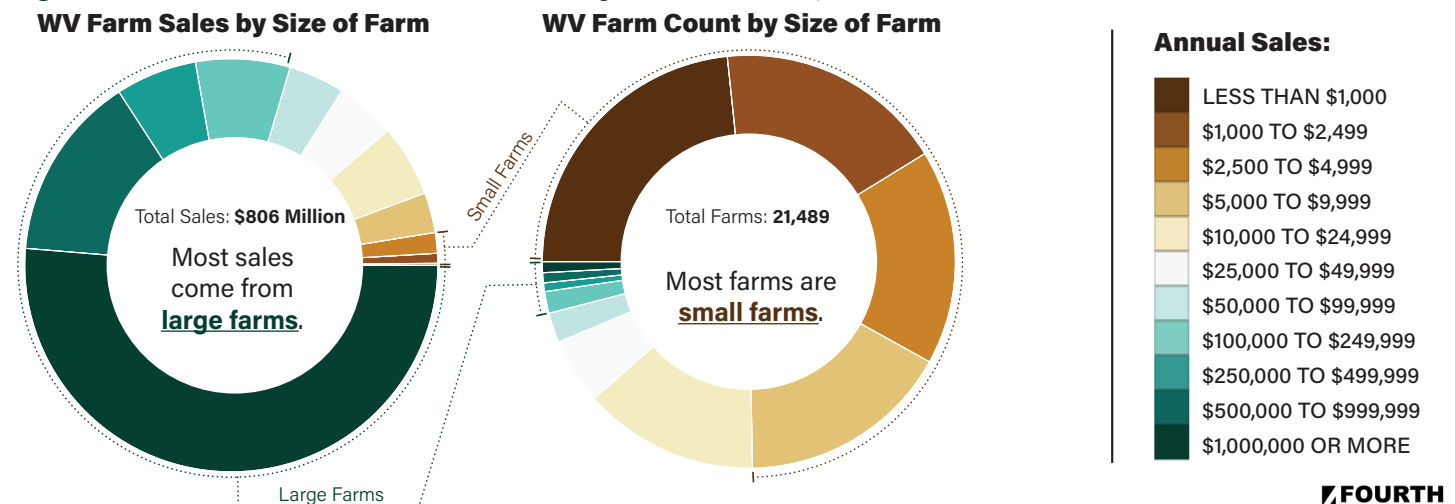
- No one county or region dominates the agricultural system in West Virginia. Farms are distributed throughout the state.
- During the mid-to-late twentieth century, the United States experienced a decline in its number of farms, and West Virginia was no exception. The numbers have now leveled off, with approximately 20,000 farms in the state.
- The average age of all farm operators in West Virginia is 57.2 years (13th oldest of all states), and the average age of principal operators is 59.7 years (10th oldest of all states).
- With 13.9% of West Virginia's land used for either crops or pastures, it is the 9th smallest agricultural state by land coverage. In recent years the state has seen a decrease in available farmland.
- West Virginia has the second lowest average land value for all states east of the Mississippi River, which lowers the land cost barriers to entry for new or expanding farmers.
- More than half the state's agricultural sales are generated by larger farms (those generating \$1,000,000 or more in annual sales), while nearly three quarters of the state's farms are small (less than \$9,999 in annual sales).

Figure 2. Land Use Over Time in the US and West Virginia



- West Virginia has the highest ratio of animal product sales to crop sales than any other state. The state's agricultural economy is comparable to that of Wyoming, Utah, Delaware, Vermont, and Nevada. All of these states are similar in total agricultural sales value and concentration of animal products. As of 2012, 83% of West Virginia's agricultural sales have been concentrated in animal products.
- West Virginia has opportunities in the following emerging sectors: sheep/lamb, honey, wine grapes/wineries, cider, hops, maple sap/syrup, jerky, hemp, medical marijuana, lavender, and ginseng/forest farming. These sectors can help grow the agricultural economy through new markets, new producers, and diversified production methods.

Figure 3. Number of Farms and Sales by Size of Farm, 2012



Data from USDA, NASS, 2012 US Census of Agriculture



OVERVIEW

The strategic planning process identified a number of strategic actions that can be taken to support the agricultural economy. Four thematic goals have been established:

- Connect producers to market opportunities
- Create the infrastructure needed to grow the agricultural economy
- Develop the next generation of agricultural industry leaders
- Enhance access to land

The steering committee carefully vetted the plans and goals recommended to grow the agricultural economy. All were given medium or high priority based on how much it can grow the agricultural economy and the potential impact of state agencies involved. Each of these strategies highlight action steps, allowing working groups or other collaborative efforts to support the execution.

As these strategic actions are carried out, the West Virginia Agricultural Advisory Board will convene and review the status of these recommendations. Depending on the progress or as other opportunities present themselves, these strategic actions can be re-prioritized to better grow the agricultural economy.

The plan recommends that the following goals and strategic actions are advanced to support the growth and security of the agricultural economy in West Virginia. Additional details of each can be found in the full strategic plan.



Connect Producers to Market Opportunities

Connect Agribusiness with Knowledge

While many resources already exist to help producers grow and sell in-demand products, this strategy aims to coordinate and enhance those services by providing market research and business planning around in-demand products, and then helping to connect producers with buyers using online (e.g. a database) and in-person (e.g. a facilitator or broker) tools. This strategy also includes facilitating communication between producers and higher education researchers, as well as the creation of an online WV Agricultural Clearinghouse.



Connect Producers with Each Other

Producers should work together to coordinate distribution of their commodities and other production costs. This strategy aims to make it easier for producers to establish cooperatives and thereby gain more control of the supply chain, lower the costs of production, and increase their profit margins.



Create Agritourism Clusters

Agritourism presents an opportunity for WV producers to grow and diversify their income. In addition to scaling existing business planning and education for producers, this strategy aims to identify geographic clusters of agritourism assets to connect and promote to visitors.



DENOTES HIGH PRIORITY



Create the Infrastructure Needed to Grow the Agricultural Economy



Expand and Support Development of Co-ops for Processing and Selling Products

The lack of access to facilities to process and/or create value-added products has been cited as a barrier to growth across the agricultural economy. Cooperatives can help small producers aggregate their products and sell more easily to buyers. This strategy identifies how ag-serving agencies and institutions can best support the development of new cooperatively owned and managed facilities and organizational structures.

Support Efforts to Expand Broadband Access

While increasing access to reliable, affordable broadband is not something that ag-serving agencies can lead, this strategy identifies the ways to support other efforts in the state and ensure that the agricultural sector is represented.



Develop the Next Generation of Agricultural Industry Leaders



Grow the Next Generation of Producers

4-H and FFA provide youth with opportunities to learn about a career in agriculture. However, classroom-based learning opportunities are limited, as are chances for youth to connect with actual farmers and gain work-based experience. This strategy aims to expose more youth to agricultural careers, both through classroom and experiential learning.

Create an Agriculture Leadership Development Program

As the older generation of leaders leave the workforce, younger members of the agricultural community must learn how to fill these roles. This strategy aims to develop agricultural leaders to become mentors and community leaders.

Enhance Mentorship & Training for New Farmers

One way of growing the agricultural economy is by increasing the number of farmers participating. People interested in farming need proper training and mentorship to have a profitable enterprise. This strategy aims to build the network of beginning farmers in the state as well as better recruitment of new farmers.



Grow the Next Generation of Consumers

Changing the culture of valuing local products starts with young people. There are currently many programs designed to encourage youth to eat healthy. This strategy aims to scale and align those programs and includes a statewide local and healthy eating campaign to further efforts, starting with youth.



Enhance Access to Land



Connect Farmers with Underutilized Land

Navigating the market to identify available land can be a burdensome barrier. This strategy seeks to identify tools to support more farm conservation and an awareness of land that is available.

A photograph of several sheep in a lush green field. Some sheep are looking towards the camera, while others are grazing. The word "CONCLUSION" is overlaid in large, bold, white capital letters on the left side of the image.

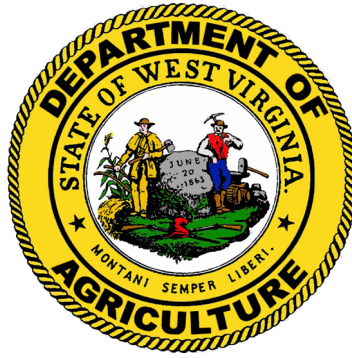
CONCLUSION

We recognize that the strategies presented here will require the commitment of financial resources and human capital to achieve the desired impact.

This strategic plan serves as a living document to guide the work of various participants in West Virginia's agricultural economy. It is recommended that the Agricultural Advisory Board convene stakeholders at least biannually to review progress and identify opportunities for further actions.

The research and stakeholder engagement efforts for this plan concluded at the end of the 2018 calendar year, therefore, new priorities and opportunities arising from the passage of the 2018 Farm Bill may require modifications of this plan.

The full strategic plan can be found at www.wvagadvisory.com, which contains additional details on the agricultural economy and strategies that will be helpful to stakeholders.



A SHARED AGENDA FOR GROWING WEST VIRGINIA'S AGRICULTURAL ECONOMY

STRATEGIC PLAN - FULL REPORT

**WEST VIRGINIA DEPARTMENT OF AGRICULTURE
WEST VIRGINIA UNIVERSITY EXTENSION SERVICE**



www.fourtheconomy.com

Overview of West Virginia Agricultural Economy

Agricultural Sector Analysis

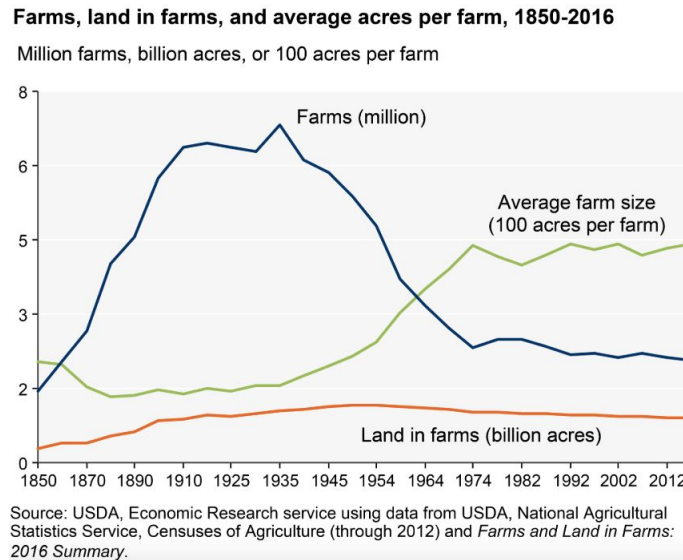
Before beginning any strategic planning project, it is important to critically review the current conditions in a region, system, or organization—to consider its strengths and weaknesses and understand how it compares to its peers. The larger and more dynamic the subject being studied, the more critical these foundational questions become to developing a successful strategy. This plan will, therefore, begin by considering how the West Virginia agricultural system compares to those of other states, and what the main components of the system are. Using that baseline, it can determine how key future trends are likely to affect the state, and explore the potential of several specific opportunity areas.

In addition to the analysis of data, other strategic plans, and additional information, this analysis of the agricultural economy also includes some of the results from the “Growing West Virginia’s Agricultural Economy” Survey from Fall 2018.

In Context: US Agriculture in the Last Century

Since the mid-19th century, three trends broadly explain changes in US agriculture. First, the number of farms grew rapidly as the US expanded in land and population in the decades following the Civil War, and peaked during the decades preceding the Great Depression. Second, during this period of growth, the amount of land dedicated to agriculture also grew rapidly, roughly tripling in the hundred years preceding 1950. Third, after World War II the number of farms began decreasing rapidly and the average size of farms grew, even as the amount of land dedicated to farming remained stagnant (especially in states with large-scale commercial agricultural operations). Today, there are approximately 2.1 million farms in the US, which occupy over a billion acres of land.

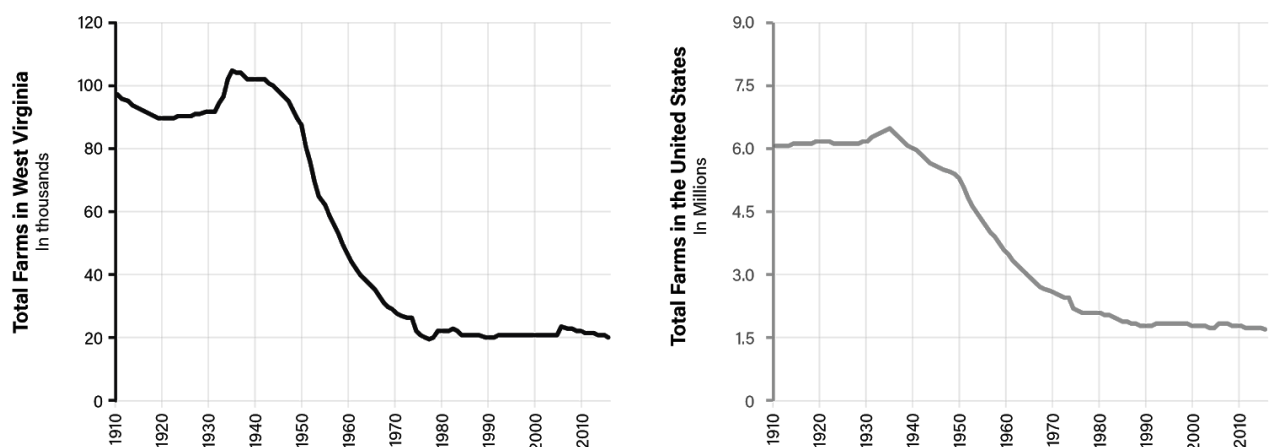
Figure 1. Farms and Farm Land over Time in the US



Number of Farms

The timeline of West Virginia's agricultural development can be roughly compared to that of the US at large. The figure below shows the change in the number of farms over the last century in West Virginia and in the US (on two separate y-axes). West Virginia's decline has been almost identical in terms of percentage lost from its mid-century high. Before World War II, the state had more than 104,000 farms. **By the late 1970s it had 20,000, and farm numbers have been mostly level since that time.**

Figure 2. Total Farms in West Virginia and US

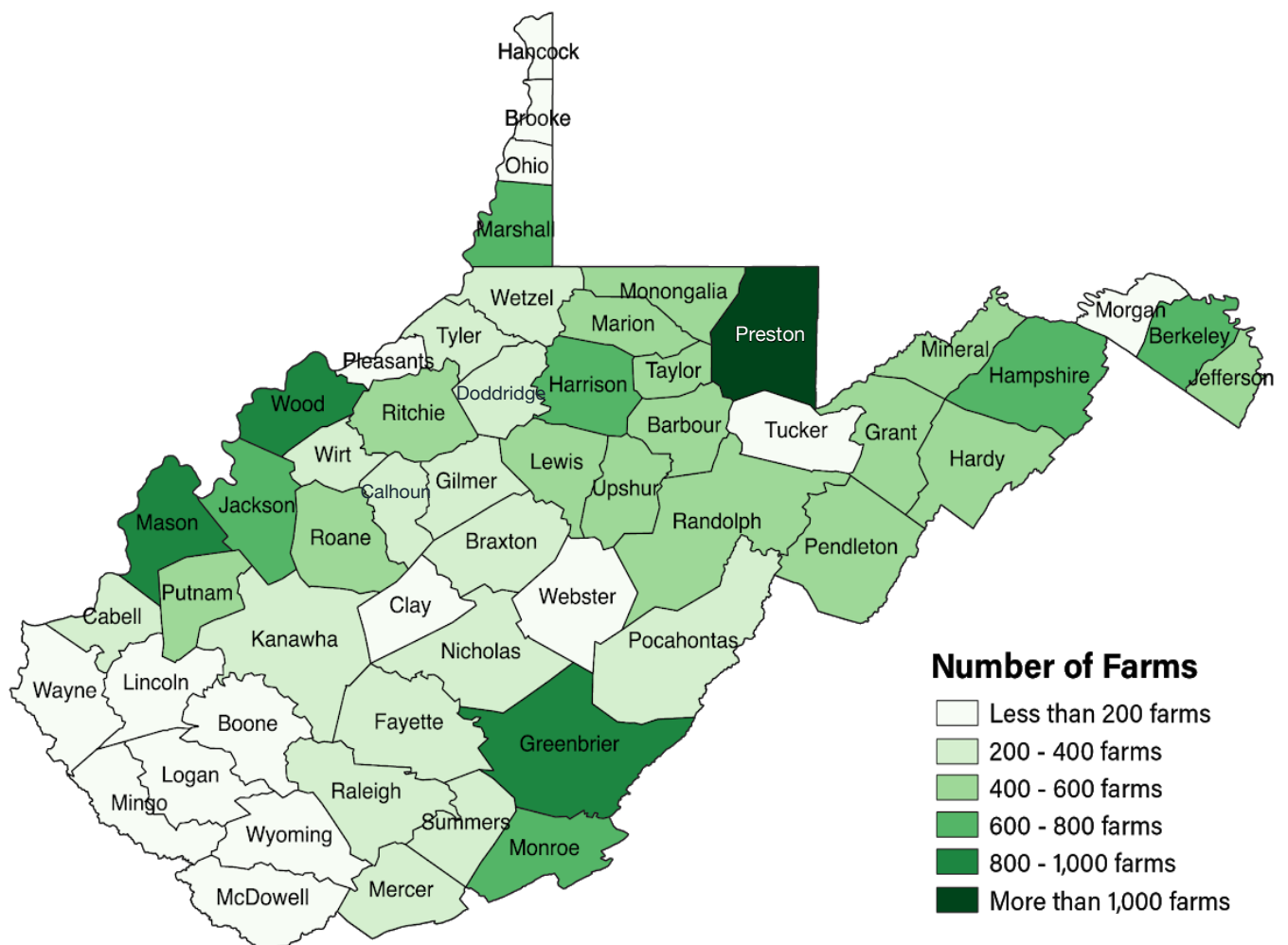


Data from USDA Economic Research Service

Total Number of Farms by County

The agricultural industry in West Virginia is distributed throughout the state. Most counties have between 200 and 600 farms. Four counties (Mason and Wood in the west, Preston in the north, and Greenbrier in the southeast) have particularly concentrated farming activity, with more than 800 farms each. Several counties in the southwest, an area with a high concentration of coal mining activity, have relatively little agricultural activity; but on the whole, the state has a geographically diverse agriculture system, as shown by the map below.

Figure 3. Number of Farms by County



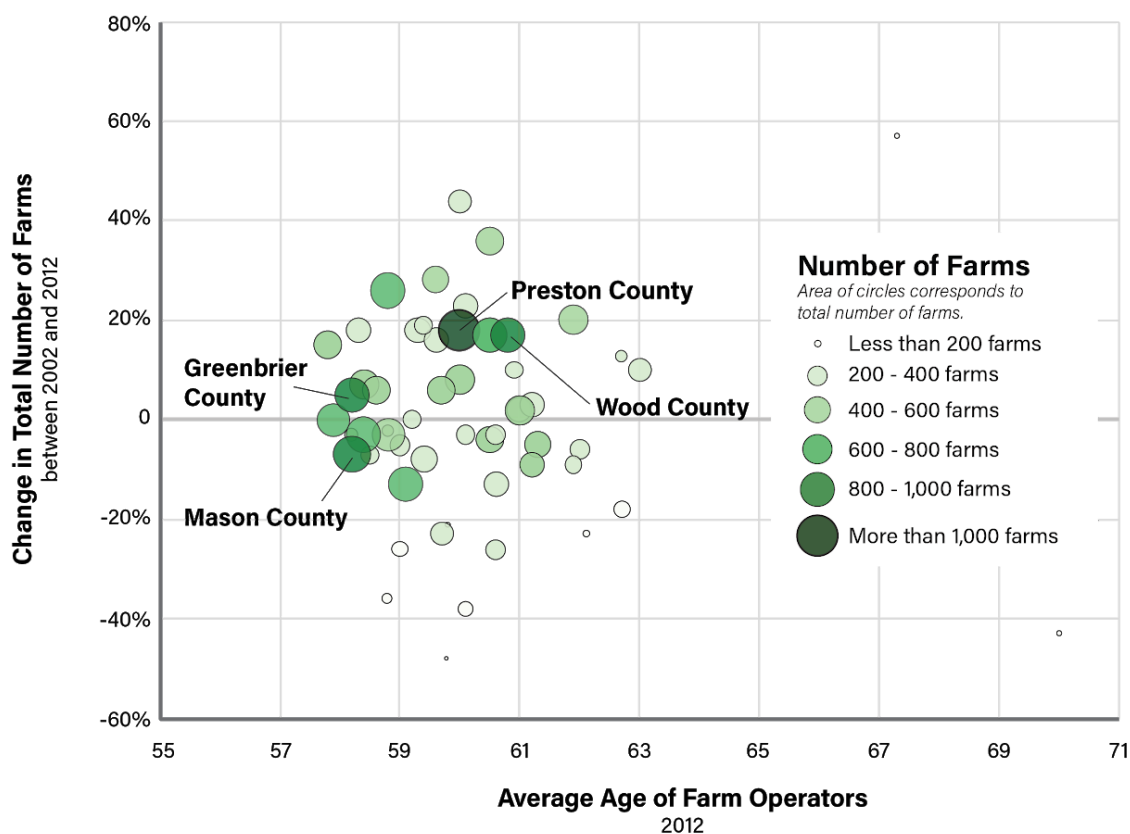
Data from USDA, NASS, 2012 US Census of Agriculture

County Level Farm Trends

Agricultural activity in West Virginia has been somewhat static for several years. In the last decade the number of farms has not changed significantly. However, **farming activity within specific counties has fluctuated.** Some counties have grown, and others have decreased. The vertical axis on the graphic below captures the change in total farms between the 2002 and 2012 Agricultural Censuses for each county. (The higher a county appears on the graphic, the more it grew in terms of number of farms during that period.)

That fluctuation is not true for the demographics of the operators of those farms. **In every county in the state, the average age of the principal operators of farms is over 57 years.** Furthermore, in each of the 55 counties, the average age of farmers increased in the decade preceding the 2012 agricultural census. In other words, everywhere in the state, farmers are much older than the rest of the workforce,¹ and have gotten older in recent years.

Figure 4. Change in Number of Farms by County



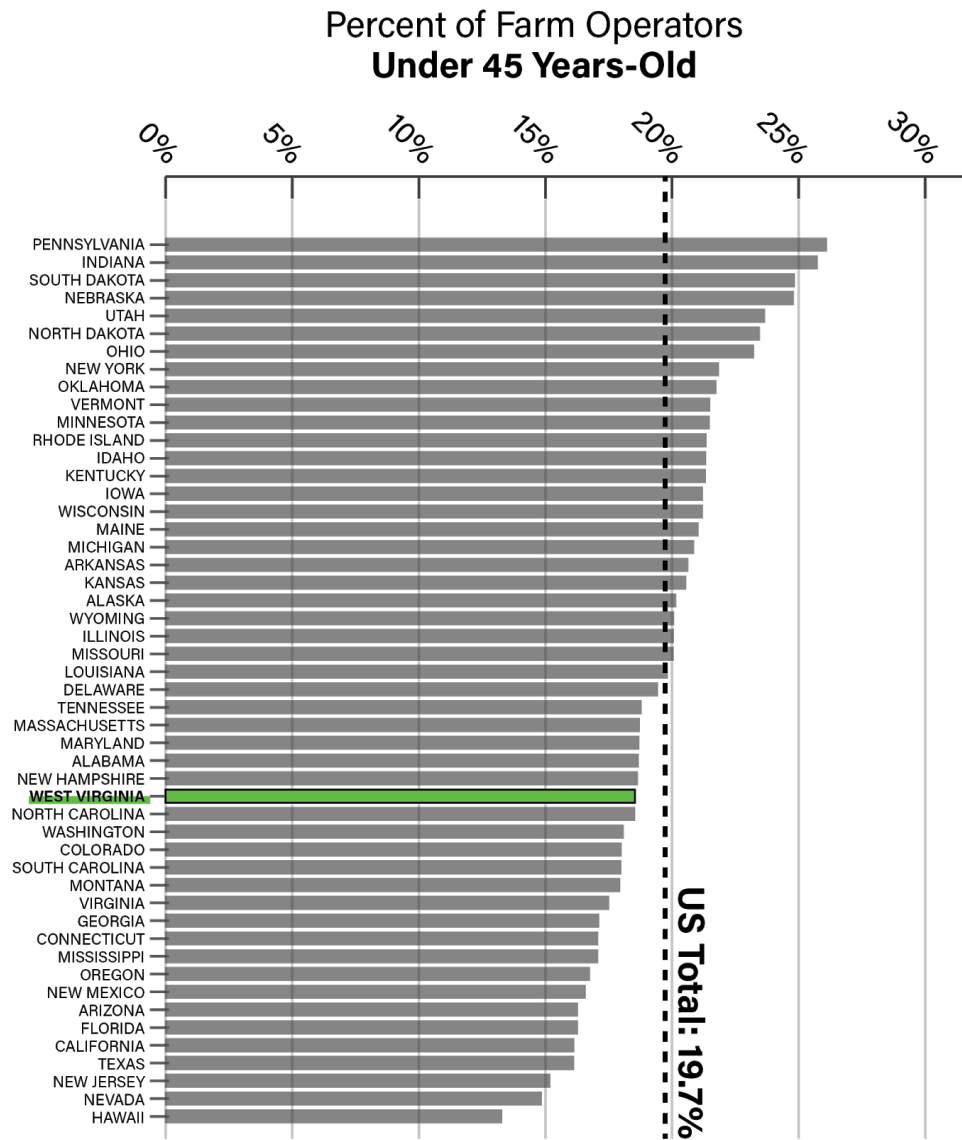
Data from USDA, NASS, 2012 US Census of Agriculture

¹ <https://www.bls.gov/cps/cpsaat11b.htm>

Difficulties in Growing New Farmers

Many industries across the country are facing a demographic challenge in the form of an **aging workforce**, but the issue is particularly pronounced in agriculture. In 2012—the year of the most recent agricultural census—only one in five US farm operators (19.7%) were under the age of 45. In West Virginia, the number is slightly more pronounced, with less than 17% of farmers under the age of 45. Furthermore—and also similar to the US at large—only 5% of West Virginia’s farm operators were under the age of 35 in 2012. **Overall, the average age of all farm operators in West Virginia is 57.2 years (13th oldest of all states), and the average age of principal operators is 59.7 years (10th oldest of all states).**

Figure 5. Percent of All Farm Operators under 45 years, 2012 Agricultural Census

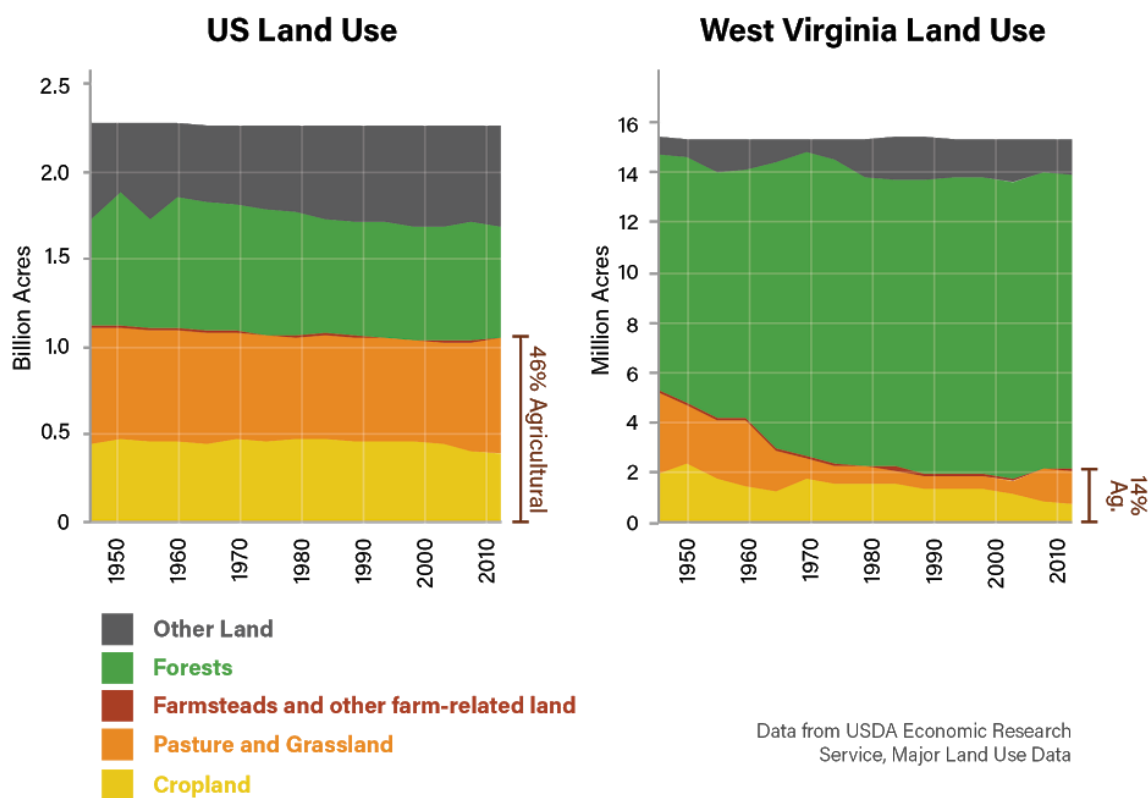


Agricultural Land

Agriculture, broadly speaking, accounts for the largest use of land in the United States, with cropland and pasture land together covering about 46.3% of the country. However, much of this is driven by land west of the Mississippi River, including both the large pastures and grazing lands of western states and the large field crop operations of the Midwest and Plains states. Eastern states have far more land dedicated to forests, human development, and other uses.

West Virginia is 76.6% covered by forest and 13.9% used for either crops or pastures, making it around the ninth-least agricultural state by land coverage.² But this was not the case half a century ago when 34% of the state's land was agricultural. While West Virginia has mirrored the national decline in its number of farms since World War II, West Virginia's **significant loss of agricultural land** has sharply differed from the US's steady consistency over the last 50 years.

Figure 6. Land Use over Time in US and West Virginia

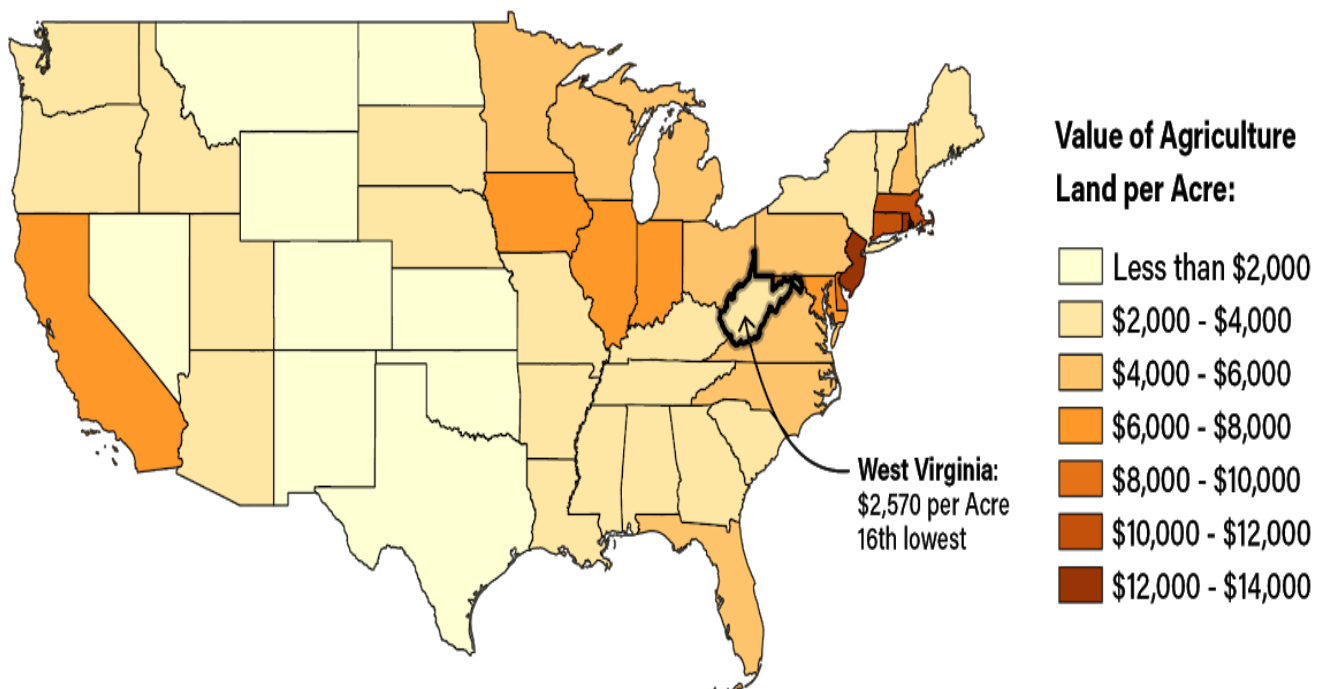


² On this point, as well as others to come, the states most similar to West Virginia are found in the Northeast. Indeed, with the exception of Alaska, the seven states with less agricultural land coverage are all northeastern states with either significant forest land, significant urban land, or both.

Value of Agricultural Land

West Virginia's **agricultural land has relatively low value**, with an average of \$2,750 per acre. This ranks 16th lowest of all states, but most of the other low-value states are western states where ranch and pasture land (which tends to have much lower value per area than cropland) is prominent. West Virginia is the second lowest in average value of agricultural land, behind Maine, for all states east of the Mississippi River.

Figure 7. Map of US States by Value of Agricultural Land

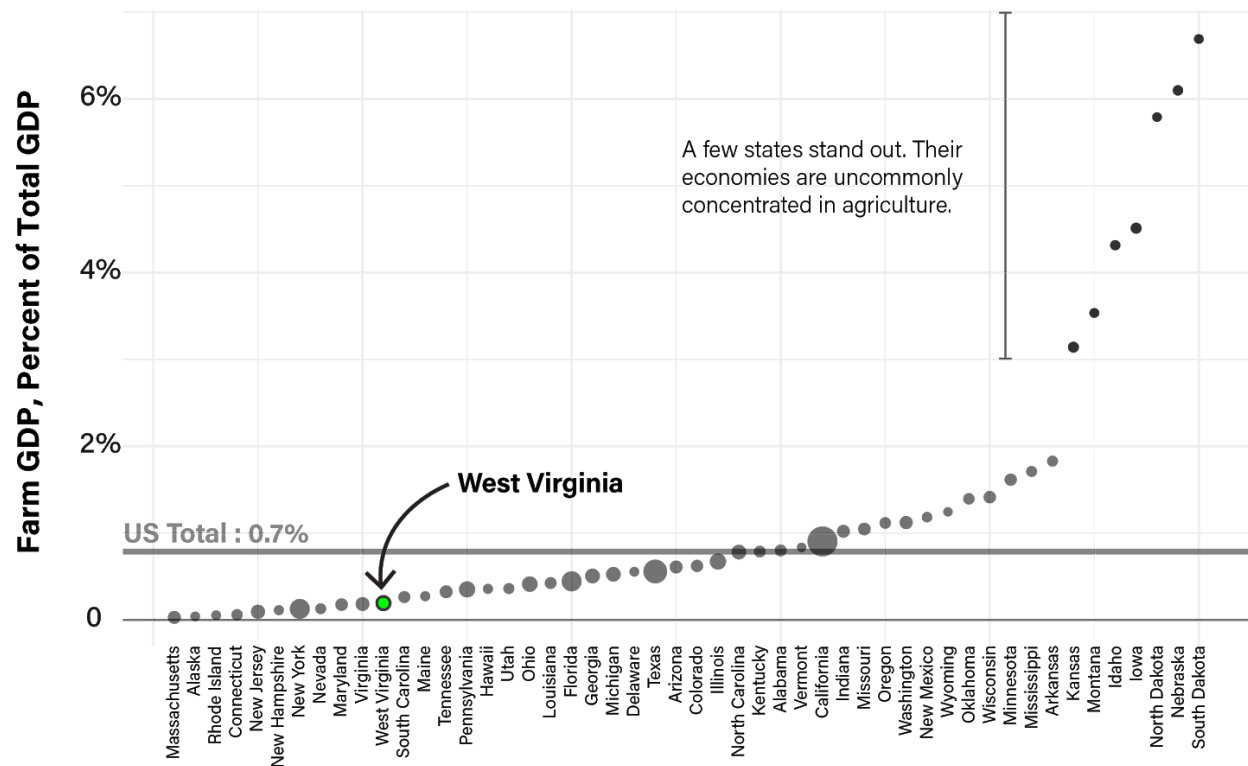


Data from USDA Economic Research Service

The Scale of the Agricultural Economy

Economic statistics are often captured out of context, where they have little useful value. In order to evaluate the economic significance of agriculture in West Virginia, we must consider two points: how significant the agriculture sector is within the overall economy of the state, and how it compares to other states. The chart below shows the percent of total Gross Domestic Product (economic output) that is accounted for by the farm GDP in each of the 50 states. In West Virginia, farm output is 0.2% of total economic output, which places West Virginia below average. A few western, rural states have uncommonly significant agricultural economies, as shown below. Most states, including West Virginia, have less than 2% of total economic output coming from farms.

Figure 8. Farm GDP as a Percent of Total GDP by State, 2016



Data from US Bureau of Economic Analysis

Farm Size

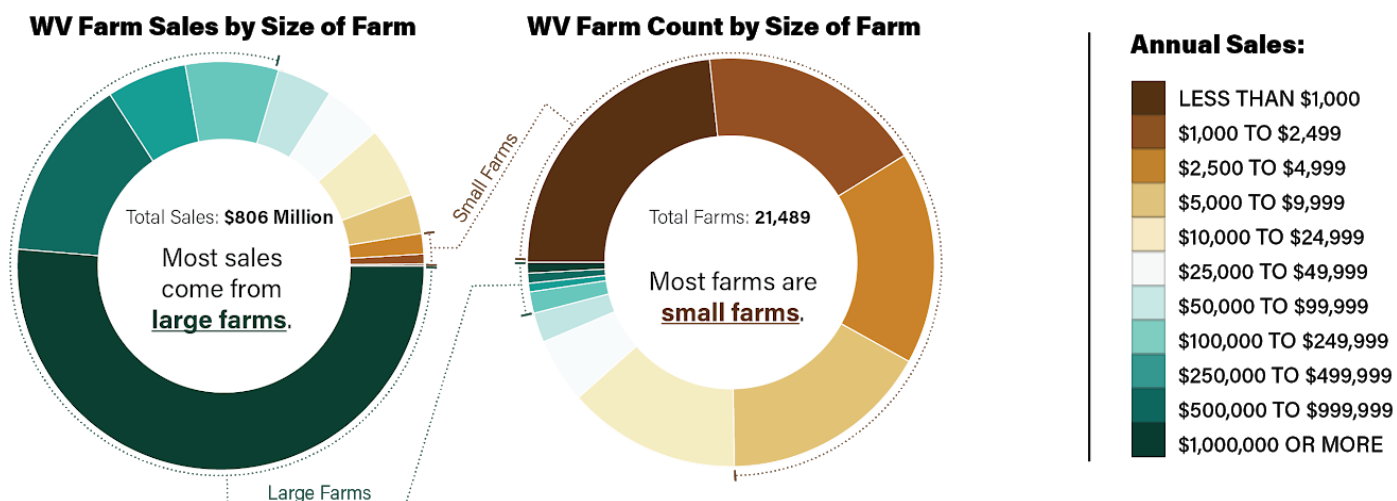
The average farm in West Virginia is 176 acres, with West Virginia ranking 13th smallest of the 50 states. States with large grazing areas or large commercial farms tend to have much larger average farm sizes. However, the physical size of a farm is only one measure of agricultural scale, and often a misleading one. Another key indicator is economic output, and for a variety of reasons

(commodities, land costs, etc.), average farm size and average output are *not* strongly correlated.

In terms of economic output, the average farm in West Virginia produces about \$38,000 in annual sales. That is the lowest average output for farms in any other state.

These averages, however, do not adequately reflect distribution. Most farms in West Virginia are relatively small. **Three in four West Virginia farms sell less than \$10,000 annually.** West Virginia has the third-highest rate of farms with less than \$10,000 in sales in the country, behind Arizona and New Mexico; nevertheless, a few large, commercial farms still account for most of the economic output. This is generally true across the country, but it is particularly pronounced in West Virginia, given its concentration of small farms.

Figure 9. Number of Farms and Sales by Size of Farm, 2012



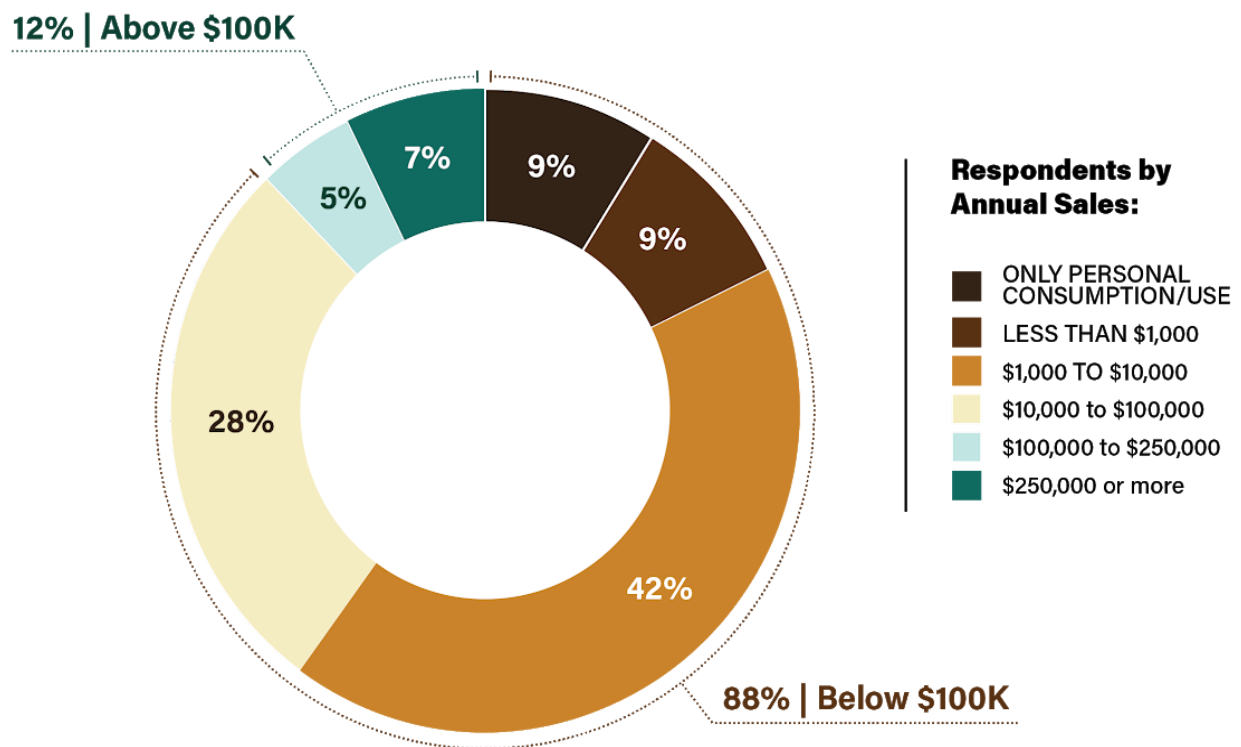
Data from USDA, NASS, 2012 US Census of Agriculture

Farm Size Among 2018 Survey Respondents

The Steering Committee secured Fourth Economy to support the development of this strategic plan. As part of this initial community engagement, the Growing West Virginia's Agricultural Economy Survey was conducted statewide during August 2018. The survey had over 500 respondents, all connected to the agricultural sector.

Results from the 2018 Growing West Virginia's Agricultural Economy Survey generally reflect the prominence of small farms in West Virginia. More than half of our survey respondents identified as having a business with gross annual sales of \$10,000 or less. This suggests that the respondents to the survey were roughly representative of the 20,000-producer agricultural system in the state.

Figure 10. Size of Farms of Survey Respondents, 2018

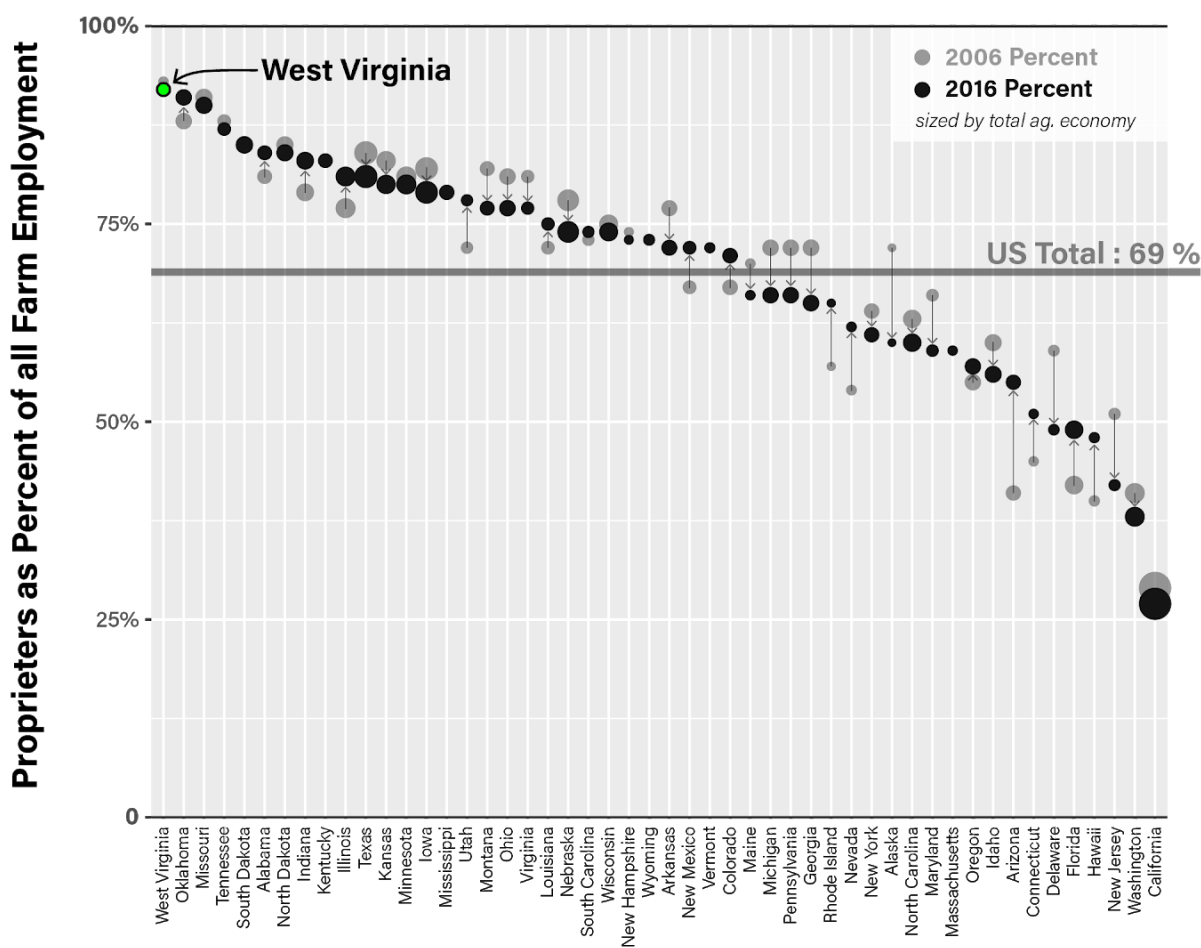


Data from Growing West Virginia's Agricultural Economy Survey

Ownership

In the agricultural sector, much of the labor/workforce are seasonal employees, but for many farmers, agriculture is a primary job. Over 800,000 people are employed *throughout the year* in agricultural businesses in the US. Some of these non-seasonal laborers are farm owners or proprietors and others are employees. **In West Virginia, more than in any other state, the non-seasonal agricultural labor force is comprised of farm proprietors.** This is largely related to West Virginia's concentration of small farms.

Figure 11. Proprietors as Percent of Non-Seasonal Farm Employment, 2016³



Data from US Bureau of Economic Analysis

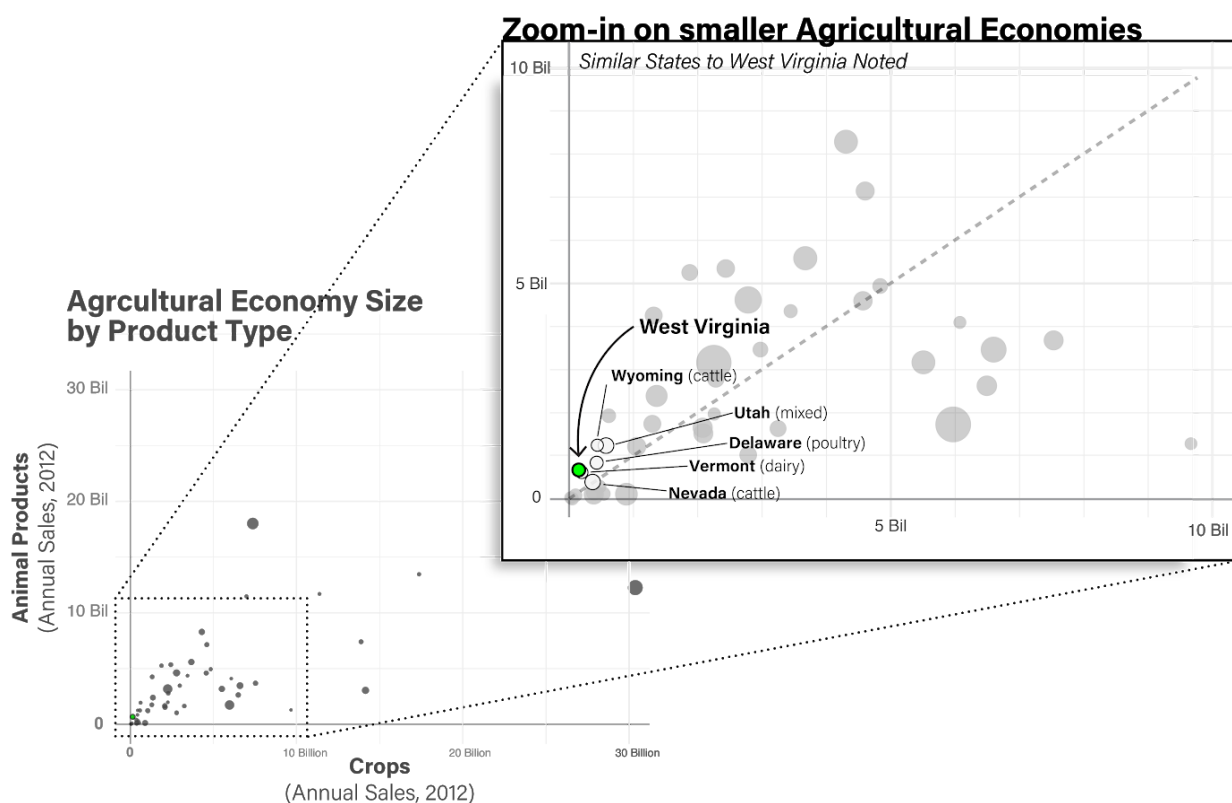
³ Farm employment, according to the BEA's definition, refers to people employed by a farm 150 days or more in a year. It therefore does not generally include what might be termed "seasonal labor."

Primary Commodity Groups

West Virginia has a relatively small agricultural economy, with approximately \$800 million in sales annually. Interestingly, those sales are far more concentrated in animal products than crops. In fact, West Virginia's ratio of five dollars in animal product sales to every one dollar in crop sales is the **highest ratio of animal product sales of any other state**. Other states with relatively similar agricultural economies (in the sense that they are similar in size and also concentrated in animal products) are noted below. These include Wyoming, Utah, Delaware, Vermont, and Nevada.

Figure 12. State Agricultural Economies by Sales and Product Type

Note: States that appear in the upper left of the diagonal dashed line have more animal product sales than crop sales and visa versa.

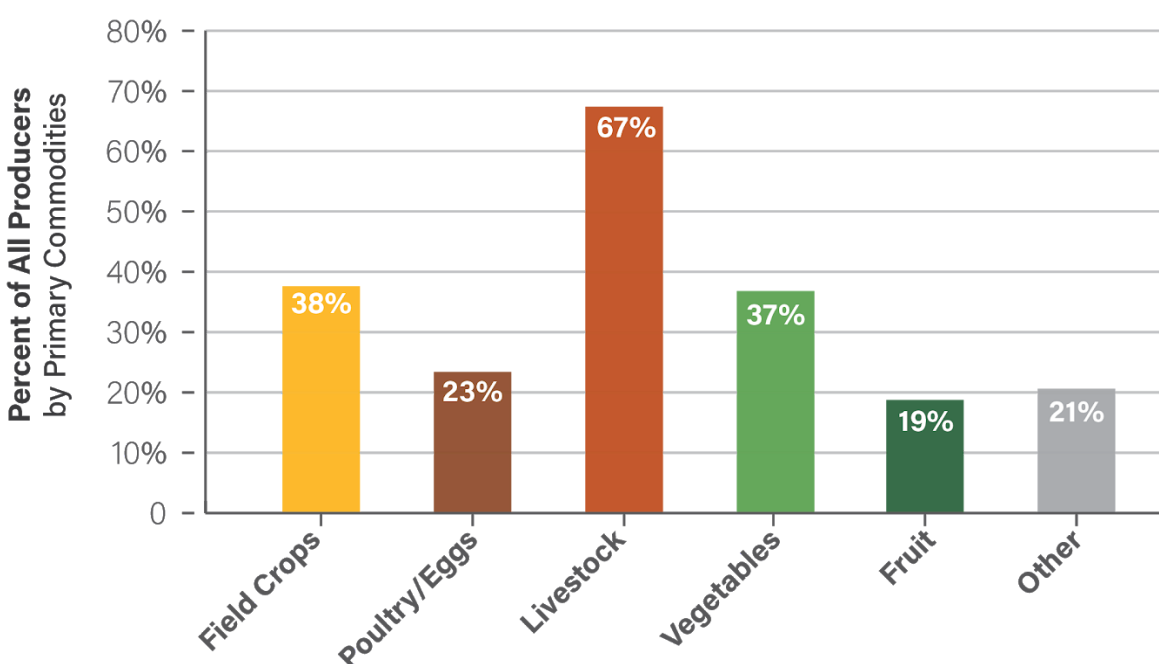


Data from USDA, NASS, 2012 US Census of Agriculture

Primary Commodity Types from Survey

Responses from the Growing West Virginia's Agricultural Economy Survey also reflect an emphasis on animal products, with the most significant representation of farmers in livestock. Roughly 67% of respondents identified producing livestock or livestock-related products among their primary commodities. Poultry and related products represent a relatively small percentage of respondents—one in four among farmer respondents—despite being the most significant commodity by sales value in the state. This is to be expected, however, because poultry producers tend to have large operations.

Figure 13. Primary Crops, Percentage of Producer Respondents



Data from Growing West Virginia's Agricultural Economy Survey

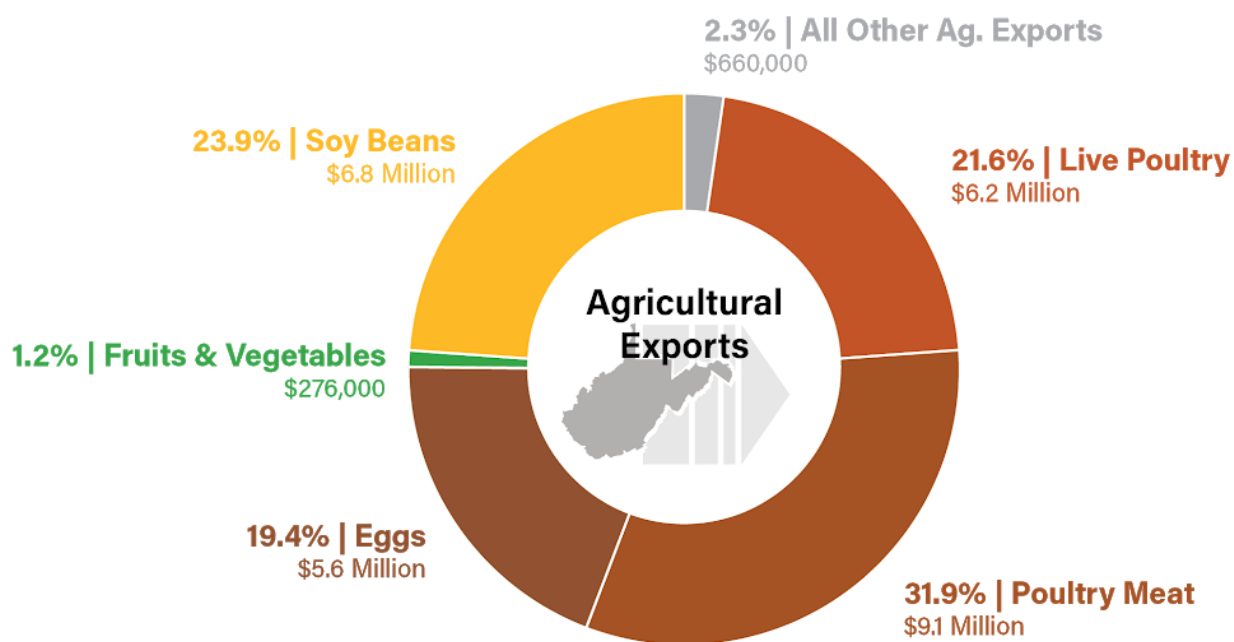
On this question, respondents were able to select all that apply. So a farmer might have reported producing both livestock and vegetables, for example. One of the most interesting takeaways is that most respondents who produce one of these primary crops also produce at least one other—and many produce several. So it is insufficient to think of farmers, at least in most cases, as belonging squarely in one category or another. While the survey is a small sample size, this does speak to the diverse nature of West Virginia's agriculture.

International Trade

In 2017, agricultural and livestock products accounted for \$28 million in agricultural exports from West Virginia. This is 0.3% of the state's total export value (\$7.1 billion across all industries).⁴ This is far lower than the percentage of overall US exports in agriculture (about 8% of total US exports or approximately \$120 billion.)

The agricultural commodities that West Virginia does export are extremely concentrated in two areas—poultry and its products and soybeans. Poultry and poultry products (including eggs) make up over two-thirds of exports by value, with \$20 million in exports in 2017. Soybeans account for an additional \$6.8 million or about one-third. No other agriculture or livestock product accounts for a significant amount of export value.

Figure 14. West Virginia Agricultural Exports, 2017



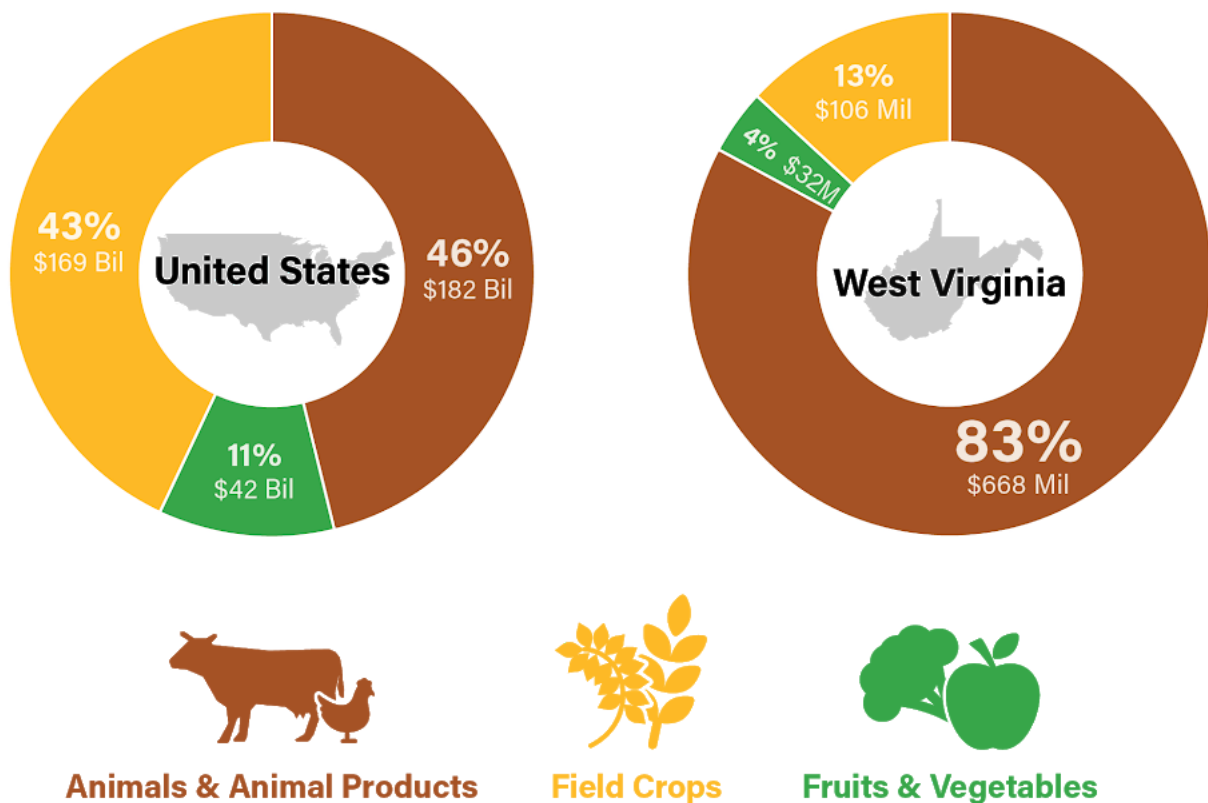
Data from USDA Economic Research Service

⁴ West Virginia's most significant commodity in terms of export value is coal, by a significant margin. Chemical/polymer manufacturers and transportation equipment suppliers are the next most significant exporters.

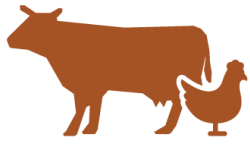
Primary Commodity Groups

The agricultural economy in the United States can be separated into three types of primary commodities: animal products, field crops, and fruits and vegetables. We will use these three categories to consider how agricultural activity in West Virginia compares to the US, and how agricultural activity is distributed within the state.

Figure 15. Agricultural Sales by Major Commodity Groups, 2012



Data from USDA, NASS, 2012 US Census of Agriculture



Animal Products

More than half (56%) of West Virginia's animals and animal products are produced in Hardy, Pendleton, and Greenbrier counties. All three have seen increases in production in the last decade. Hardy and Pendleton are driven almost entirely by poultry, which is most significant in the northeastern part of the state. Across the state, poultry makes up 60% of all animal and animal product sales. Cattle (not including milk) accounts for an additional 33%.

Figure 16. Animal Product Sales by County

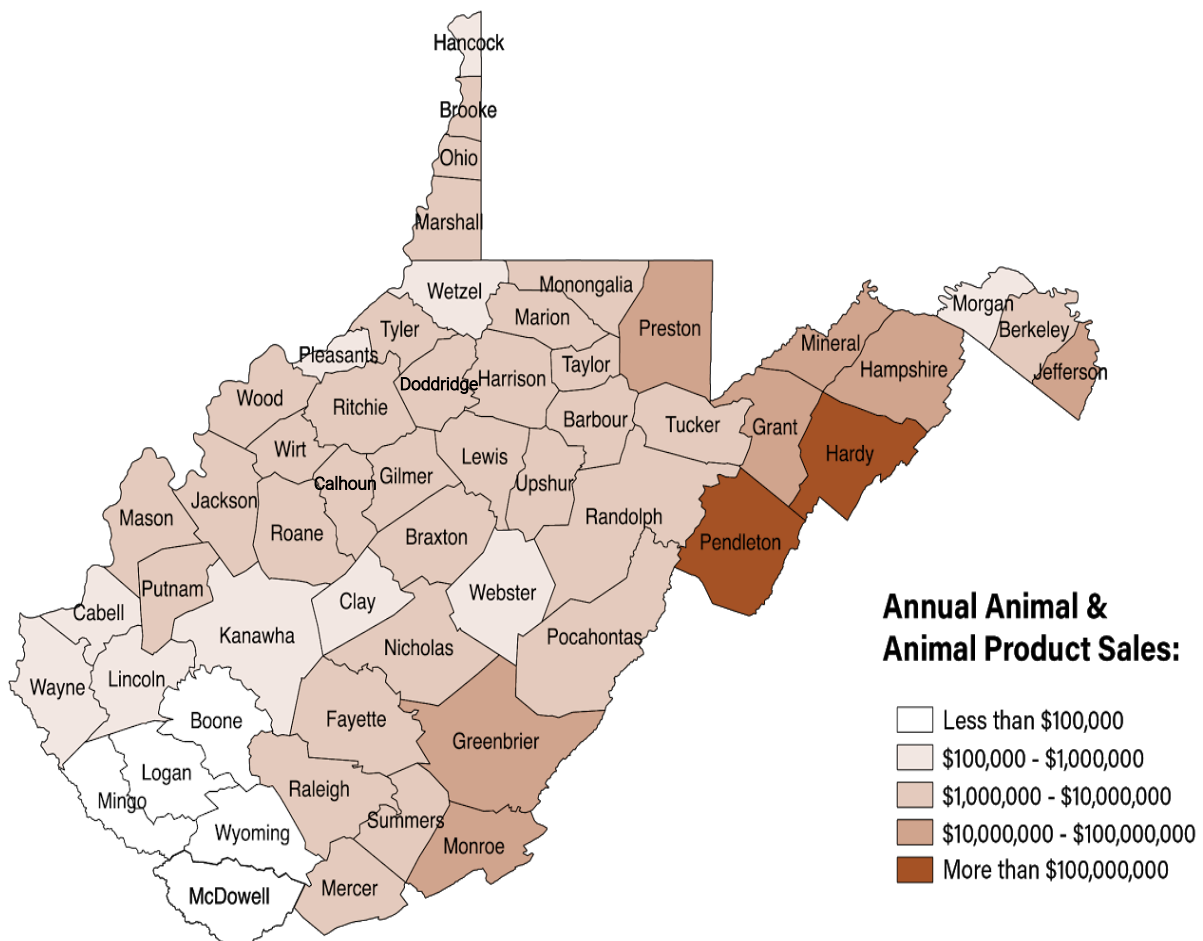




Figure 17. Field Crop Sales by County

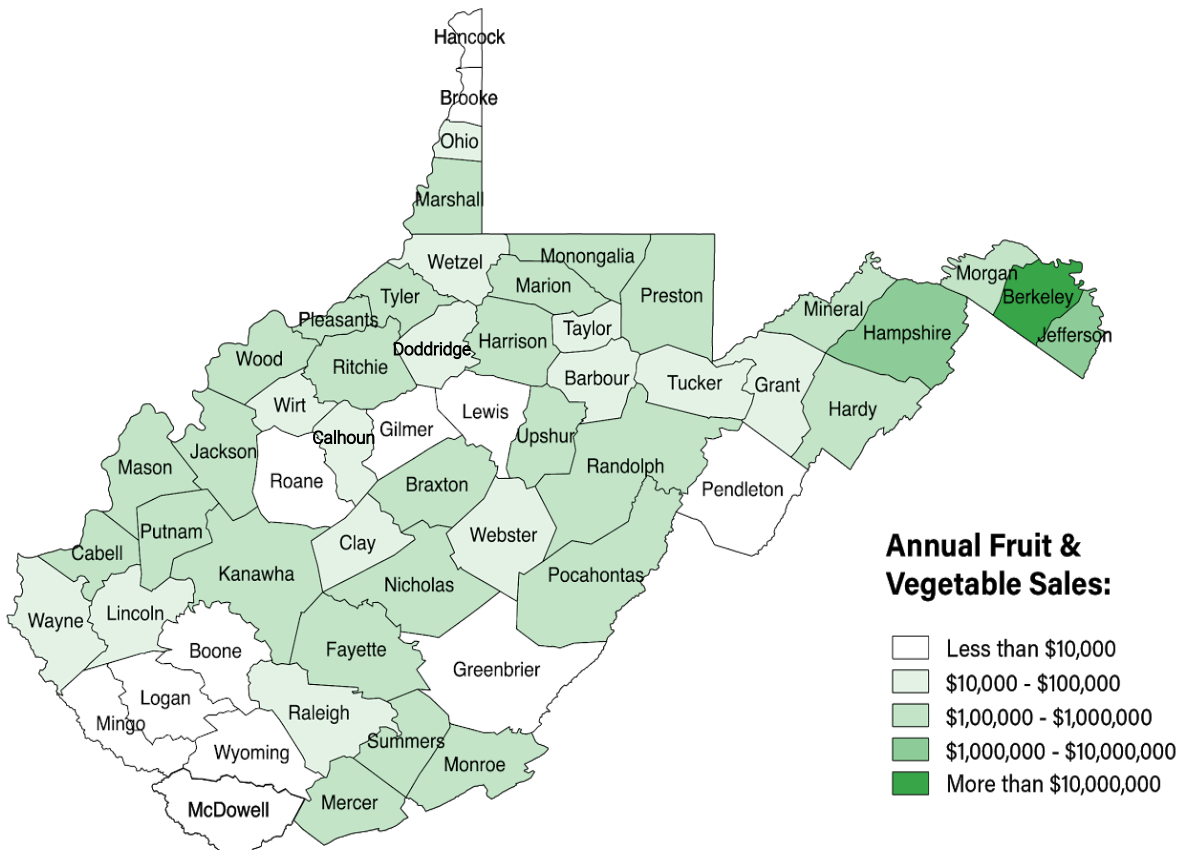




Fruits and Vegetables

Berkeley County alone produces 57% of statewide fruit and vegetable sales, driven mostly by fruit. Hampshire and Jefferson produce 16% and 6%, respectively. No other county has more than 2% of statewide sales in fruits and vegetables. Across the state, 80% of fruit and vegetable production is fruit, with apples and peaches accounting for most of it.

Figure 18. Fruit and Vegetable Sales by County



Emerging Sectors

Sheep and Lamb

Despite a declining long-term trend in lamb and sheep consumption and production in the United States, especially on the East Coast, urban and ethnic markets offer substantial market opportunities. Imports of lamb account for nearly 50% of all US lamb consumption, indicating an opportunity to supplant imports with domestic production.⁵ In the US, Hispanic and Muslim consumers with specific dietary requirements are two of the largest consumer groups of lamb in the United States.⁶ Based on these market opportunities, the American Lamb Board has created marketing guidelines to help sheep and lamb producers appropriately sell their products.⁷

In 2017, the Fayette County (Pennsylvania) Community Action Agency, with \$1.75 million in grant funding from the Appalachian Regional Commission, spearheaded a \$3.5 million program to support a 38-county regional foodshed emphasizing local livestock cultivation in West Virginia, Pennsylvania, and Maryland.⁸ Pittsburgh held its inaugural lamb festival in August 2017, supporting the increase in demand for lamb in the area.⁹ This presents a major opportunity for West Virginia's lamb and sheep production legacy.

Honey

In 2017, the United States produced 148 million pounds of honey. West Virginia totaled 240,000 pounds of honey in 2017, an increase of 80,000 pounds from the previous year.¹⁰

Honey has become a staple of the local food movement because its distinctive taste is based on its origin. The focus on local foods and the role of restaurants in tourism have supported growth in the honey market. In addition, as health food trends supporting natural sweeteners have become more popular, the "pure" nature of honey has made it more of a mainstay in the sweetener market.¹¹ Groups like the Appalachian Beekeeping Collective, which train new beekeepers to become entrepreneurs, have been useful in getting coal miners back to work in a

⁵ <https://www.agmrc.org/commodities-products/livestock/lamb/international-lamb-profile>

⁶ <https://www.slideshare.net/schoenian/ethnic-marketing-of-lamb-and-mutton>, "Ethnic marketing of lamb and mutton," Susan Schoenian, University of Maryland Extension

⁷ <https://www.npr.org/sections/thesalt/2015/05/12/405952819/lamb-s-revival-rests-with-america-s-growing-muslim-markets>

⁸

<https://www.usnews.com/news/best-states/pennsylvania/articles/2017-09-02/what-does-it-take-to-grow-a-sheep-herd-in-coal-country>

<https://www.usnews.com/news/best-states/pennsylvania/articles/2017-09-02/what-does-it-take-to-grow-a-sheep-herd-in-coal-country>

¹⁰ https://www.nass.usda.gov/Statistics_by_State/West_Virginia/Publications/Current_News_Release/honey0318.pdf. This information only represents the reported production. There might be more produced in the state that is not reported.

¹¹ <https://www.foodbusinessnews.net/articles/6967-slideshow-the-sweetness-and-functionality-of-honey>

new field.¹² The state could invest in programs such as this to support an increase in production of honey.

Wine Grapes and Wineries

According to the 2018 State of the Wine Industry report, the increased prices at tasting rooms over the past few years in high-profile places like Northern California has led to tourists seeking out other wineries and locations. While places like Napa and Sonoma counties have seen a small decline in visitation, wineries in Oregon and surrounding states have reported an increase.¹³ At the same time, wineries on the East Coast have become more prevalent too. In the past five years, Virginia had an 82% increase in their wine industry and \$1.37 billion contributed toward their state economy.¹⁴ There was also a 35% increase in wineries, growing from 193 to 261 and a 39% increase in visits to wineries.¹⁵ Furthermore, most consumption of Virginia wines comes from visits to these local wineries.¹⁶

There are currently 17 wineries in West Virginia with “Wine and Spirits Trails” marketed by the WV Tourism Office under the WV Department of Commerce. Given the dominance of other states in the production of wine (California produces 88% of all the wine made in the United States), West Virginia will not likely be able to compete with production or larger market sales. However, wineries can be a link to stimulating a greater agritourism.¹⁷

Cider

Hard cider has become an appealing value-added product in strong apple markets.¹⁸ The United States Association of Cider Makers dubbed 2017 “The Year of Regional Cider” based on the increase in sales and popularity of local and regional hard ciders. As national brands faced decline, smaller hard cider producers saw increases in revenue and distribution.¹⁹ Hard cider has jumped to 0.4% of the overall alcohol beverage market, compared with 0.06% of the market fifteen years ago,²⁰ and is poised to keep growing as younger generations come to develop an appreciation for hard cider. Virginia and North Carolina saw an increase in their market share of cider as well as the number of cider breweries, making them more attractive locations to visit.

12

<https://www.npr.org/sections/thesalt/2019/01/28/685878133/out-of-work-appalachian-coal-miners-train-as-beekeepers-to-earn-extra-cash>

¹³ https://www.svb.com/uploadedFiles/Content/Trends_and_Insights/Reports/Wine_Report/SVB-2018-wine-report.pdf

¹⁴ <http://wineriesandvineyards.com/wine-news/growth-virginias-wine-industry-skyrocketing/>

¹⁵ <https://rapnews.com/2017/02/05/tourists-now-flocking-by-the-millions-to-virginias-wineries/>

¹⁶

https://www.washingtonpost.com/business/capitalbusiness/as-wine-sales-hit-record-highs-virginia-wineries-race-to-keep-up/2016/09/23/acbaadb6-750e-11e6-be4f-3f42f2e5a49e_story.html?noredirect=on&utm_term=.36c448601182

¹⁷ <https://www.ifama.org/resources/Documents/v16i1/Maumbe-Brown.pdf>

¹⁸ <https://extension.psu.edu/mid-atlantic-hard-cider-consumer-and-producer-trends>

¹⁹ <http://cidercraftmag.com/2017/11/22/cider-association-names-2017-year-regional-cider/>

²⁰ <http://www.growingproduce.com/fruits/untapped-potential-in-beverage-market/>

In fact, Virginia now has about 24 cideries.²¹

West Virginia has a history of hard cider production, especially throughout Prohibition. However, due to licensing difficulties, it was not until the 2010s that cider breweries popped up.²² Given the surplus in apple production and the strength of apples in the state, hard cider could become a major area of investment for the agricultural industry.

Hops

As the interest and market for craft brewing has increased, so has the demand for hops. In 2016, the United States was the top producer of hops, overtaking Germany.²³ Much of this increase in production was due to the growing number of craft breweries. The saturation of hop production on the West Coast and the number of local East Coast breweries presents an opportunity for the Ohio Valley to become a large producer of hops. In fact, West Virginia's climate and global latitude (ideal hop production is between the 35 and 55 parallel) would support greater investment in this area.

West Virginia had 26 local breweries as of 2017, a 166% increase from 2013.²⁴ While hops grown in the state are primarily being used for local craft beers, there is a growing demand for hops in the region.²⁵

Maple Sap and Syrup

The United States produced 4.16 million gallons of maple syrup during the 2018 harvest.²⁶ This does not reflect industry potential as it was a weather-related, poor production year. According to the USDA, of the 13 states involved in maple syrup production, West Virginia produced the least amount with 8,000 gallons in 2018. (For reference, Vermont produced 220 gallons of maple syrup for ever 1 gallon produced by West Virginia.) While 2018 data shows West Virginia as the smallest producer, industry sources cite the state's maple tree inventory and large amount of untapped trees as a huge resource and viable growth commodity. Maple sap and syrup offer strong links to the local and cottage food movement and to agritourism. For instance, the recent creation of "Maple Days" supports the maple industry and has the potential to spur more growth.

²¹

https://www.wvgazettemail.com/business/wv-culinary-team-hard-cider-industry-making-appalachian-comeback/article_6bc25532-b4e5-5694-b4d4-e0ceb89fe671.html

²² <https://www.wvliving.com/culture/cider-resurrectionists/>

²³ <https://www.ft.com/content/750b8bc6-53e7-11e6-befd-2fc0c26b3c60>

²⁴

<http://wvmetronews.com/2018/07/09/with-harvest-approaching-marion-county-hops-farmer-excited-by-states-growing-craft-beer-industry/>

²⁵ <http://brilliantstream.com/2018/03/growers-needed-wv-hops/>

²⁶ Maple Syrup 2018 - NASS Report.

Jerky

Meat snacks and jerky have increased in annual sales growth more than 7% during the past four years.²⁷ As of 2017, the meat snacks category totaled \$2.8 billion in sales, making it the second highest snack category (by sales) behind potato chips.²⁸ (The average household spends \$25.81 per year on meat snacks, compared to the \$35.37 on potato chips.) Diets stressing organic, natural eating and a focus on a protein-rich, heavily active lifestyle have been instrumental in the surging growth of the jerky and meat snack industry.

Jerky has become popular in West Virginia with the arrival of the Beef Jerky Outlet franchises in Lewisburg in 2014 and Kanawha City in 2015.²⁹ However, there does not appear to be a lot of local production; this could be attributed to a lack of meat processing facilities.³⁰

Hemp

There are nine submarkets in the global market for hemp: agriculture, textiles, recycling, automotive, furniture, food and beverages, paper, construction materials, and personal care.³¹ The National Hemp Association estimates that the US hemp market stands at around \$600 million, but these current sales estimates include imported hemp from Canada. The United States doesn't have enough processing infrastructure to support hemp production. As of 2017, there were more than 25,500 acres used for hemp production in the United States, up from 9,700 in 2016.

West Virginia increased the number of acres devoted to hemp production from 10 to 14 between 2016 and 2017. Hemp offers an opportunity for West Virginia to partner with adjacent states for processing and production.³² Most processing has been done by hand, but Kentucky, North Carolina, and New York (the latter with a \$4 million facility backed by \$650,000 of state funding) are scheduled to open hemp processing facilities that extract CBD oil and break down the stalks into fibers or useable materials.^{33 34} The 2018 Farm Bill declassified hemp as a Schedule I drug, allowing interstate commerce. During the time of this report, clarification is still needed as to what this means for growing West Virginia's hemp industry but this could be a great opportunity for the state.

²⁷ <https://www.foodnavigator-usa.com/Article/2017/04/03/Jerky-and-other-meat-snacks-thriving-at-retail-says-Nielsen>

²⁸

https://www.washingtonpost.com/news/food/wp/2017/04/10/this-is-why-youre-seeing-so-much-beef-jerky-lately/?utm_term=.16974a6e29a5

²⁹

https://www.wvgazette.com/arts_entertainment/here-s-the-beef-beef-jerky-outlet-opens-in-kanawha/article_241be585-b646-50f2-a16a-d35097a56f8f.html

³⁰ "Beefing Up Appalachia," April 2018.

³¹ <https://fas.org/sgp/crs/misc/RL32725.pdf>

³² <https://www.usnews.com/news/best-states/west-virginia/articles/2017-07-08/west-virginia-industrial-hemp-takes-root>

³³ <https://hempindustrydaily.com/3-2m-hemp-processing-plant-new-york-gets-state-funding/>

³⁴ <https://www.cbs17.com/news/local-news/nc-hemp-processing-facility-is-largest-in-western-hemisphere/1103849580>

Medical Marijuana

It has been estimated that the cannabis market was worth \$6.6 billion in 2016 and is expected to reach \$24 billion by 2025 (both recreational and medical marijuana sales). Positive economic impacts are often greater in states with recreational legalization, but medical marijuana can still have economic benefits. For example, residents in Maine spent about \$25 million on medical marijuana.³⁵ While data about this industry might not be easily available, we can extrapolate that sales will be only part of the economic benefits of medical marijuana; there will also be economic activity, both directly and indirectly, related to involvement of lawyers, security firms, and companies supplying equipment for production and processing. Like many other states, West Virginia faces the issue of investment and funding in medical marijuana. Due to differences in state and federal law, there is no legal avenue for handling bank transactions relating to medical marijuana. This issue can lead to difficulties for investments in medical marijuana production and processing.³⁶

Ginseng and Forest Farming

In 2015, the ginseng global dietary supplement market was valued at over \$124 billion with the expectation of an annual growth rate of 7.4% until 2025.³⁷ Ginseng is mainly consumed in Asian markets where the native Asian species of the root have become almost extinct. Ginseng has been harvested in the United States for over 200 years and is native especially to the Great Smoky Mountains and Appalachian Mountains.³⁸ In 2015, more than 8,100 pounds of ginseng was harvested, the largest ever recorded.³⁹ Ginseng can be found in all of West Virginia's 55 counties.⁴⁰ While poaching on public lands has become a problem, ginseng can be a good source of supplemental income. In 2018, the West Virginia House voted 91-7 to increase fines for illegally harvesting or dealing in ginseng.⁴¹

³⁵ <https://www.daytondailynews.com/business/businesses-look-for-work-with-ohio-medical-marijuana/DtDEtcEJhNvbRUppbb8n2N/d9dfd0b.html>

³⁶ https://www.wvnews.com/news/wvnews/banking-dilemma-kills-medical-cannabis-business/article_42dfafec-aab8-59c7-ba7e-5102bd9dfd0b.html

³⁷ <https://www.futuremarketinsights.com/reports/ginseng-market>

³⁸ <https://www.smithsonianmag.com/science-nature/fight-against-ginseng-poaching-great-smoky-mountains-180958858/>

³⁹

https://www.wvnews.com/theet/news/free/treasure-hunting-west-virginia-s-lucrative-wild-ginseng-season/article_6c3d9b94-82bc-554d-b783-9e8e8ec2dfdf.html

⁴⁰ <https://www.usnews.com/news/best-states/west-virginia/articles/2017-09-01/ginseng-harvest-season-arrives-in-west-virginia>

⁴¹

http://www.williamsondailynews.com/news/west-virginia-house-backs-higher-ginseng-fines/article_d7502fa8-2394-5a7f-a5a4-94abdce47262.html

Strategies for Growing the Agricultural Economy

The agricultural economy in West Virginia has room for expansion and can support farmers and their communities for decades to come. The following strategies are being advanced to take advantage of opportunities identified during the planning process and improve farmers' ability to compete. Fortunately, several of the strategies are built on existing work of the agricultural economy ecosystem. There are others that will require the identification of new resources, but the return on investment will be there as the agricultural economy expands in the state.

Each goal articulated hereinafter will feature the following sections:

- Background Information - Provides background information about some of the problems and barriers the goal is addressing, in addition to opportunities for improvement.
- Strategic Actions - Proposes actions to be taken in order to move towards accomplishing the goal. It should answer "what needs to be done" to accomplish the goal.
- Stakeholders - Suggests agencies or organizations that should be engaged in this effort.
- Existing Activities - Highlights some of the existing work and organizations involved in this topic area that were identified during the planning process.
- Best Practices - Exemplifies how this goal has been addressed by other organizations and/or states. These examples have informed the crafting of the strategies and can be used as models for some of these actions.

Connect Producers to Market Opportunities

Goal 1: Connect Agribusiness with Knowledge

Background Information

One way to grow the agricultural economy of West Virginia is through capitalizing on market opportunities. Large food markets with a significant portion of the US population lie within a nine-hour radius of West Virginia's borders (e.g. Washington, D.C., Philadelphia, Pittsburgh, and New York City's metropolitan areas). This large and diverse population base creates a tremendous demand for an assorted market basket of regionally grown food. International markets offer potential as well. In 2017, agricultural and livestock products from West Virginia accounted for only \$28 million in agricultural exports outside the United States, which was about 0.3% of the total export value in West Virginia. Poultry and poultry products, including eggs, accounted for more than two-thirds of exports by value. This is far lower than the percentage of overall US exports in agriculture (about 8% of total US exports at over \$120 billion). Currently, small farmers have difficulty reaching major population centers due to the uncertainty of in-demand products, lack of production capacity, transportation logistics, and other barriers.

In our surveys and community meetings as part of this planning process, farmers indicated a desire for more guidance and information about products, price points, and other market research variables to help grow their businesses. They also expressed difficulty in connecting with distributors and brokers, and navigating the entire process. More information about markets and tailored support for small-scale producers can be beneficial to farmers to capture growth opportunities and meet demand.

Strategic Actions

To grow the agricultural economy, producers need to be able to get their products to markets, and farmers need guidance and support in navigating the process. In order to better support producers, West Virginia should take the following actions:

- 1. Determine opportunity products and markets around which to develop producer support services.**
- 2. Build off existing efforts to create an ecosystem map with all programs and services to help producers access markets.**
- 3. Create a "Facilitator" to connect producers with programs and a distribution network.**
- 4. Assemble a network of experts to respond to emerging concerns and opportunities for the community and cooperative participants.**
- 5. Support the connection between producers and researchers at higher education institutions.**
- 6. Create a West Virginia agriculture clearinghouse resource.**

7. Expand the range of producer support services.

The following information details the specific actions that West Virginia stakeholders can take to support the agricultural economy:

Action 1.1: Determine Opportunity Products and Markets Around Which to Develop Producer Support Services.

- A suite of services should be tailored to support producers in producing specific in-demand products in specific markets (defined by geography and buyer). Aside from information about emerging sectors included in this plan, several initiatives are underway that can be leveraged. Sprouting Farms, for example, is developing an Appalachian Product Manual (focused on which products grow best in the region and identifying markets for those products). The West Virginia Department of Agriculture and Eastern West Virginia Community and Technical College are implementing Ag Action Councils that will, in part, identify producers and buyers of certain products within a region.
- The agencies that will collectively deliver Producer Support Services should coordinate and determine the appropriate products and markets around which to pilot the following recommendations. Consistent service delivery will ultimately be the key to gaining farmers' trust. In the past, many farmers have invested in opportunity crops or products that state agencies eventually stopped supporting for various reasons. Aquaculture is one such area that stakeholders cited as an example. If initial market opportunities prove unsuccessful, it will be important to clearly communicate why.
- For the past two years, Ag Action Councils, which originated in the eastern part of the state, have been conducting trainings, listening to the needs of producers, and continuously developing tools to help communities further their agricultural production and economy. The steering team for these Ag Action Councils, made up of members from Eastern Community and Technical College, the West Virginia Department of Agriculture, WV Extension Services, private partners, and other organizations, allow participants to determine what/where they would like to focus the council and provides the steering team with their thoughts. Information gathered through these councils can determine an initial focus for this strategy.

Action 1.2: Build Off Existing Efforts to Create an Ecosystem Map with All Programs and Services to Help Producers Access Markets.

- To best promote market opportunities to producers, the West Virginia Department of Agriculture Planning Coordinators, West Virginia Extension Agents, West Virginia State University Extension Agents, and any other program staff working to help producers understand and meet market demand for specific products should be convened to inventory and evaluate current efforts.
- Current services and programs should be evaluated to better understand types of products, geography, who is being served, and other relevant factors. For example, there are

currently many state and federal programs that are geared toward larger producers, though perhaps not intentionally. After this evaluation, best practices for these programs can be adopted in other regions of the state. Furthermore, this would be an opportunity to align existing programs and services to support identified market opportunities and identify gaps in service areas. This process would ensure that agencies are working in a coordinated manner to create a unified network of services.

Action 1.3: Create a “Facilitator” to Connect Producers with Programs and a Distribution Network.

- A facilitator or broker would be responsible for connecting producers to market opportunities. While this is ultimately a role that could be supported by independently run cooperatives, given the immediate need and the early stage of most existing cooperatives, this could be a new position within the West Virginia Department of Agriculture, similar to the regional Planning Coordinator model and position. As the model is further developed, it could be a role that is ultimately transitioned to those co-ops.
- The role may vary depending on the infrastructure within a given region. For instance, if there is an existing co-op in a region, the facilitator could support it by identifying and connecting with potential buyers outside the region. However, if there is not a co-op, the facilitator could act more as a broker, filling orders by aggregating products from several producers. An advantage to any region, however, would be a common database of producers, distributors, and buyers.
- The emerging Ag Action Councils are developing regional databases that could be leveraged. Given the different needs of individual regions, these databases should be developed with input from producers and businesses that support processing, aggregation, and distribution (PAD) and in close collaboration with the budding and established co-ops and food hubs that are already working to address this issue. WVU Davis College is also researching the creation of distribution centers to be integrated with the development of facilitator services.
- Ideally, the piloting of this position through the West Virginia Department of Agriculture can be managed in a way that demonstrates a sustainable business model. When employed directly by a cooperative, this is a position that can be funded by proceeds from sales. Initially, grant funding may be required, but producers could still pay a small fee to participate.

Action 1.4: Assemble a Network of Experts to Respond to Emerging Concerns and Opportunities for the Community and Cooperative Participants.

- This can be modeled after the Allegheny Highlands Project from the 1970s that was supported by the Rockefeller Foundation and West Virginia University. The project created field and research teams made up of faculty specializing in farm management, agronomy, veterinary science, and livestock production. This panel worked with more than 100 producers and operators in the state to mitigate issues they were facing and help them market their products. Creating a similar program in present-day West Virginia would allow producers to easily obtain information, technology, and other production support to grow their businesses and communicate research needs from the producers to faculty

members. This can more efficiently link the needs of producers and funding from research universities.

Action 1.5: Support the Connection Between Producers and Researchers at Higher Education Institutions.

- It is imperative to explore opportunities to produce West Virginia-specific research. Continuing support for existing local programs like Bull Evaluations and Replacement Heifer Development is important to keep producing valuable data about the commercial viability of certain genetics of bulls and heifers. In addition to supporting ongoing programs, community-based research models that embed research within other programs and services can also be explored. These research projects can allow for better interaction between farmers and researchers and present opportunities to receive non-traditional funding.
- Additionally, connections can be built between researchers and producers by helping producers gain access to knowledge from past research projects. This can be accomplished through the dissemination of research and in-person outreach (education programs or sessions during the off seasons of harvests), and online (classes, social media, Youtube, etc.). Besides sharing research, stories of successful new farming techniques can also be promoted. Through this dissemination, more targeted technical assistance can also be made available to guide the implementation of technology.

Action 1.6: Create a West Virginia Agriculture Clearinghouse Resource.

- The Clearinghouse would be a one-stop shop to learn about the organizations and resources focused on the West Virginia agricultural ecosystem. The Clearinghouse could exist online to allow for easy updates and allow members of the agricultural community to post or link their own information. A paper-based version could also be produced on an annual basis or another time interval. The Clearinghouse should be a tool for various agricultural representatives including the producer services facilitator, potential and beginning farmers, and staff members at agencies and organizations. A database on land ownership, market data, and other information could be available on the website as well. The creation of a document similar to Vermont Extension's could help connect producers to services to improve production and support the growth of the agricultural economy overall. This not only helps producers gain awareness for all the agencies and groups involved, but also aids agency staff in defining the roles of other Agriculture Service Providers (ASP).
- Besides identifying the roles of different offices and programs, the Clearinghouse is also a way to produce simplified and summarized information about rules and regulations for the agricultural economy. Producers need straightforward, summarized versions of agricultural rules and regulations to best understand their options and maximize revenue. The West Virginia Department of Agriculture should create clear summaries of rules and regulations to add to this Clearinghouse guide or website. While these rules and

regulations are constantly being updated, it is important to make an effort to simplify them and provide contact information for when producers have further questions. Currently, specialists within the West Virginia Department of Agriculture make an effort to engage with different communities about rules and regulations for meat production and other products. However, having a quick summary and contact information for the West Virginia Department of Agriculture or Extension specialist involved with the regulations would be helpful for the producers and allow them to better take advantage of production and market opportunities.

- As researched by the Northeast Center to Advance Food Safety (NE CAFS; <https://www.uvm.edu/extension/necafs>), in general, farmers are implementing production and food safety standards at or above an audit and inspectional level. To encourage integration of this critical and regulated step in agricultural production, the Clearinghouse can bring attention to this skill by providing forms and templates to facilitate documentation and record keeping.
- In addition, the Clearinghouse can aggregate existing directory efforts. The West Virginia Department of Agriculture, Natural Capital Investment Fund (NCIF), and the West Virginia Food and Farm Coalition (WVFFC) are all currently working on different directories. NCIF and the West Virginia Department of Agriculture are creating a directory of buyers and sellers based on information from their Ag Action Council meetings in five different regions of the state. WVFFC has their directory of farmers markets, locally-sourced restaurants, and farmers. The West Virginia Department of Agriculture is putting together a directory as part of the WV Grown effort that is cataloging local products and sellers of the products. The West Virginia Department of Agriculture and the WVFFC both operate listings relating to land available -- the Market Bulletin classified listings and the FarmLink Listings, respectively. All these groups should coordinate the information they are collecting and listing. Coordinating this work will be more efficient and produce more usable information.
- West Virginia Department of Agriculture, NCIF, and other agencies could work together to establish who can be the organization that manages and develops this Clearinghouse resource. While NCIF might have the best experience to lead development and administration of the Clearinghouse, it would need more resources to do so. It will probably cost \$50,000 per year to develop and manage this Clearinghouse. The agencies involved could develop a way to fund this annual expenditure.

Action 1.7: Expand the Range of Producer Support Services.

- Ultimately, Producer Support Services can be expanded to support many different products and markets. This means continuing to work in partnership with producers, processing, aggregation, and distribution (PAD) businesses and partner organizations to refine and build out education and training programs to help producers develop business plans, refine their marketing strategy, and enhance their production capacity in order to capture these market opportunities.

Stakeholders

The following stakeholders were identified during the planning process. This is a starting point and not an exhaustive list.

Lead:

- West Virginia Department of Agriculture

Supporting:

- West Virginia University Extension
- West Virginia State University Extension
- West Virginia Farm Bureau
- Natural Capital Investment Fund (NCIF)
 - Value Chain Cluster Initiative (VC2)
 - PAD Businesses
- West Virginia Food and Farm Coalition

Existing Activities

The following are existing activities identified during the planning process. These are efforts that should be built on.

- WV Food Safety Training Team - A collaboration among the West Virginia Department of Agriculture, WVU Extension, WVU Davis College, and WVSU Extension. This group develops trainings for GAP certification and the Food Safety Modernization Act using approved Produce Safety Alliance curriculum. This multi-agency group also assists with the On Farm Readiness Review (OFRR) program designed to assist inspectable West Virginia produce operations and prepare them for their regulatory farm visits. They also perform Food Safety Modernization Act training sessions. With new safety regulations and procedures in place for farmers and agribusiness owners, West Virginia University Extension Service and the West Virginia Department of Agriculture are helping local growers navigate these changes, while providing education and training to ensure consumer safety. This training allows producers to enter larger markets.
- The West Virginia Quality Assurance (WVQA) Feeder Cattle Marketing Program - Established to enhance the reputation of West Virginia Feeder Cattle and provide a marketing outlet for well-managed cattle. The WVQA Feeder Cattle Marketing Program has generated more than \$4 million in additional revenue for cooperating producers in the last four years alone.
- Preston Growers Co-op - Delivers local produce to institutions in large quantities by joining small farms together. All farmers must maintain \$1 million commercial liability insurance, farms are GAP certified (or working towards certification), meats are USDA inspected, and food processing facilities are FDA approved. This program started in 2014 and aimed to meet the needs of Preston County Schools through the Farm-To-School initiative; it

expanded in 2016 to include other large institutions while also officially becoming a cooperative.

- Farm-To-School - West Virginia's Farm-To-School effort is spearheaded by the West Virginia Farm-To-School Community Development Group (WVFTSCDG), a public/private task force consisting of the West Virginia Department of Education, the West Virginia Department of Agriculture, the West Virginia University Extension Small Farm Center, New Appalachian Farm and Research Center, and the Collaborative for the 21st Century Appalachia. The goals of the group are to increase the amount of local foods served in schools and to develop the next generation of farmers in West Virginia. Schools purchased \$650,000 worth of food from local sources in 2013-2014, nearly doubling the \$350,000 spent in 2012-2013.

Best Practices

- Local Food Hub - This organization from Virginia was founded in 2009 by a team of farmers, community members, nonprofit and food distribution experts to better connect small farmers with distributors. They operate similar to a traditional food hub but feature one-on-one guidance and assistance with pest management, financial planning, and season extension. They also help farmers determine crop selections, planting selections, and price ranges.
- Cornell Small Farms Program - This website is broken into helpful topics and guides related to figuring out what to produce, how to market your products and regulations, and other business planning information.
- Oregon Department of Agriculture New and Small Farms Website - This website has maps showing where certain products are produced and other helpful information.
- New York Agriculture and Markets Website - State-run agriculture website with helpful and easy to find information about regulations as well as how-to guides to accessing markets.
- Farm to Institution New York State (FINYS) - As a collaborative effort led by American Farmland Trust, this program encourages institutions to spend 25% of their food budget on food grown in New York in an effort to strengthen economic security. Food purchases made by publicly-funded institutions currently amount to \$1 billion. Access to grants, toolkits, resourceful websites, and background reports are directed to farmers, producers, distributors, community members, and food service employees. The three main focuses of this program consist of advancing public policy, educating institutions to buy locally, and inspiring commitment to farming success. This program is funded by the Novo Foundation, Local Economies Project of the New World Foundation, Joyce and Irving Goldman Family Foundation, and USDA Specialty Crop Block Grant Program, and administered by the New York State Department of Agriculture and Markets, Northeast Sustainable Agriculture Research and Education, and the New York State Health Foundation.
- New England Farm to Institution - This program's vision is that every New England school, college, and hospital will preferentially purchase healthy, regionally-grown food. It is a six-state network of non-profit, public, and private entities working to mobilize the power of New England institutions to transform our food system.

- University of Vermont Extension *Resource Guide for Vermont's Aspiring and Beginning Farmers* - This guide can be a template for the agency and organization description directory of the Clearinghouse. The University of Vermont Extension *Resource Guide for Vermont's Aspiring and Beginning Farmers* explains the different agencies and their roles in agriculture and provides contact people and information for the offices. Available both on and offline, this guide accommodates those users without the benefit of internet.
- Michigan AgriSummit - Pure Michigan Business Connect (PMBC) and the Michigan Department of Agriculture and Rural Development (MDARD) have supported the Pure Michigan Agriculture Summit for the past six years. This allows producers to connect with large local buyers.

Goal 2: Connect Producers with Each Other

Background Information

Larger market access for agribusiness requires a production model that takes into account scale and higher production costs for small growers and processors and careful supply chain (particularly transportation) planning to get their products from farm to consumer. West Virginia is dominated by small farms (75% of all farms sell less than \$10,000 annually) and has the lowest average economic output than any other state (\$38,000 in annual sales). Due to their small size, it is crucial for these farms to work together to share costs and information about production techniques. Producers working together can create economies of scale and achieve a lower cost.

One way to facilitate these connections and cost sharing is through producer cooperatives. Producers can make a higher profit and invest more into their business to support an increase in production. Through supporting producers in this manner, West Virginia can better grow the agricultural economy.

Strategic Actions

To better connect producers to grow the agricultural economy, West Virginia can:

- 1. Build off ag action council efforts.**
- 2. Utilize current informal efforts to develop cooperatives or networks for producer support.**
- 3. Promote existing resources encouraging producers to share infrastructure and equipment.**

The following information details the specific actions that West Virginia stakeholders can take to support the agricultural economy:

Action 2.1: Build Off Ag Action Council Efforts.

- Ag Action Council meetings are being supported by the Planning Coordinators from the West Virginia Department of Agriculture (WVDA) in five regions of the state. These are meetings with producers and people involved in the agricultural economy (usually focused on one topic) to better understand the challenges and needs of producers. Information from these meetings is being logged by the WVDA Planning Coordinators to better support market connections and assist with producer needs. While only present in five areas of the state (Moorefield, Martinsburg, and three Eastern Panhandle counties), these efforts can be expanded to cover the whole state. The connections made between producers at these meetings, as well as information gathered, can provide a useful baseline for the creation of cooperatives.

Action 2.2: Utilize Current Informal Efforts to Develop Cooperatives or Networks for Producer Support .

- The Natural Capital Investment Fund and the West Virginia Food and Farm Coalition have been supporting and developing connections between producers to move toward more profitable markets, particularly wholesale. The facilitator mentioned in the "Connect Agribusiness with Knowledge" strategy can link producers to each other. There is also an opportunity for agencies to better align resources to support current efforts. This could be done through more support from the Extensions and the WVDA. Current co-op efforts in Preston and Wayne counties can be good models for engaging in developing future co-ops.
- Given the informal and "ground up" nature of these connections, there may be efforts in the state that are not documented in the stakeholders section. An important first step is to gain a clear understanding of the current activities and organizations that exist to connect producers with each other. After this inventory is conducted, gaps in services can be identified.

Action 2.3: Promote Existing Resources Encouraging Producers to Share Infrastructure and Equipment.

- The WVU Feeder Calf Program, Preston County Co-op, and Monroe Farmer Market are a few models of how producers in the state are being connected to each other and working together. In addition to these programs, events like local Farm Service Agency (FSA) meetings and Winter Dinner Meetings offer opportunities for producers to meet one another. These types of programs and events should be promoted by organizations involved in agriculture in the state.

Stakeholders

The following stakeholders were identified during the planning process. This is a starting point and not an exhaustive list.

Lead:

- West Virginia Department of Agriculture
- WVU Extension
- West Virginia Farm Bureau

Supporting:

- Natural Capital Investment Fund
- West Virginia Food and Farm Coalition

Existing Activities

The following are existing activities identified during the planning process. These are efforts that should be built on.

- Eastern West Virginia Community and Technical College and the West Virginia Department of Agriculture have created Ag Action Councils to better understand the needs of producers at the grassroots level and to spur better coordination among producers.
- Natural Capital Investment Fund has been involved with the development of cooperatives throughout the state.
- West Virginia Food and Farm Coalition has helped producers create new cooperatives and effect policy changes to open or expand other potential opportunities.
- WVU Small Farm Center offers support to producers who want to form cooperatives.

Best Practices

- Adirondack Grazers (NY) - This grass-fed beef cooperative was founded by Sarah Teale in 2011. After meeting with a Cornell Extension agent, she realized that her farm would not be able to produce enough beef on its own. In November 2011, she held a meeting to gauge interest in forming a cooperative and found 40 other producers who were interested. She received SARE funding for the endeavor in June 2012.
- Malterer Schultz LLC. (MN) - Six families are a part of this LLC which formed in 2013. Tim Malterer developed an idea for each small farm to formally share equipment while maintaining their own autonomy. They have been able to keep pace with the latest technology and decrease machinery costs by more than \$20 per acre for each farmer invested.
- “Creating Farmer Networks: A Toolkit for Promoting Vibrant Farm Communities” - This toolkit was created by the Pacific Northwest Extension (Oregon State University, University of Idaho, and Washington State University), and outlines ways to create networks of farmers to better work together and share costs. Some of the main recommendations are to use annual meetings, social gatherings, and workshops to connect farmers to each other. As these networks begin their work, it is important that leadership and structure be foremost in the planning.

Goal 3: Create Agritourism Clusters

Background Information

Agritourism can greatly boost agriculture economy. West Virginia's agritourism (as defined by the 2016 WV Agritourism Industry Assessment) is "the business of making farms travel destinations for purposes of education, recreation, and social interaction." West Virginia currently has a variety of agritourism ventures ranging from corn mazes, pumpkin patches, pick-your-own operations, on-farm education events, farm dinners, and bed and breakfasts. However, agritourism also includes breweries, cideries, sugarhouses, and stores that sell local and value-added products.

As of 2016, the economic impact from agritourism in West Virginia was an estimated \$8.6 million, and more opportunities exist to continue that growth. Neighboring Virginia, for example, had an estimated \$1.2 billion economic impact from agritourism. Through agritourism, farmers have opportunities to diversify their income streams and secure protection from the volatile agricultural product markets. Efforts such as the Agritourism Initiative training program, conducted by the WVU Extension and West Virginia Department of Agriculture, as well as the passage of SB 446, allowing agritourism businesses limited liability (similar to specific liability legislation for whitewater rafting and skiing), have made strong progress in supporting the development of agritourism. However, in order to capture the economic opportunity, additional work is needed to grow the number of businesses, support the growth of existing businesses, and coordinate the promotion of all agritourism businesses.

Strategic Actions

To create and support agritourism clusters, West Virginia can:

- 1. Adopt Agritourism Clusters.**
- 2. Include Agritourism in West Virginia's Tourism Campaign, and the Local Convention and Visitor Bureaus (CVBs).**
- 3. Increase Promotion of the WV Agritourism Initiative Training Program.**
- 4. Identify and Promote Policies Needed to Support Growth of the Industry (zoning, road signage, insurance policies, etc.).**
- 5. Increase Statewide Support for Agritourism Using Updated Data**

The following information details the specific actions that West Virginia stakeholders can take to support the agricultural economy:

Action 3.1: Adopt Agritourism Clusters.

- A cluster model helps to support individual agritourism businesses and grow the industry as a whole. These ventures can be successful on their own, but have a higher chance of success if they are part of a regional tourism cluster such as bed and breakfasts and hotels. The cluster approach to agritourism allows regions to

pool promotional resources and support each other. Subsequently, the entire region can be marketed to travelers who will spend money to support the overall local economy.

- The West Virginia Office of Tourism has already created clusters of the different regions of the state. The next step would be to convene all the groups involved in agritourism to develop a methodology for mapping agritourism clusters for future ventures. Agritourism ventures can then be mapped according to these clusters. After they are mapped, the database currently being created by WVU Davis College can be adapted to show businesses in these clusters. Along with this database, a virtual network to support collaboration and sharing of best practices should be created to further support these businesses. The network is currently being developed, but requires the capacity to be built out as well as maintenance. Increasing capacity to support this virtual network may require creating a committee within the local economic development organization, or creating a new organization - funded similar to a Business Improvement District - specifically to organize and support agritourism businesses.

Action 3.2: Include Agritourism in West Virginia's Tourism Campaign and the Local Convention and Visitor Bureaus (CVBs).

- Although the Office of Tourism includes some information about local wineries, breweries, and restaurants on its website, it does not robustly promote agritourism or support the development of agritourism businesses; nor is its current database or event calendar geared toward seasonal events or agritourism ventures. Moving forward, agritourism businesses could work with the Office of Tourism and CVBs to coordinate opportunities and resources within their areas. After mapping is complete, the West Virginia Department of Agriculture and WVU Extension can assist CVBs staff to explore the best organizational structures for continued collaboration. Existing conferences and working groups are good resources for maintaining important ongoing connections. Ideally, an agritourism sector section could be added to the WV Office of Tourism's strategic plan.

Action 3.3: Increase Promotion of the WV Agritourism Initiative Training Program.

- The Agritourism Initiative is made up of four eight-hour sessions taught by the WVU Extension and the West Virginia Department of Agriculture. This initiative instructs people interested in tourism to grow and develop their business in a responsible way through training in business planning and risk management relating to viable opportunities, public demand, managing finances, hospitality and tourism management, food safety, emergency preparedness, and marketing. Participants also learn about farm-based learning and education and how these experiences can be tailored to state curriculum standards, or to an audience of farm-based agritourism operators and service providers. The West Virginia Department of Agriculture, WVU Extension, WV Office of Tourism, and CVBs should coordinate and promote this program.

Action 3.4: Identify and Promote Policies Needed to Support Growth of the Industry (zoning, road signage, insurance policies, etc.).



Having an organizational infrastructure to support agritourism businesses would create a platform to raise common concerns and serve as a central point of contact for communication with the Farm Bureau, West Virginia Food and Farm Coalition, and other advocacy organizations.

In addition to advocating policies to support agritourism, the Extensions and the West Virginia Department of Agriculture should promote the new agritourism limited liability statute and post signage. Information regarding insurance policies for agritourism is crucial for people who are considering a venture into this area of production.

Action 3.5: Increase Statewide Support for Agritourism Using Updated Data.

- The 2016 Agritourism Economic Impact Survey found that agritourism had an \$8.6 million economic impact on the state of West Virginia. This survey needs to be revisited and updated to demonstrate the return on investment generated by supporting agritourism development.

Stakeholders

The following stakeholders were identified during the planning process. This is a starting point and not an exhaustive list.

Lead:

- West Virginia Department of Agriculture
- West Virginia University Extension Service - business planning and training

Supporting:

- West Virginia Association of Convention and Visitor Bureaus (CVBs)
- West Virginia State University Extension
- West Virginia Farm Bureau
- West Virginia Office of Tourism
- West Virginia Hospitality and Travel Association
- West Virginia Bed and Breakfast Association
- West Virginia Planning Commission
- West Virginia Department of Transportation
- West Virginia Office of Hospitality Education and Training (WV HEAT; WV Department of Education)
- West Virginia Office of Career Technical Education
- West Virginia Department of Commerce

Existing Activities

The following are existing activities identified during the planning process. These are efforts that should be built on.

- WVU Extension and West Virginia Department of Agriculture's Agritourism Initiative.
- Food Safety Modernization Act training sessions - With new safety regulations and procedures in place for farmers and agribusiness owners, West Virginia University Extension Service is helping local growers navigate and provide education and training to ensure consumer safety.
- Mountain State Maple Days - In the spring, maple houses open their doors for visitors to show them how the product is made. In conjunction with this activity, other businesses or groups in the area support pancake dinners and farmers markets to show off WV maple products. It is supported by the WV Department of Agriculture and the West Virginia Maple Syrup Producers Association.
- Some Convention and Visitors Bureaus across the state are promoting agritourism as part of their marketing efforts.
- West Virginia Food and Farm Coalition (WVFFC) has been very supportive of agritourism, and in 2017 helped pass SB 446, a bill that would define agritourism and offer

agritourism businesses limited liability, similar to that of ski and whitewater industries. West Virginia also has an Equine Responsibility Act in recreational law with ski, whitewater and zipline legislation, that details responsibilities of both participant and operator in several equine events such as trail riding and show events.

Best Practices

- Virginia - Virginia had an estimated \$2.2 billion economic impact from agritourism in 2015. The Virginia Farm Bureau, Virginia Tourism Corporation, and Virginia Extension services have created materials to help farmers with business planning for agritourism. In the 2013 Agritourism Profitability Study from the Virginia Cooperative Extension, regionally coordinated advertising, marketing, and promotion were highlighted as some of the most important factors for success.
- New Jersey -The NJ Department of Agriculture provides marketing assistance for agritourism , including an online directory and interactive map. The NJ Farmers Direct Marketing Association also provides marketing assistance to members. As of 2012, New Jersey ranks ninth in the nation in agritourism sales and nine of its counties are in the top 10 percent of agritourism sales in the United States.
 - Rutgers University - This university has a website for agritourism service providers (Extension, WVDA, etc.). Many of these tools have been incorporated into West Virginia's Agritourism Initiative curriculum.
- Michigan - In 2007, the Michigan Farm Marketing and Agri-Tourism Association was created after funding for the Michigan Department of Agriculture's Farm Market and U-Pick Directory was lost. This association was created by the Michigan Department of Agriculture, Michigan Farm Bureau, Farm Bureau Insurance, and a state grant supporting an Executive Director through a program at Michigan State University. A 2017 statewide impact study concluded that Michigan's wine industry has a \$4.5 billion economic impact.
- Northeast Ohio - Overall, Ohio's wine industry had a \$1.3 billion economic impact in 2016. As of 2012, Ohio was the country's sixth largest wine producer. Wineries in Northeast Ohio, the location of 40% of the state's wine industry, have recently been working together to create wine trails and support restaurant growth.

Create the Infrastructure Needed to Grow the Agricultural Economy

Goal 4: Expand and Support Development of Co-ops for Processing and Selling Products

Background Information

Commercial kitchens and processing, aggregation and distribution facilities are critical for growing value-added product production and increasing revenue for farmers in West Virginia's agricultural economy. These facilities allow farmers to enter additional markets such as retail, targeted population centers and private and government institutions. It also provides for increased shelf life and generates greater profit margins. A 2013 study by the West Virginia Food and Farm Coalition identified 25 licensed USDA meat processing businesses and eight USDA slaughterhouses. Currently, West Virginia has no beef packing plants. Additionally, the 2015 "Opportunities and Constraints in the Local Food Supply Chains" report highlighted the need for food business incubator kitchens and more co-packing facilities to allow producers to better sell their products.

The West Virginia Food Mapper from the West Virginia Food and Farm Coalition allows users to filter and display processing, aggregating, and other facilities related to food production on a map. Many of these existing facilities are small, lack the capacity to address the demand from producers, and can be difficult for producers to access. This strategy aims to identify ways that agriculture-serving agencies and institutions can best support the development of facilities and organizational structures for aggregation, storage (particularly cold chain), processing and distribution.

Strategic Actions

Within the past five years, various groups involved in the West Virginia agricultural economy have created baseline assessments and feasibility studies. Most of them have articulated the need for processing and aggregation facilities and market opportunities as well. They also have emphasized the need for organizational infrastructure and leadership to sustain these ventures.

Most of these facilities will not be publicly owned and operated, however, they will require a great deal of public support. Public agencies and institutions can best support the development of these facilities by taking the following actions:

- 1. Create Clarity Around Rules and Regulations for Producers Looking to Process Their Products.**
- 2. Partner On Education and Training.**

3. Share Assets for Aggregation and Distribution.

The following information details the specific actions that West Virginia stakeholders can take to support the agricultural economy:

Action 4.1: Create Clarity Around Rules and Regulations for Producers Looking to Process Their Products.

- Initially, Extension can distribute information to producers about regulations for better compliance. However, a central resource that uses plain language to describe the rules and regulations that apply to different types of facilities and products should also be created. This resource can be a part of the West Virginia Agriculture Clearinghouse (see page 40). Points of contact and contact information should be clearly organized.

Action 4.2: Partner on Education and Training.

- Once a facility is built, users may not automatically come to it. Producers will likely need assistance in scaling production, developing business plans, and adhering to rules and regulations. Many agencies already offer this type of assistance, but coordination with the operators of commercial kitchens, processing facilities, and food hubs will ensure that both producers and facilities are successful. The implementation of Producer Support Services (see page 41) should also be coordinated with these efforts.
- As these facilities are being built, existing training opportunities should be identified and promoted. For example, the 1,100 square-foot Meats Processing Laboratory at WVU Davis College is currently used for student training only. It could be opened up to train the public on meat processing .

Action 4.3: Share Assets for Aggregation and Distribution.

- State agencies should identify the assets they have to support these facilities. For instance, the West Virginia Department of Agriculture has trucks that could be used to backhaul food to food hubs. With support from their convening organization, such as NCIF or the WVFFC, all agencies could identify their assets that could be used to support the success of these facilities. The resulting information can also be centralized in the Agriculture Clearinghouse.
- As the volume of agricultural products increases, it is possible that new facilities or added capacities will be required to support producers. The West Virginia Department of Agriculture can work with partners, such as the West Virginia Department of Commerce, to assess facility or capacity needs and work with other agencies to enhance support.

Stakeholders

The following stakeholders were identified during the planning process. This is a starting point and not an exhaustive list.

Lead:

- West Virginia Department of Agriculture
- Natural Capital Investment Fund's Value Chain Initiative (VC2) - They have been guiding PAD efforts in the state. They should be one of the leading groups involved in this process.
- WVU Extension
- WVU Davis College
- West Virginia Food and Farm Coalition

Supporting:

- Local and State Economic Development Agencies
- West Virginia Small Business Development Center

Existing Activities

The following are existing activities identified during the planning process. These are efforts that should be built on.

- West Virginia's existing food hubs include: Fish Hawk Acres, Turnrow Food Hub, and Monroe Farmers Market.
- In 2018, the Natural Capital Investment Fund's Value Chain Cluster Initiative organized the Processing Aggregation and Distribution Summit. This working group pinpointed processing infrastructure as a major challenge in growing value-added products.
- Preston Growers Co-op exists to deliver local produce in large quantities to institutions by joining small farms together. All farmers must maintain \$1 million commercial liability insurance; farms are GAP certified (or working towards certification); meats are USDA inspected; and food processing facilities are FDA approved. This program started in 2014 and aimed to meet the needs of Preston County Schools through the Farm-To-School initiative, then expanded in 2016 to include other large institutions while also officially becoming a cooperative.
- West Virginia Quality Assurance Feeder Cattle Marketing Program - This program has cooperative branding and status.
- In January 2019, Buzz Foods, a Charleston-based company, announced plans to open a new livestock slaughtering and processing facility in Kanawha County. The project qualified for the Abandoned Mine Lands Pilot Program through the Department of Environmental Protection. This facility will help vendors interested in selling local products.

Best Practices

- Nelsonville Food Hub (OH)- This food hub is part of the Appalachian Center for Economic Networks (ACENet) and has recently opened a new facility with capacity for meat and

vegetable processing. The site cost was \$315,000 with most of the funding coming from ACENet's partner organizations.

- Larry's Custom Meats (NY) - Larry Althiser ran a small meat processing plant, that was not USDA certified, then expanded with financial support from the Center for Agriculture Development and Entrepreneurship (CADE) in New York. CADE was able to help Larry leverage funding from NYS Farm Viability Institute to win grant funding from the Appalachian Regional Commission.
- Good Natured Family Farms (KS) is a great example of building partnerships and utilizing existing infrastructure. They lease central warehouse space in a local 28-store grocery chain, Ball Foods, who buys 60% of their products.
 - Ball Foods also provides packing supplies at cost to local producers, directions for proper use and delivery of their product (quality control), and marketing services.
- USDA identified the most important needs to develop and expand food hubs: financial support (significant upfront investment in infrastructure), innovative and flexible business strategies, business development services, technical assistance on facility design and operations, community support and wider stakeholder engagement, and building effective networks and peer-to-peer learning platforms.
- Massachusetts Agricultural Food Safety Improvement Program (AFSIP) - This program supports agricultural produce operations hoping to improve their food safety practices. Participants selected for the program will be reimbursed up to 75% of total project costs not exceeding \$25,000.
- Tennessee Ag Enhancement Program - This program provides cost share dollars to agricultural producers for long-term investments. Programs included in their operations include genetics, grain storage, hay storage, livestock equipment, livestock solutions, working facility cover, poultry grower, and producer diversification.

Goal 5: Support Initiatives to Increase Broadband Access in West Virginia

Background Information

Increased access to the internet produced the most comments in the survey. The lack of internet availability makes it difficult for people to market their products, maintain communication channels, learn new techniques, and access other business growth opportunities. While organizations in the agricultural economy might not have the expertise or ability to increase broadband services on their own, they should get involved and support existing and up-and-coming initiatives throughout the state.

Strategic Actions

In order to support business growth opportunities for producers, West Virginia can take the following actions:

- 1. Become involved with various groups advocating and advising broadband initiatives.**
- 2. Partner with other organizations for funding opportunities.**

The following information details the specific actions that West Virginia stakeholders can take to support the agricultural economy:

Action 5.1: Become Involved with Various Groups Advocating and Advising Broadband Initiatives.

- The agricultural economy is becoming increasingly dependent on internet technology. From information about pricing to precision agriculture, new technologies to support producers require internet access. The West Virginia Broadband Enhancement Council is comprised of 13 voting members, two appointees from the WV Senate and two appointees from the WV House of Delegates (one from each party) who serve as ex officio, non-voting advisory members. This council currently does not have a representative from an agriculture-related agency. State agencies involved in agriculture should join the Council to have their interests represented by building a coalition and changing the statute for the Broadband Enhancement Council.

Action 5.2: Partner With Other Organizations to Explore Funding Opportunities.

- USDA Rural Development offers "Telecommunications Infrastructure Loans" and "Loan Guarantees" that provide financing for construction, maintenance, improvement, and expansion of telephone service and broadband in rural areas. These loans are available for towns of 5,000 people or fewer. USDA Rural Development also offers Community Connect Grants to fund broadband deployment in rural communities where it is not economically viable for private sector providers to deliver service. Eligible areas are rural ones where

existing broadband speed is less than 10 Mbps downstream and 1 Mbps upstream. Applications closed in May 2018.

- As of December 2018, the Rural Utilities Service (RUS) was appropriated \$600 million to conduct a new broadband loan and grant pilot program. At least 90% of households served by a project shall be in a rural area that does not have broadband at a minimum speed of 10Mbps/1Mbps. Award recipients must complete projects within five years. Those eligible are state or local governments, U.S. territories, an Indian tribe, nonprofit entities, for-profit corporations, limited liability companies, and cooperative or mutual organizations. There are three options for funding:
 - 100% loan - The maximum requested can be \$50 million. Applications are accepted on a rolling basis through June 28, 2019.
 - 50% loan / 50% grant combination - Maximum loan request is \$25 million and maximum grant is \$25 million. Applications are accepted on a rolling basis through May 29, 2019.
 - 100% grant - Maximum requested can be \$25 million. Applications are accepted on a rolling basis through April 29, 2019.
 - These opportunities for federal funding should be more widely promoted and can be coordinated with funding efforts by foundations. While a statewide approach for this funding might not work, partnerships with local governments and entities should be explored.

Stakeholders

The following stakeholders were identified during the planning process. This is a starting point and not an exhaustive list.

Lead:

- West Virginia Department of Agriculture
- West Virginia University Extension
- West Virginia State University Extension
- West Virginia Conservation Agency
- West Virginia NRCS
- West Virginia Farm Bureau
- West Virginia USDA Rural Development

Supporting:

- West Virginia Legislature
- West Virginia Broadband Enhancement Council
- Electric Cooperatives
- Local governments
- Other groups invested in broadband

Existing Activities

The following are existing activities identified during the planning process. These are efforts that should be built on.

- The West Virginia Farm Bureau has adopted the American Farm Bureau Federation's policy on broadband. Their policy states that "Rural broadband is essential to modern agriculture, the farmers and ranchers who grow our food, and the quality of life for rural Americans." They are in support of using the Universal Service Fund to expand broadband to rural areas and a combination of tax incentives, grants, and regulation to increase broadband access.
- In January 2019, the Broadband Expansion Act moved through the WV House of Delegates. The bill features provisions for tax credits for construction of cell towers, grants to attach fiber to utility poles (thus encouraging electric utilities to undertake feasibility studies on attaching fiber to their poles), and the placement of small wireless facilities to enable 5G broadband access.
- As of August 2018, three internet companies received about \$12 million in federal Community Development Block Grant (CDBG) funds to provide broadband access to WV communities currently lacking it.
 - This funding was distributed mainly to a southern block of counties and two panhandle areas. According to FCC reports, the central part of the state is ineligible because FCC data misrepresents the access to fixed broadband as being 100 percent. (FCC defines access as "when some have access to the internet, it means that everyone has access.")
 - Companies that received funding for development: Viasat (\$5.43 million) has been assigned 7,057 locations covering a dozen counties. Calhoun, Clay, Marshall, and Wetzel counties will receive many of the locations. Citynet (\$6.51 million) has been assigned 898 locations in Greenbrier, Nicholas, Pocahontas, Taylor, and Webster counties. Their plan is to eventually get fiber to these areas. Hardy Telecommunications (\$46,435) will build a gigabit-speed connection in the southern part of Hampshire County.
 - Most of these developments will be involving satellite technology, an often expensive and unreliable form of internet access.
 - Microsoft announced their Rural Airband Initiative in 2017 and will have at least one project in West Virginia. This initiative focuses on improving rural broadband access through TV white spaces, which uses unused TV channels to enhance and support internet access. As of July 2018, Microsoft was still trying to find an internet provider partner.
 - A \$100,000 ARC grant was made to West Virginia Geological and Economic Survey in Charleston, WV, for the State of West Virginia Broadband Development hub. The grant will fund an online hub. It will host information about prospective broadband deployment in West Virginia. Initially ten counties and their municipalities will have access to a hub that will host content related to broadband deployment, including information on access, public rights-of-way, a database of available assets, and

draft contracts for dealing with service providers. Multiple agencies in the state will contribute to the platform. The data collected throughout this process will then be used to create a Guide to Broadband Development in West Virginia and a supplemental legal toolkit. Once the initial ten counties' broadband deployment needs have been addressed, access to the broadband development hub will be extended to the rest of West Virginia. In addition to the POWER grant, an additional \$50,000 for the hub is being provided through special ARC funding for broadband work in distressed West Virginia counties.

- In 2018, House Bill 4447, referred to as the "Dig Once Policy," made it easier to support broadband installation.

Best Practices

- There are various other technologies to assist in transmitting broadband to difficult to reach locations. Garrett County, Maryland used the TV white space method to extend wireless access and convinced people to add antenna to barns, silos, and tops of their homes. This signal amplification technique allowed people to get much more reliable internet for approximately \$75/month (comparable or less than the cost of satellite internet).
 - The Connect Americans Now non-profit coalition is working with local coalitions in Kansas, North Dakota, South Dakota, Oregon, and Wisconsin to educate rural stakeholders about this white space technology as an option for rural internet access.

Develop the Next Generation of Agricultural Industry Leaders

Goal 6: Grow the Next Generation of Producers

Background Information

The West Virginia agricultural economy must recruit and develop new farmers if it is going to grow. Aging farmers pose a challenge throughout the country, and on average, farmers in West Virginia are disproportionately older and tend to be sole proprietors. As of 2012, less than 17% of farmers were under the age of 45 and only 5% were under the age of 35. The average age of farm operators in West Virginia was 57.2 years (13th oldest of all states).

School-based agricultural education programs are a potential supply of new farmers. Programs such as 4-H, FFA and in particular the FFA's SAE (Supervised Agricultural Experience) expose students to agriculture with hands-on experience. Overall, there are currently 81 agricultural education programs in 48 West Virginia counties. In 2015-2016, 4-H programs in West Virginia reached 64,603 people through school enrichment, camping, and club programs. In 2018, there were 5,360 FFA members in West Virginia, the highest membership in its history. Still, there is a greater need to bolster agricultural education due to the aging of many farmers and the fact that many FFA students leave agriculture after graduation.

Strategic Actions

In an effort to expose more youth to learning opportunities and prepare them for agricultural careers, West Virginia should increase classroom-based agricultural education and opportunities for experiential learning.

In order to grow the next generation of producers, West Virginia can take the following actions:

- 1. Increase experiential and work-based learning opportunities in agricultural education.**
- 2. Strengthen the presence of agricultural education at community and technical colleges.**
- 3. Add an agricultural education pathway for southern West Virginia.**

The following information details the specific actions that West Virginia stakeholders can take to support the agricultural economy:

Action 6.1: Increase Experiential and Work-Based Learning Opportunities in Agricultural Education.

- Middle and high school students have opportunities to gain experience through technical agricultural education programs and participation in 4-H. These programs expose youth to different careers in agriculture through critical hands-on experience. Increasing the amount of work-based learning requires interventions to support educators, as well as farmers.
- The 104 agricultural education teachers in the state have a standard 200-day contract. That does not allow time for overseeing experiential learning opportunities. To fully implement the Supervised Agricultural Experience component of the ag ed curriculum, teachers need funding for roughly 40 extra days to mentor and supervise students. This would cost approximately \$500,000. Other states have secured such funding through line-item budgets in the legislature or additional funding from agriculture-serving state agencies. A coalition of organizations can support contract modifications to allow for experiential learning supervision and coordination of agriculture education teachers.
- Internships are among the best ways for students to gain experience on a farm but farmers need support to host an intern. 4-H and the WVDE agricultural education program could work together to develop an internship toolkit (e.g. a list of age-appropriate tasks), create a shared database of farmers willing to host an intern (with a focus on farms that employ new techniques and technologies), and develop any technical assistance farmers may need (such as access to legal and insurance services to assist with liability).

Action 6.2: Strengthen the Presence of Agricultural Education at Community and Technical Colleges.

- Agricultural education at community and technical colleges is very much needed after high school education. Currently, Blue Ridge, Southern, and Eastern have programs, but more programs throughout the state are needed. These programs would allow students to stay engaged in agriculture and increase the likelihood of becoming farmers. Presently, however, students should be channeled to these existing programs.
- Ideally, students should receive dual credit for high school programs, to further incentivize participation in a higher-ed curriculum. WV's ag-serving public agencies can work with local community and technical schools to develop new programs and strengthen existing ones. Extension agents can serve as instructors. These internship strategies for middle and high school students could easily support internship for college students as well.
- To develop a plan for the agricultural programs in the community college system, a committee can be formed to include the WVU and WVSU Extensions, the West Virginia Department of Education, and the West Virginia community college system. Plans should take into consideration reasonable access, based on drive time, to all potential West Virginia farm students. If more programs are needed, they can be piloted through a community college.

Action 6.3: Add an Agricultural Education Pathway for Southern West Virginia.

- As high school agricultural education programs expand throughout the state to southern counties like Mingo and Boone, more teachers will be needed in these areas. Adding a program to West Virginia State University or expanding WVU's agricultural education program at the Beckley campus can help capture students coming out of the high school programs in the south and train them to be teachers in agricultural education. The Sustainable Agriculture Entrepreneurship program at WVU Keyser could also help increase the number of agriculture professionals in the southern counties. However, before committing to the creation of such a program, a survey or something similar should be conducted to gauge interest and feasibility.

Stakeholders

The following stakeholders were identified during the planning process. This is a starting point and not an exhaustive list.

Lead:

- State and Local Board of Education
- FFA
- 4-H
- West Virginia University Extension

Supporting:

- Local farmers who provide mentorship, internship, and work experiences
- West Virginia Community and Technical College System (WVCTCS)

Existing Activities

The following are existing activities that were identified during the planning process. These are efforts that should be built on.

- FFA - In 2017, West Virginia FFA had 68 high school chapters, 10 middle school chapters and 1010 alumni members.
- P20 Pilot - This program in Boone County's Van School District, begun in September 2018, established an early college and STEM (Science, Technology, Engineering, and Mathematics) academy. The goal is to develop work-ready students to pursue jobs in agriculture, forestry, and natural resources, and to allow them to earn their associates degree and better prepare them to enter a 4-year institution. The program is modeled after a program in Roscoe, Texas, that has been successful in including Extension programs like 4-H in their STEM programming. As part of the program for this pilot, every student in the Van School District will be enrolled in 4-H.
- WVDE Ag Cluster - The West Virginia Department of Education offers a cluster in Agriculture, Food, and Natural Resources. This is part of the Career Technical Education (CTE) programs in the state, for which students can receive credits.
- WVU 4-H Programs
 - The mission of the West Virginia Ag in the Classroom Program is to enhance agricultural literacy. This is being accomplished by supporting teachers and providing them with fun, interactive lessons and activities that enhance

classroom instruction in math, science, social studies, nutrition, and literature using realistic agricultural examples. On average, 40 teachers participate in this one-week summer program.

- The summer AgriSTEM Camp provides opportunities for middle schoolers to spend one week on campus. Scholarships are available.
- WV State 4-H Programs - West Virginia State offers 4-H programs.
- The Soil Tunnel Trailer, an interactive learning exhibit, teaches students about soil, water, and specialty-crop vegetables. The Soil Tunnel Trailer is run through the Capitol Conservation District, but is open to schools across the state.
- WV Farm Bureau Mobile Ag Science Lab - The WV Farm Bureau's Mobile Ag Science Lab conducts hands-on classes and other useful experiences and activities. The lab provides a certified teacher for these week-long school visits.

Best Practices

- University of Illinois - The University of Illinois has greatly expanded its agriculture programs in the past two years. They have begun using more on-farm exposure to engage students and encourage them to consider career possibilities in agriculture.
- Illinois Valley Community College (IVCC) - This community college has relaunched its agriculture program after a 21-year hiatus to keep up with employer and industry demand. They are looking to institute dual-credit opportunities in local high schools for students to take classes at IVCC.
- Vermont FarmCorps program - This program includes a high school internship option for students to get on-farm experience.
- Roscoe Collegiate Independent School District (TX) - Since 2012, the Roscoe Collegiate School District has worked with the Texas A&M Agrilife Extension Service to stimulate student interest in STEM-related research through a 4-H curriculum. As of 2013, this program had already increased participation in Nolan County's (the local organization) 4-H Club by 176%.

Goal 7: Create an Agricultural Leadership Program

Background Information

As part of growing the agricultural economy, West Virginia needs to increase the number of leaders in agriculture. The aging workforce and its leaders presents an opportunity for the younger generation to fill some of these roles and become champions for the sector. Leaders can become mentors for beginning farmers and advocates for changes in policy. Through the survey and community meetings for this planning process, participants discussed the need to mentor new farmers and endorse a need for more people with agricultural experience to run for elected offices. These leaders can get involved and put forth efforts to grow the agricultural economy overall.

Strategic Actions

After students graduate from FFA in high schools, there is no statewide program to foster leaders in the agricultural economy like those that exist in other states. To develop more leaders, West Virginia can take the following actions:

- 1. Establish an exploratory committee for an agricultural leadership development program.**
- 2. Institute an agricultural leadership development program.**

The following information details the specific actions that West Virginia stakeholders can take to support the agricultural economy:

Action 7.1: Establish an Exploratory Committee for an Agricultural Leadership Development Program.

- The first agricultural leadership development program began at Michigan State in 1965 through funding from the Kellogg Foundation. The Kellogg Foundation has identified more than 28 state and 6 international programs throughout the world, but West Virginia is not one of them. Therefore, an exploratory committee should be established from members of the WVU Extension and WVU Davis College to further define the Agricultural Leadership Program in the state. The committee would review programs in other states and use models that best suit West Virginia. Leadership development programs in Kentucky, North Carolina, and Virginia are likely the most appropriate model for the program.
- If the program is developed, the committee could become an advisory board charged with selecting criteria for admittance into the program and tasked with accepting emerging leaders into the program.

Action 7.2: Institute an Agricultural Leadership Development Program.

- The goals of an agricultural leadership development program are to instill innovative approaches to management, encourage strong economic enterprises, strengthen business decisions, and go on to increase their industry representation and participation in community leadership roles. West Virginia's agricultural leadership development program involves the following:
 - It is a two-year intensive training program for young agripreneurs and agricultural producers to learn about current issues in agriculture and further develop communication, management, and overall leadership skills. It requires about a commitment of two or three days a month.
 - There are regional seminars throughout the state to educate participants on different state-level issues and opportunities to develop better all-around leaders.
 - The program proposes visits to other parts of the country and the world to learn about policies and innovations by attending domestic and international to conferences.
- The program would need an administrative backbone so the exploratory committee would need to identify a project management resource to execute this effort.

Stakeholders

The following stakeholders were identified during the planning process. This is a starting point and not an exhaustive list.

Lead:

- West Virginia University Extension
- West Virginia University, Davis College

Supporting:

- West Virginia Department of Agriculture
- West Virginia Farm Bureau
- West Virginia Food and Farm Coalition

Existing Activities

The following are existing activities that were identified during the planning process. These are efforts that should be built on.

- Women in Agriculture - This effort is spearheaded by WVU Extension and aims to further develop the roles of women in the agricultural economy. There is an annual conference with various speakers that aims to develop leadership skills and help business growth.
- West Virginia Agri-Women - Formed in April 2013, this organization is open to women interested in all aspects of agriculture, especially farm and agribusiness and women who are dedicated to furthering the understanding and promotion of agriculture in WV.
- West Virginia Farm Bureau Young Farmer and Rancher Program - This program provides leadership opportunities for men and women between the ages of 18 and 35. Participants compete in events for a \$500 travel stipend to the American Farm Bureau Federation's

Annual Convention. Young farmers are recognized for achievement in leading their enterprises, active participation in mock committee meetings, and understanding of agricultural issues and experiences.

Best Practices

States whose programs can be used as a model:

- Kentucky
- North Carolina
- Virginia

Goal 8: Enhance Mentorship & Training for New Farmers

Background Information

In order to encourage young people to pursue careers in farming, they must be provided with the information and tools they need to start and sustain their businesses.

West Virginia has many existing programs to train and educate farmers. However, there is little in the way of programs that are designed specifically to support the needs of new farmers. The state should encourage more “in-person” programs such as mentorship, apprenticeship, and incubator programs to support enterprise sustainability. The WV Agriculture Clearinghouse could provide a “one-stop shop” for much of this information. These types of programs can support WV residents interested in farming, and attract out-of-state residents to farm in WV.

Strategic Actions

To create a robust array of options to support new farmers, West Virginia can take the following actions:

- 1. Support Existing Apprenticeship Programs.**
- 2. Create a Statewide Beginning Farmer Program by Adapting Existing Models to Fit West Virginia’s Needs.**
- 3. Recruit Potential Farmers Who Are Non-Traditional, e.g. Veterans.**

The following information details the specific actions that West Virginia stakeholders can take to support the agricultural economy:

Action 8.1: Support for Existing Apprenticeship Program.

- Many existing apprenticeship programs (independent of the Extension services) in West Virginia are limited due to the number of seats for students to participate. One of the first steps in supporting these existing programs can be for Extension to engage the various farmer training programs and organizations in the West Virginia Food and Farm Coalition’s Incubator Network as well as the West Virginia Farm Bureau’s apprenticeship programs to understand how/if they are currently functioning at capacity and what their plans are for the future. Part of this can be asking these programs how strong the demand for these programs has been. These programs can also share information regarding their ability to expand their programming as well as what has and has not worked for them--and they should keep a record of this information. In this evaluation effort, these programs can be mapped across the state to see how they line up with high farming counties.

Action 8.2: Create a Statewide Beginning Farmer Program by Adapting Existing Models to Fit West Virginia’s Needs.

- If the existing programs do not meet the demand for apprenticeship and training, West Virginia can create a statewide Beginning Farmer program based on some of the former training models. It can be based on information gathered from the initial evaluation from other programs in WV and other states. For instance, Future Harvest Chesapeake Alliance for Sustainable Agriculture (CASA) leads peer-to-peer education efforts in the Chesapeake Bay, offering three different tiers of farmer education. Future Harvest CASA works with local farms in the Chesapeake Bay region to teach and mentor beginning farmers. WV Food and Farm Coalition and the Small Farms Conference could work with Future Harvest CASA to bring this program to West Virginia.
- West Virginia could also adapt the Farm Beginnings model for this program. The Farm Beginnings class is a 12-month training session to help beginning farmers clarify goals and strengths, establish a strong enterprise plan, and start building their operations. The course uses a mix of farmer-led classroom sessions, on-farm tours, and an extensive farmer network. Started by the Land Stewardship Project in Minnesota, the model has been adopted by more than a dozen organizations across the country who work under the Farm Beginnings Collaborative. The state's Extensions, in partnership with the Department of Agriculture, could partner to develop such a program.

Action 8.3: Recruit Potential Farmers Who Are Non-Traditional, e.g. Veterans

- Recruitment is key to ensuring that these training programs advance the goal of creating new farmers in West Virginia. These programs should not only recruit from traditional high school and college agriculture programs, but from other pools of potential farmers as well. One successful example of this is the Veterans and Warriors to Agriculture Program. Other non-traditional audiences can be engaged through WVU Extension's Family and Nutrition Adult Educators. SNAP Employment and Training could help pay for trainings.

Stakeholders

The following stakeholders were identified during the planning process. This is a starting point and not an exhaustive list.

Lead:

- West Virginia University Extension
- West Virginia State University Extension
- West Virginia Food and Farm Coalition

Supporting:

- West Virginia Department of Agriculture
- Small Business Development Organizations

Existing Activities

The following are existing activities that were identified during the planning process. These are efforts that should be built on.

- Food and Farm Coalition's list of farms offering incubator/training programs : Sprouting Farms, Refresh Appalachia, Grow Ohio Valley, KISRA's Paradise Farms, Minutemen Farmers Cooperative, Backbone Farm, Harmony Farm, Hudson Farm, Mountain Harvest Farm, Moon on the Mountain Farm and Round Right Farm. The status of many of these is uncertain.
- Whitlock Farm is a growing incubator in the Eastern part of the state.
- WV CRAFT (Collaborative Regional Alliance for Farmer Training)-This is a farmer-led, peer-to-peer learning program that offers young, beginning, and experienced farmers an opportunity to participate in farm tours and roundtable discussions across the state. They focus on specific topics and allows farmers to connect with one another.
- Veterans and Warriors to Agriculture - The VWA allows fellow veterans to learn about agricultural practices that will help them harvest crops and grow food.
- WV Farm Bureau Patriot Project - This is a six -month program that places a veteran with a farmer to help support the veteran's interest or area of production.

Best Practices

- University of Vermont's Extension offers the New Farmer Project, an initiative that collects information and resources from the broader Vermont Agriculture community to teach and support new farmers how to create successful agricultural businesses. The project is built on a one-stop website, with links to beginning classes and workshops, "toolsheds" with resources on specific topics, and contact information. These toolsheds feature topics such as business management, land access, marketing, and promotion. The program makes an effort to coordinate with partner organizations to avoid duplication and uses their *Resource Guide for Vermont's Aspiring and Beginning Farmers* to explain the services of different organizations and agencies.
- The Land Stewardship Project's Farm Beginnings Program, based in Minnesota, is one of the best known and most respected programs in the country. Farm Beginnings has served as a model for a nationwide community-based beginning farmer support initiative called the Beginning Farmers and Ranchers Development Program, administered by the USDA. The Farm Beginnings class is a 12-month training session that helps new farmers clarify goals and strengths, establish a strong enterprise plan and start building their operations. The course uses a mix of farmer-led classroom sessions, on-farm tours, and an extensive farmer network. Farm Beginnings is designed for new and prospective farmers who want to plan a profitable farm business. All organizations that offer Farm Beginnings belong to the Farm Beginnings Collaborative (FBC). It is a growing national alliance that is growing

and now includes 13 organizations with programs serving beginning farmers in 14 states. Farm Beginnings programs have graduated hundreds of farmers, and of those who responded to a 2015 graduate survey, 80% are still farming.

- The Solid Ground Program, created by the University of Connecticut Extension, offers 4-hour classes on the 100 and 200 level for aspiring and beginning farmers. This program is supported by the USDA-NIFA Beginning Farmer and Rancher Development Program.
- Rogue Farm Corps Apprenticeship Program (RFC) - Local farms host and mentor students and Rogue Farms coordinates recruitment, curriculum, and legal compliance. There are two program options: beginner (internship) and advanced-level (apprenticeship). RFC is a non-profit organization.
- Iowa's Savings Incentive Program (SIP) encourages beginning farmers to save \$100 a month for two years. After two years, the SIP will match their savings dollar for dollar. The beginning farmer can then use these savings to purchase a farm asset such as machinery, land, or livestock. Enrollees can meet with a farmer mentor and develop a business or whole farm plan.
- Farmer-to-Farmer Mentoring Program, Midwest Organic and Sustainable Education Services (MOSES) - This year-long program pairs experienced organic farmers with beginning and transitioning organic farmers to promote the successful adoption of organic methods. It is designed for one-on-one interaction.
- Cornell Small Farms Program - This includes modules and resources for beginning farmers in the "Plan Your Farm" hub.

Goal 9: Grow the Next Generation of Consumers

Background Information

In order to stimulate sales for local agricultural products, West Virginia must have people who are interested in buying local, healthy products. Encouraging children to eat healthy and support local agriculture is a tactic to increase demand and change the culture in the long term. The concern that West Virginia lacks a healthy eating culture to support local agriculture production was mentioned in the survey and in community meetings. Results showed that some people are discouraged by the prospects of healthy, local foods due to poor eating habits in West Virginia. In fact, as of 2017, West Virginia had the second highest childhood obesity rate in the United States.⁴²

To combat this culture and for locally-grown food to be more successful, long-term educational strategies are needed. Currently, the SNAP-Ed program is the primary source of nutrition education for West Virginia school children. With 50 educators throughout the state, this program reaches 25,000 students a year during a 6-8 week program, with curriculums tailored to grade level. One particular curriculum within nutrition education is focused on garden-based learning. Other programs supported by SNAP-Ed include the Food of the Month program in which nutrition educators focus on a certain seasonal food with schoolwide taste testings and the Children's Farmers Market. In addition to nutrition education, the Farm to School program focuses on increasing the amount of local food served in schools. Learning about and eating healthy food is critical to ensuring the next generation of WV Grown local food.

Strategic Actions

To support healthy eating in school-based programs, West Virginia should ensure that a core set of programs are implemented across the state. Experts working in this field consistently attest to the need for children to learn healthy eating habits at an early age. These strategies aim to do just that.

West Virginia can take the following actions to support the next generation of agricultural consumers and continue the growth of the agricultural economy:

- 1. Scale and sustain ag in the classroom.**
- 2. Scale and sustain garden-based learning.**
- 3. Scale and sustain pop-up farmers markets.**
- 4. Scale and sustain local, healthy eating in school cafeterias**
- 5. Scale and sustain funding.**
- 6. Support a statewide healthy eating campaign.**

⁴² <https://stateofobesity.org/states/wv/>

The following information details the specific actions that West Virginia stakeholders can take to support the agricultural economy:

Action 9.1: Scale and Sustain Ag in the Classroom.

- The mission of Agriculture in the Classroom is to "increase agricultural literacy through K-12 education." An agriculturally literate person is defined as "one who understands and can communicate the source and value of agriculture as it affects our quality of life." The National Agriculture in the Classroom Organization (NAITCO) and the U.S. Department of Agriculture (USDA) Agriculture in the Classroom Team support state programs by providing a network of opportunities to improve agricultural literacy — awareness, knowledge, and appreciation — among K-12 teachers and their students. In West Virginia, this program is run through the WVU Extension, WVU Davis College, and the West Virginia Farm Bureau. It should be expanded to ensure that every elementary school student learns about local food production and healthy eating at a young age. This will require expanding the Extension's ability to engage teachers in the Summer Agriculture Institute to receive the training needing to adopt Ag in the Classroom.

Action 9.2: Scale and Sustain Garden-Based Learning.

- Started in a school in Putnam County, the Garden-Based Learning program is now in its fifth year. It has taught 1,600 elementary school students to grow, harvest, consume (through school cafeterias), and sell their own food. One of the keys to this program's success is the use of high tunnels, a season-extending technology that provides year-round learning opportunities. The goals of the program are to improve math and science skills, and introduce students to more nutritious foods that they can grow on their own. Many of the tools are in place to scale this program such as MOU templates, checklists and curriculum. This is one of the programs available through the SNAP-Ed nutrition education.
- Another garden-based learning venture is the WVSU Extension's Junior Master Gardener program. Developed by Texas A&M, Junior Master Gardener uses a comprehensive curriculum targeting elementary, middle and high-school youth.
- However, the implementation of both programs depends on finding a teacher, administrator or county Extension Agent who is passionate about maintaining a school garden or high tunnel over the long-haul. Volunteer assistance can be helpful, but is not a permanent, sustainable solution. Both WVSU and WVU Extension should establish an AmeriCorps program to provide ongoing capacity for school gardens in each county. As further described below, grant-writing support for schools to raise additional funds to pay staff would help to ensure the sustainability of these programs.

Action 9.3: Scale and Sustain Pop-up Farmers Markets.

- This program initially started in McDowell County, and 2017 marked the first year that the SNAP-Ed program could implement the Children's Farmers Markets semi-state wide. The markets have been a popular and successful way to expose children to eating local food, while providing a source of income for small farmers. The Extension helps to coordinate

farmers and organize the markets and children are provided \$4 in tokens to purchase produce. Funding is supplemented through a variety of outside sources, but for the most part, there has been only enough capacity to conduct markets one time at each school. Many schools across the state have now been exposed to the program, so the opportunity exists to “go deep.” We should expand the capacity and funding to hold these markets multiple times throughout the season.

- In addition to the Children’s Farmers Markets, other programs and organizations have held pop-up farmers markets like this year’s Hands-on Ag Day in Marshall County. Other pop-up markets have also been devised at county fairs. These markets offer small-scale farmers the opportunity to sell produce and exposure for children and families to healthy, local produce. In particular, it provides exposure to private, parochial, and homeschool students who may not have access to the programs described above (e.g. each Children’s Farmers Market results in \$1,000 going to small producers). However, in order to allow for more pop-up farmers markets, two things are required:
 - Infrastructure is crucial to plan for and aggregate produce. Farmers need to know how much and what to grow early in the season. Furthermore, in order to work with small-scale farmers who may not be able to meet market demand, an aggregating system needs to be in place. Currently this is done ad hoc (one farmer will volunteer to aggregate produce from other farmers). Expanding the TurnRow Online Farmers Market may be a way to support this need. Some SNAP Educators have already used TurnRow to successfully aggregate produce for markets. The WV Department of Agriculture may also assist in supporting aggregation; Planning Coordinators work regularly with farmers to help them decide how much and what to plant each season.
 - Other types of support are also needed to provide organizations with the capacity to implement pop-up farmers markets. This should take the shape of a “best practices toolkit” that documents all the knowledge staff has learned. It should also centralize the capacity to engage and pay producers. A stronger partnership with the WV Department of Agriculture or another agency may also supplement capacity.

Action 9.4: Scale and Sustain Local, Healthy Eating in School Cafeterias

- SNAP Educators have a Food of the Month program incorporates seasonal, local foods into the curriculum, and hosts school-wide taste testing. However, this program and the SNAP-Ed program as a whole would benefit from more local, healthy foods becoming available in school cafeterias. Adequate supply and price have historically been limiting factors for Food Service Directors who wish to purchase local produce. More schools have found ways to overcome these barriers, and more creative funding streams are becoming available to incentivize the purchase of local foods. Supporting the development of TurnRow, for example, could greatly enhance a school's ability to

purchase local food. Other methods to increase the use of local food in schools will be developed as part of the Farm to School Strategic Plan.

Action 9.5: Scale and Sustain Funding.

- Inherent in each of the above strategies is the need for sustained funding since these programs are now being funded by small grants. While this does allow for flexible and responsive programming, it hampers the ability to plan; therefore ensuring sustained capacity for school gardens and the supply of produce for markets. In tandem with this effort, all of the school-based healthy eating programs should be convened and inventoried. The inventory can highlight the goals of the program, who it serves, the geography, its impact, and other important details.
- Currently, the WVU Food Justice Lab, WV Food and Farm Coalition, and the West Virginia Department of Agriculture are working toward implementing legislation to provide locally grown produce to statewide healthy food programs. This would be a big step in scaling and sustaining those programs, in addition to creating a consistent and guaranteed source of income for farmers. The Department of Agriculture should also engage the Department of Education in exploring new and creative ways to support these programs.
- Furthermore, the WVU and WVSU Extensions should offer ag-specific grant-writing classes to ensure that all of the county agencies and organizations working on these programs are equipped to find and secure ongoing funding.

Action 9.6: Support a Statewide Healthy Eating Campaign.

- To grow the agricultural economy, West Virginia should develop a statewide marketing campaign to educate the public about the benefits of buying local, healthy food. Currently there are efforts from the agricultural and public health sectors, but these efforts can be even more impactful if aligned.
- This campaign can integrate and build from existing campaigns, including WV Farm Fresh, WV Grown, Try This WV, and Wild, Wonderful, and Healthy WV. This would ensure the sustainability of existing efforts and transfer important lessons learned. The WV Farm Fresh campaign, implemented through a partnership among the WV Food and Farm Coalition, West Virginia Department of Agriculture, and the West Virginia Farmers Market Association, is only funded for two more years. However, important lessons have been learned about making it easy for other organizations to adopt the campaign such as having materials that can be co-branded.
- Collateral and materials can be developed for the campaign. Signage can be erected for stores, designating them as places to shop locally, and for restaurants that offer healthy menu selections. Information on visiting local farms and farmers markets can be distributed, and materials such as healthy-food recipe cards can be disseminated. The West Virginia Department of Agriculture is already in the process of contracting with a firm to market WV Grown, and there are labels to promote WV Grown products. Additionally, there are incentives for producers to participate, plans for an online directory, and an effort to secure other sources and markets for WV Grown products.

- This campaign can be executed through multiple forums, events, newsletters, and teaching session. One potential outlet could be the West Virginia Family Nutrition program through the West Virginia University Extension. They are already working to encourage healthy lifestyles through food demonstrations, so a statewide marketing campaign can be promoted through this program.
- This is an opportunity for the WV Academy of Nutrition and Dietetics (WVAND) to get as many health care associations as possible speaking the same language, since the definition of "healthy" sometimes varies. WVAND defines it as "locally sources, single ingredient, unadulterated, farm fresh foods." However, there are other organizations that are on the front lines educating people on how to improve their health: The WV Nursing Association, WV Family Medicine Association, and Hospital and Healthcare Systems. We need to partner with them, and others who are willing, to empower health care workers with information, tools and resources to catapult and galvanize a steadfast cultural shift toward locally-grown agriculture.

Stakeholders

The following stakeholders were identified during the planning process. This is a starting point and not an exhaustive list.

Lead:

- West Virginia Department of Education
- West Virginia Department of Agriculture
- West Virginia University Extension
- West Virginia State University Extension

Supporting:

- Farm to School Strategic Planning Committee
- USDA
- West Virginia Food and Farm Coalition
- West Virginia Farmers Market Association
- West Virginia Department of Tourism
- SNAP

Existing Activities

The following are existing activities that were identified during the planning process. These are efforts that should be built on.

- WV Family Nutrition Program(FNP) focuses on nutrition, food, and physical activities to support healthy adults, families, and youths. Outcomes for 2016 were:
 - 30 instructors taught 7,219 lessons in 40 counties.
 - 19,921 youths participated in more than 900 school-based and summer group lessons.

- 82% of participants improved their abilities to choose food according to Federal Dietary Recommendations.
 - 42% of participants improved their ability to prepare simple, nutritious, and affordable foods.
- Fresh Fruits and Vegetables Program - Through this program sponsored by the USDA, the state receives a grant and then disperses money to select schools to buy fresh fruits and vegetables. Priority is given to schools with the highest free and reduced-price enrollment, and funds are distributed based on allocation from the Farm Bill (subject to change based on 2018 Farm Bill.) This program encourages healthy eating among low-income students.
- Garden-based Learning - This is a hands-on experience for students to learn how to properly grow and support vegetable production.
- Kid's Farmers Market - This program supplies low-income schools, child care centers, and communities with access to fresh, local fruits and vegetables. It is funded through a grant from the Eye Foundation of America.
 - Pop-up farmers markets are a new economic opportunity for growers, and they would like to see even more of them. This year all Tyler County K-8 students participated in markets that provided over \$7,000 in produce sales for Wetzel and Tyler growers. Chevron Grant in Marshall County provided an additional \$10,000.
- West Virginia Farm to School Community Development Group - This is a public/private task force comprised of the West Virginia Department of Education, West Virginia Department of Agriculture, West Virginia University Small Farm Center, New Appalachian Farm and Research Center, and Collaborative for the 21st Century Appalachia.
- WV Grown Program - This program, run through the West Virginia Department of Agriculture, is for value added products that are either totally grown or produced in West Virginia or may have at least 50% of the total value added by further processing. Farmers and producers can place the logo stickers on products after they have qualified through the WV Grown Authorization Program.
- Farm Fresh WV - The current marketing campaign has commercials promoting farmers markets and an online farmers market locator tool. It also provides templates for Facebook ads, Instagram ads, and radio scripts that markets can use for self-promotion.
 - Partners in this campaign include USDA, WV Food and Farm Coalition, WV Farmers Market Association, and Verglas Media LLC, the latter being the website designer.
 - The campaign is focused on farmers market promotion rather than the larger idea of WV Grown products.
- Wild, Wonderful, & Healthy West Virginia - This program, through the Center for Rural Health Development, teaches community partners to develop collaborative community health improvement plans (CHIPs). They are encouraged to "promote healthy eating through activities such as supporting farmers markets, co-op markets, community gardens, etc. that provide access to fresh, healthy, and affordable local food."

- WVSU Extension's Junior Master Gardener program - Developed by Texas A&M, Junior Master Gardener is a comprehensive gardening education curriculum targeting elementary, middle, and high-school youth.
- USDA DoD Fresh Fruit and Vegetable Program - Administered by the WV Department of Agriculture, it is available to schools in 48 states (including WV), the District of Columbia, Guam, Puerto Rico, and the Virgin Islands. It serves more than 22,000 schools by funding the purchase of fresh fruits and vegetables. The Defense Logistics Agency/Department of Defense awarded a maximum \$42M four-year contract to a local WV vendor that encourages local procurement.
- Grow Ohio Valley Sprout Program - This program exposes kids to healthy food through field trips, farmer visits, cooking classes, pop-up markets, and other activities during the school year and throughout the summer. The program is currently supported by small grants and is based mainly in the Ohio Valley.
- Farm to School Strategic Plan for WV - The West Virginia Department of Agriculture along with partners West Virginia Department of Education and WVU Extension were the recipients of USDA grant funding to formulate a strategic plan for farm to school in the state. This project is currently underway and has an anticipated completion date of summer of 2020.

Best Practices

- Americorps FoodCorps Program
 - Places Americorps members in schools to conduct nutrition education, promote healthy school meals, and create a school-wide culture of health.
 - Students ate three times more fruits and vegetables after participating in hands-on learning.
 - Six out of every ten students served improved their attitudes towards vegetables.
 - Could be a way to increase the capacity of the existing Family Nutrition Program.
- Shaping Healthy Choices Program (SHCP), developed at the Center for Nutrition in Schools at UC-Davis, is an example of a multi-component intervention that combines nutrition education, family and community support, school food environment improvements, and school wellness policies. SHCP includes school gardens, cooking demonstrations, family newsletters, salad bars featuring regional produce, and school health fairs with educational booths and games (CNS-SHCP).
 - In a preliminary program evaluation, there were greater increases in vegetable consumption, produce expenditures, and vegetable variety at the intervention school than at the control school.
- Cooking with Kids is a hands-on food and nutrition education program that operates in Santa Fe, New Mexico and as a pilot program in Colorado. Cooking with Kids includes a tasting curriculum, recipes, and classroom nutrition lessons with Spanish translations (CWK-Nutrition ed). Additionally, the program emphasizes partnerships with local chefs and farmers, inviting them into the classroom to share knowledge.

- The Collective School Garden Network in California and Arizona gives grants, training, and curriculum materials to schools to establish their own school gardens.
 - Children whose schools provided regular school garden lessons had more access to low-fat vegetables and fruit at home than children without that curricula.
- A common reason elementary and middle teachers do not teach agriculture content is lack of time. Therefore ag should be integrated into existing curriculum blocks such as science and social studies.
 - National Ag in the Classroom published K-12 ag learning outcomes that can be integrated into science, social studies, and health coursework across five key themes.
 - They also publish a resource matrix of aligned lesson plans and resources.
- Grow Pittsburgh - Grow Pittsburgh was founded in 2005 by three urban farmers and serves as a resource and guide for backyard, school and community gardens. For schools, Grow Pittsburgh offers their School Garden Programs providing school-based garden and cooking education activities. They also have a Learning Garden Program where schools can apply for specialized ADA accessible outdoor classrooms to teach students about gardening and give them a sense of ownership.

Enhance Access to Land

Goal 10: Connect Potential Farmers with Underutilized Land

Background Information

Obtaining access to productive land is crucial for the development of new farmers and their enterprises. The cost of acquiring land is one issue, while the ability to find usable land was highlighted another initial barrier for farmers. Overall, the amount of West Virginia's land that is used for agriculture has decreased in the last half century, unlike the US at large. West Virginia's cropland accounts for 13.9% of land space, while 76.6% of it is covered by forest. Additionally, owners who are looking to sell their farmland often sell it for development instead of conserving it as farmland. Selling land for development instead of passing it down through families or succession planning removes productive land from the agricultural system. Further, some landowners move away but still own their land. Often this land becomes overgrown and it is difficult to negotiate with the owners for usage; and even if a deal is reached, the cost of cleaning it up is very high. Keeping land in production through proper succession planning can lead to a decrease in invasive species and overall best use of the land. This loss of productive farmland to development, coupled with the difficult topography and forestation of the land, make it more important than ever to increase the conservation of farmland and to connect farmers to land that is available and productive.

Strategic Actions

Changing trends in land usage and increased development make it difficult to connect potential farmers to underutilized land. West Virginia currently has existing programs to help farmers get access to farmland. The West Virginia Farmland Protection Program through the West Virginia Department of Agriculture and NRCS provides an incentive for farmers to preserve their farmland. Additionally, the West Virginia Food and Farm Coalition created FarmLINK, a program to better connect beginning farmers to lands for rent or purchase.

West Virginia can take the following actions to better connect farmers to underutilized land:

- 1. Enhance tax incentives for landowners to rent their land to farmers.**
- 2. Strengthen and align programs to match owners of available land with prospective or current farmers.**
- 3. Promote opportunities to use land for agricultural purposes to landowners.**

The following information details the specific actions that West Virginia stakeholders can take to support the agricultural economy:

Action 10.1: Enhance Tax Incentives for Landowners to Rent Their Land to Farmers.

- More support is needed for statewide implementation of the West Virginia Farmland Protection Program. This program is currently being executed on a voluntary basis by each county. Converting it into a statewide program could increase the amount of preserved farmland. As most other states have done, the WV legislature could make this a state-wide mandate.
- Some states offer incentives beyond basic farmland protection to encourage the conservation of farmland. In Virginia, landowners can receive an income tax credit for 40 percent of the value of donated land or conservation easements. Taxpayers can use as much as \$20,000 per year through 2020 and \$50,000 per year in subsequent tax years. This tax credit is over and above or in addition to the benefits from conservation easements. West Virginia should consider the possibility of a similar program and also inventory their current tax incentives. After identifying policies that are missing, needed or desired, a coalition can be created to move the policy forward. It would be appropriate to engage the Farm Bureau and other advocacy groups to support enhanced tax incentives.

Action 10.2: Strengthen and Align Programs to Match Owners of Available Land with Prospective or Current Farmers.

- The West Virginia Food and Farm Coalition (WVFFC) can coordinate the sale or leasing of available land among all involved agencies and organizations. The WVFFC FarmLINK program was created to help beginning farmers find available land. Currently, administrators at the WVFFC provide services to help match landowners with prospective or current farmers. The West Virginia Land Trust, West Virginia Department of Agriculture, and NRCS are all involved with various facets of land access. The WV Land Trust and NRCS help people preserve their farmland for agricultural use and financial benefit through easements. The West Virginia Department of Agriculture produces the Market Bulletin that lists available land for rent and sale. Some of these government entities own surplus land and do not have a way to market it to the public. These entities can inventory their land together to determine how much of it can be used for productive purposes. All of these agencies and organizations should work with the WVFFC to ensure that their land is cross-listed on the FarmLINK directory.
- To be more efficient, the administrative capacity of the FarmLINK program needs to be built out. Administrative staff can support connections between farmers and landowners and maintain the website. The program needs to be viable both on and offline for accessibility. The WVFFC is currently developing a strategic plan around access to farmland, and a land-match program is a model being considered. This proposed program can be supported by the West Virginia Farm Bureau, West Virginia Conservation Agency, West Virginia Food and Farm Coalition, and the West Virginia Land Trust. As this program develops, a model for a more formal matching program should be explored.
- Land trusts and WV FarmLink efforts that support farmland protection should be promoted through beginning farmer programs, as highlighted in the Mentorship and Beginning Farmer Strategy on page 70. The National Young Farmers Coalition found that there is a lack of awareness between both land trusts and beginning farmers in a survey of their

members and land trust organizations. The West Virginia Land Trust and the West Virginia Food and Farm Coalition's FarmLINK program can both be promoted through the new farmer training programs.

- The 2018 Farm Bill allows heirs to obtain a farm number to participate in federal programs and creates a relending program for projects that assist heirs in property ownership and succession. Heirship issues disproportionately affect low-income and disadvantaged families who often do not have a will or any kind of succession planning.

Action 10.3: Promote Opportunities to Use Land for Agricultural Purposes to Landowners.

- The real estate industry can be apprised of the unique needs of farmers and land utilized for agriculturally based activities, in addition to the importance of an "agricultural classification" when marketing available land. Engaging the real estate industry for support incorporates a broader range of land owners and increases exposure.
- The West Virginia Realtor Association should be enlisted to communicate opportunities to new landowners about renting land to local farmers.
- Educational materials can be created to provide new landowners (with a minimum number of acres) about land suitability, restrictions, government agencies available, and a list of farmers in the area interested in leasing land.

Stakeholders

The following stakeholders were identified during the planning process. This is a starting point and not an exhaustive list.

Lead:

- West Virginia Farm Bureau
- West Virginia University Extension Service
 - WVU Extension can promote this in tandem with the business planning and agritourism workshops/classes with Dr. Dee Singh-Knights and Cindy Martel.
- West Virginia Department of Agriculture
- West Virginia Conservation Agency
- West Virginia USDA NRCS

Supporting:

- West Virginia Food and Farm Coalition
- West Virginia Realtors Association
- West Virginia Land Trust
- West Virginia Farmland Protection Boards
- West Virginia Planning Commissions (where appropriate)

Existing Activities

The following are existing activities that were identified during the planning process. These are efforts that should be built on.

West Virginia has various groups already involved in connecting potential farmers with underutilized land and start-up training.

- West Virginia Food and Farm Coalition operates WV FarmLINK, an initiative working to connect farmers with landowners who want to keep their land in agricultural production. This initiative began as a way to support broader ownership of farmland across all demographics. They are also working on a strategic plan to address access to farmland and exploring different models to support access to land.
- Farmflip, Loopnet, and Landwatch appear to be the preferred methods to find land. These are generic real estate websites that are difficult to navigate and do not specifically focus on supporting potential farmers.
- The West Virginia Land Protection Authority administers the Farmland Protection Program. Since 2003, this program has protected 196 farms and 26,242 acres. It is a voluntary program with less than half the counties participating.
- There are six land trusts in West Virginia: Cacapon and Lost Rivers Land Trust, West Virginia Agricultural Land Protection Authority–Farmland Protection Program, Greenbrier County Farmland Protection Program, Jefferson County Farmland Protection Board, Land Trust of the Eastern Panhandle, and WV Land Trust. Nationally, people can use farmlandinfo.org/directory and findalandtrust.org to find land trusts in their area.
- Sprouting Farms, a nonprofit farm and education resource in Summers County, offers access to their land and other assets such as high tunnels, to support new and beginning farmers.

Best Practices

- The Nebraska Beginning Farmer Tax Credit Program offers direct state tax credits to individuals who rent agricultural assets to new farmers. Owners receive 10% rental credit for cash rentals and 15% of cash equivalent of shares rental. During a 10-year period, the program had 616 participants and owners awarded on average \$5,375 in tax credits per owner.
- The Columbia Land Conservancy (CLC) in New York's Hudson Valley developed the Farmer-Landowner Match Program. It has assisted 400 farmers and landowners and facilitated 71 land matches since 2009. Their 2018 report, "Farmland Access in the Hudson Valley," determined that new match programs need time to understand regional needs before being able to design effective programs to meet local needs. Among the program's offerings:
 - "Conserve a Local Farm" Project - This is a directory specifically for farmland that is at risk for conversion to non-agricultural uses. Since 2013, it has helped one family purchase farmland and assisted dozens of land seekers through their services.
 - The Conservancy offers "Farmers Seeking Land" and "Land for Lease" listings on its websites.

- According to their 2018 report, 32% of participants in the Match Program learned about it through online searches and 30% through marketing and outreach done by the conservancy.
- The report “Land Link Programs in the Northeast US: A Program Assessment and Lessons Learned,” provides details and tips about ways to best support a Land Link program:
 - Land listing, matching, education, technical assistance and mediation are all services included. A match is made when a seeker and owner establish a lease, purchase, or other arrangement to access farmland.
 - The most used services of land link programs were access to a list of potential matches and a listing of land needs and opportunities.
 - Land seekers and owners often require a considerable amount of support to find each other and make good farmland access and use decisions. Services that help both owners and seekers are the offering of potential match recommendations, networking to other resource providers, and meet and greet opportunities between land seekers and owners.
 - Funding for land link budgets range from \$10,000 or less, to more than \$100,000. Funding sources include state funding, grants, fees for services, individual donations, website sponsors or ads (underwriters), or a combination thereof. Most expenses for land link programs are allocated for staffing, travel for site visits and workshops, and website creation and maintenance.
- The National Young Farmers Coalition, an advocacy network for young farmers, offers the following recommendations:
 - Fully fund state programs that purchase agricultural easements. Additionally, states should adopt incentives that encourage local and municipal farmland protection programs including the authorization of municipalities to levy local real estate transfer taxes for conservation; setting aside funding for monitoring and stewardship of easements; and creating new funding sources for state programs that provide more stability for farmers and land trusts (a dedicated tax rather than annual budget appropriations).
 - Include an Option to Purchase at Agricultural Value (OPAV) in all state agricultural easement programs, and adopt supporting legislation.
 - Provide state tax incentives to lease or sell land to young farmers and ranchers.

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