Southern Maryland Agriculture and Aquaculture Analysis

Prepared for the Southern Maryland Agriculture Development Commission

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Contents

Section 1 – Executive Summary

This report was commissioned by the Southern Maryland Agricultural Development Commission (SMADC) and outlines the economic contributions, existing gaps, and strategic recommendations for enhancing the agricultural and aquaculture sectors in Calvert, Charles, and St. Mary's Counties. The Economic Contribution Analysis, conducted using the IMPLAN model, highlights the direct, indirect, and induced economic impacts of these sectors on the regional economy. Agriculture in Southern Maryland contributes more than $158 million in economic output, supporting 2,298 jobs across multiple industries, including farming, transportation, retail, and processing. Aquaculture plays a vital role as well, particularly in the region's seafood production, with both sectors generating significant tax revenues that support local and state services. These sectors are not only crucial for job creation but also for preserving the region's rural character and environmental sustainability. To build on these strengths, the report calls for expanding value-added production and improving access to processing facilities to increase profitability and market resilience.

The **Gap Analysis** identifies several key areas where improvements are needed for Southern Maryland's agriculture and aquaculture sectors to reach their full potential. A major issue is the lack of **year-round marketing options**. Currently, farmers heavily rely on seasonal farmers markets and agritourism events, limiting their revenue-generating opportunities. Access to consistent retail channels like grocery stores, direct-to-consumer platforms, and institutional buyers (such as schools and hospitals) would provide a stable income stream throughout the year. Additionally, there is a **lack of food processing facilities** in the region, which hinders farmers' ability to add value to their raw products. Without local infrastructure for packaging, freezing, or other value-added processes, farmers miss opportunities to extend their selling season and expand their customer base.

Another challenge is the **limited understanding of market needs and consumer preferences**, especially in meeting the demands of ethnic and urban markets in the nearby Washington, D.C. metropolitan area. Southern Maryland farmers lack the knowledge and tools needed to grow culturally relevant crops, such as specific varieties of vegetables and herbs that are in high demand in ethnic communities. The gap extends beyond product offerings, as farmers often struggle with effective marketing and outreach strategies to connect with these communities. This **knowledge gap** limits market penetration and curtails the growth potential of Southern Maryland farms, particularly those who wish to diversify and expand into niche markets.

Workforce development is another critical gap identified in the report. The region faces a shortage of skilled labor in areas such as farm management, food processing, and technology integration, all of which are essential for advancing agricultural and aquaculture industries. The report emphasizes the need for **workforce training programs** that provide workers with the necessary skills in emerging technologies, sustainable farming practices, and modern business operations. By investing in workforce development, Southern Maryland can ensure that its agricultural and aquaculture sectors remain competitive and adaptable in the face of evolving market demands and technological advancements.

The **Strategic Recommendations** section of the report provides a comprehensive roadmap for addressing these gaps. Priority areas for investment include the development of **regional food processing hubs**, which would enable farmers and aquaculture operators to process, package, and market their products locally. This infrastructure would reduce transportation costs, increase product shelf life, and provide new avenues for value-added production. Additionally, the report calls for **improved transportation infrastructure**, particularly to support the efficient movement of goods to markets in Washington, D.C., Baltimore, and beyond. The recommendations also advocate for **public-private partnerships** to fund technology adoption and market expansion initiatives. Collaborative efforts between the public sector and private investors will be crucial in scaling the capacity of Southern Maryland's agricultural value chains and ensuring long-term economic growth.

Resiliency is essential in an agricultural development plan for Southern Maryland due to the region's vulnerability to climate variability, economic shifts, and environmental pressures. As agriculture forms a foundational part of Southern Maryland's economy, **building resilience** means ensuring that farms can withstand and adapt to challenges like changing weather patterns, soil degradation, and fluctuating market demands. A resilient agricultural plan would include practices that **promote soil health, water conservation**, and diversified crop production, helping farmers adapt to unpredictable conditions while safeguarding productivity and profitability. By fostering resilient agricultural systems, Southern Maryland can support sustainable food production, protect its natural resources, and **maintain a stable rural economy** that can thrive amid future uncertainties.

In conclusion, the report underscores the importance of a **comprehensive policy framework** to guide these efforts. Public sector incentives, such as tax credits and grants, will play a vital role in encouraging private sector investment in agriculture and aquaculture infrastructure. By addressing regulatory barriers and simplifying access to financing, Southern Maryland can attract the necessary investment to modernize its agriculture and aquaculture industries. This public-private collaboration is key to building a resilient agricultural economy that not only supports local farmers but also contributes to the region's broader economic development. Through coordinated efforts in policy reform, infrastructure development, and market access, Southern Maryland is well-positioned to become a leader in sustainable, value-added agriculture and aquaculture.

Section 2 – Introduction

The agriculture and aquaculture sectors in Southern Maryland play a vital role in sustaining the region's economy and community development. These industries not only provide essential goods such as food and seafood but also serve as cornerstones for job creation, land conservation, and cultural preservation. However, as the agricultural landscape continues to evolve due to shifting market demands, environmental challenges, and technological advancements, it has become increasingly clear that Southern Maryland's agricultural sector faces critical gaps that need to be addressed. The current market conditions reveal a need for strategic investments that can enhance industry cooperation, improve market access, and support sustainable practices that will future proof the sector against unforeseen disruptions.

SMADC commissioned this study to support the agricultural and aquaculture value chain in the Southern Maryland region of Calvert, Charles, and St. Mary's Counties. The **Gap Analysis** conducted in this report aims to identify key weaknesses and opportunities within Southern Maryland's agriculture and aquaculture value chains. By pinpointing where investments, policy reforms, and market innovations are most needed, this analysis provides a comprehensive roadmap for strengthening the region's agricultural economy. These gaps, if left unaddressed, threaten to undermine the long-term sustainability of the sector. At the same time, they represent opportunities for growth and innovation that could transform Southern Maryland into a leading hub for agriculture and aquaculture. The report focuses not only on current challenges but also on the potential for integrating modern technology, expanding market penetration, and fostering workforce development to support future success.

The **objectives** of this analysis are clear: first, to identify and prioritize investment opportunities that can drive value-added production, enhance infrastructure, and facilitate market access for small and medium-sized farmers and aquaculture operators. Second, to propose measures that foster industry collaboration and public-private partnerships, which are critical for creating an ecosystem where innovation thrives. Third, to provide actionable recommendations for policymakers that can help streamline regulatory frameworks, reduce barriers to market entry, and incentivize sustainable practices. Ultimately, the aim is to build a more competitive and resilient agricultural and aquaculture economy that benefits both producers and the broader community.

Scope and Methodology are central to the validity of this analysis. The study encompasses a wide range of agricultural and aquaculture activities, including crop production, livestock farming, seafood harvesting, and value-added processing. The analysis draws upon a combination of quantitative and qualitative data, utilizing tools such as the IMPLAN economic model to measure direct, indirect, and induced economic impacts. In addition, stakeholder interviews and surveys provided valuable insights into the day-to-day challenges faced by local farmers and aquaculture operators. This mixed-method approach ensures that the findings are grounded in both hard data and real-world experiences, allowing for a nuanced understanding of the sector's strengths and weaknesses.

At the core of this report is the recognition that **Southern Maryland's agricultural landscape is diverse and multifaceted**. It includes everything from traditional farming operations to modern, high-tech aquaculture systems. The region also supports a growing interest in

agritourism, on-farm processing, and direct-to-consumer sales, all of which present new revenue opportunities. However, these enterprises often struggle to reach their full potential due to inadequate infrastructure, limited access to capital, and insufficient knowledge of consumer preferences. These barriers prevent Southern Maryland's agricultural sector from fully capitalizing on its unique strengths and meeting the demands of both local and regional markets.

The report emphasizes the need for **collaborative action**. The challenges facing Southern Maryland's agricultural and aquaculture sectors cannot be addressed in isolation. Public agencies, private companies, non-profit organizations, and local communities must work together to build a robust support system that nurtures growth and innovation. By fostering partnerships and leveraging the resources of multiple stakeholders, Southern Maryland can create a thriving agricultural economy that benefits everyone—from small farmers and aquaculture operators to consumers and local businesses.

Section 3 – Southern Maryland Agricultural Snapshot

Agriculture and aquaculture play a pivotal role in Southern Maryland's economic landscape, serving as key drivers for rural development, employment, and environmental sustainability. This region, consisting of Calvert, Charles, and St. Mary's Counties, is undergoing significant shifts in land use, production practices, and market trends, which are shaping the future of farming. While there has been an increase in the number of farms and farmland since 2017, the overall size of these farms has decreased, indicating a trend toward smaller, more specialized agricultural operations. The evolving landscape also reflects broader shifts towards diversification in land use, with more emphasis on woodland and pastureland and slightly less reliance on cropland.

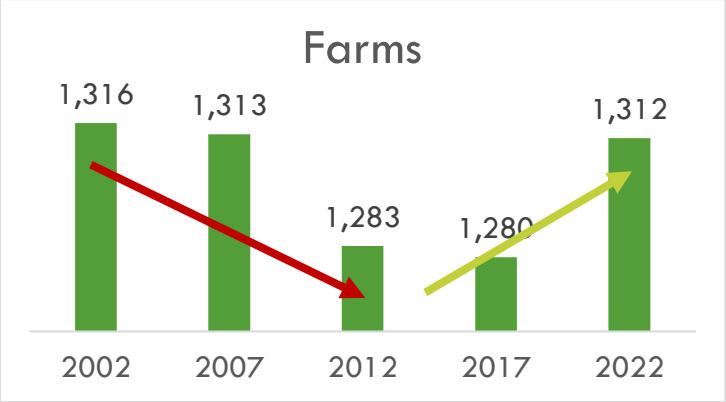
Economic contributions from agriculture are substantial, particularly from commodity crops, livestock, and specialized products such as poultry and eggs, which have shown significant growth. Additionally, sectors such as floriculture and greenhouse vegetable production have expanded, capitalizing on the increasing demand for local, high-quality produce. However, certain segments, like aquaculture, have experienced a decline, presenting challenges to the overall vitality of the region's agriculture sector. Moreover, despite these positive developments, the high cost of agricultural land and increasing labor expenses continue to strain profitability, particularly for small and medium-sized farms.

The demographic landscape of Southern Maryland's farmers is also evolving, with a noticeable increase in the number of younger farmers under the age of 45. However, the average age of farmers remains high, at nearly 57 years old, highlighting the need for continued support for new and beginning farmers to ensure the future sustainability of the region's agricultural workforce. There is also a growing interest in agritourism and value-added processing, although reporting inconsistencies suggest that actual participation may be higher than current data reflects. These alternative income streams offer important opportunities for farmers to diversify their revenue and strengthen their operations against market fluctuations.

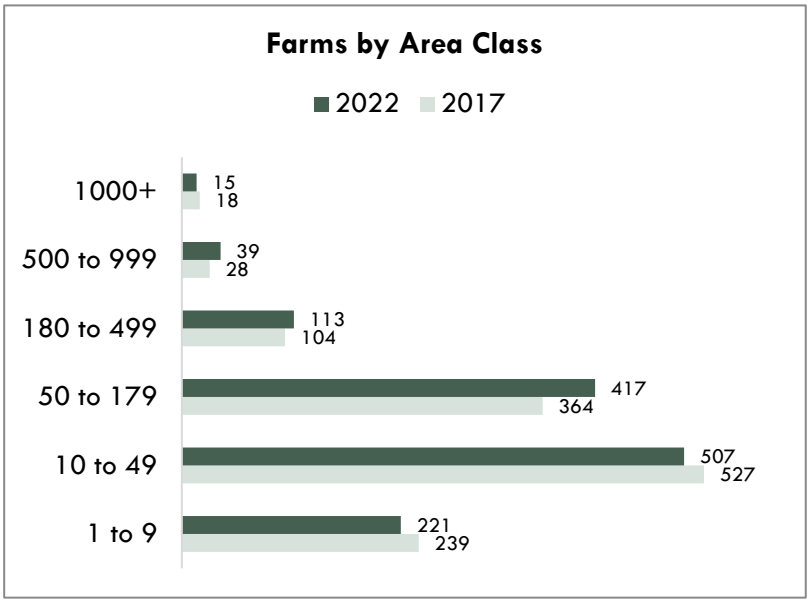
Despite the strengths and opportunities in Southern Maryland's agriculture and aquaculture sectors, the region faces several challenges, including the need for infrastructure investments, particularly in food processing and distribution. Limited access to local food and beverage manufacturing facilities restricts the ability of farmers to expand into value-added production, limiting growth potential. Furthermore, the lack of reliable data on sectors like agritourism and direct-to-consumer sales complicates efforts to fully understand the sector's potential. Addressing these gaps through strategic investment in infrastructure, market development, and policy support will be crucial for fostering a sustainable and resilient agricultural economy in Southern Maryland.

Tri County Agriculture Statistics

The region's farmland constitutes about 21% of the total land area. Since 2017, there has been a 2.5% increase in the number of farms and a 6.9% increase in farmland. Despite this growth, the average and median farm sizes have decreased since 2012, indicating a trend towards smaller farms.



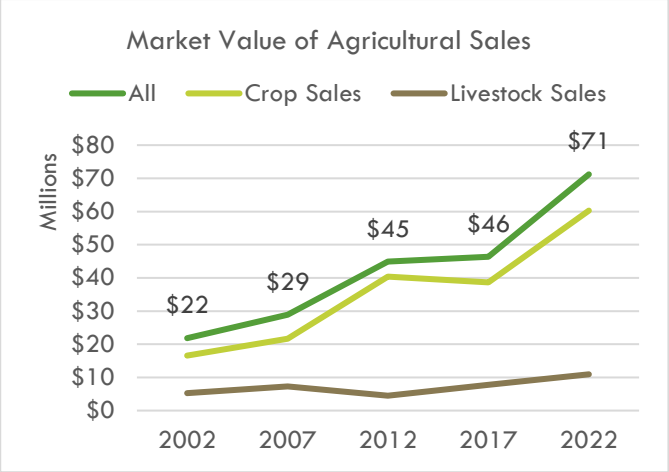
The composition of farmland has also evolved, with significant increases in woodland (15%), pastureland (11%), and other agricultural land (7%) since 2017. Cropland has seen a modest decrease of from 59% to 56% of all ag land. This shift suggests a diversification in land use within the agricultural sector, especially since soil types of drive production. Prime farmland and farmland of statewide importance make up about half of the total land area in the three-county region. This type of soil supports crop production but can transition quickly to woodland or pasture.



Farm preservation efforts have been substantial, with over 74,000 acres of farmland. Of this, 17,000 acres have been preserved using SMADC funds since 2002. These funds have helped leverage the preservation of an additional 22,000 acres. However, the high cost of land remains a challenge, with agricultural land valued at $9,638 per acre in 2022, a 27% increase since 2012.

There is a noticeable shift towards larger farms, with a 39% increase in farms ranging from 500 to 999 acres and a 13% increase in farms between 50 to 499 acres. The average and median farm sizes have increased slightly since 2017. Even with these increases, the bulk of farm sales (64%) is concentrated in farms with less than $10,000 sales annually.

Most agricultural sales come from commodity crops, and the market value of these sales has risen, particularly among farms earning over $500,000 annually. The industry breakdown reveals that hay, diversified crop farming, oilseed and grain farming, and animal aquaculture are the largest sectors. There have been notable increases in poultry and egg production, as well as fruit and tree nut farming. Soybeans, corn, and vegetables are the top commodities by sales, with significant growth in poultry and egg sales, while aquaculture sales have declined.



In terms of production, soybeans and corn lead in acreage. Broilers, or chickens raised for meat, have seen a dramatic increase in numbers, while other livestock categories have experienced mixed trends. Grains and oilseed sales have almost doubled since 2017, and there are opportunities for niche markets like industrial hemp.

Top 10 MD Counties	Grape Acres
FREDERICK	343
ST MARYS	**165**
QUEEN ANNES	145
BALTIMORE	118
HARFORD	105
WASHINGTON	94
ANNE ARUNDEL	90
CALVERT	**60**
PRINCE GEORGES	60
CARROLL	58

Specialty crops are an important and transitioning sector, generally having slightly higher margins than commodities. Greenhouse vegetable sales have increased significantly, mainly due to the increase in greenhouse tomato production. Floriculture remains a major sector with $2.4 million in sales for the region. There has been a decline in outdoor vegetable acreage but an increase in fruit acreage and sales. St. Mary's and Calvert counties are prominent in grape production, with significant increases in grape acreage and the number of grape farms.

Southern Maryland has about 27 aquaculture operations representing approximately 1/3 of operations in the state. Total reported sales are approximately $2.2 million in 2022, but this number is likely an underestimate due to limitations of the disclosed data.

Commodity and specialty crops are on the rise, as has poultry. Poultry sales have surged, increasing 7.5 times to $3.6 million between 2007 and 2022. The increase is mostly driven by broiler production and egg sales.

Cattle sales have decreased, with a decline in the number of cattle farms and inventory. There was an 8% decrease in beef cattle sales and 5% decrease in inventory between 2017 and 2022.

Despite a decrease in the number of dairy farms, cow numbers slightly and milk sales doubled between 2017 and 2022. The number of farms has decreased from 64 in 2007 to 39 in 2022. Herds remain small, but sales per farm have improved from $13,000 in 2012 to $43,000 in 2022.

Hog sales were never very high and have declined slightly, with most operations being small-scale. Sales of sheep and goat products have increased, though the number of farms has remained relatively stable.

Agritourism revenue has increased significantly since 2017, despite a decline in the number of operations. There appears to be a decline in direct-to-consumer and wholesale sales of value-added products. The report also notes a shift towards value-added processing and organic farming, although the number of organic operations has declined. However, data surrounding agritourism, direct-to-consumer and on-farm value added processing is likely to be unreliable due to reporting issues and lack of clarity regarding definitions. As a note, the project team believes that the represented sales are significantly underreported.

A demographic analysis reveals that the average age of farmers is 56.8 years, with a significant portion aged 65 or older. However, there has been an 18% increase in the number of farmers between 2017 and 2022. Despite improvements in average net income, many farms still report losses. Labor expenses have increased by 22% since 2017, with hired labor remaining relatively stable.

Consumer demographic factors also impact the ag sector in Southern Maryland. Proximity to Washington DC and the presence of an important Naval Air Station impact local markets. The consumer wealth index is 146, with 100 being the US average. Average disposable income is $3,280 higher than the Maryland state average of $90,922.

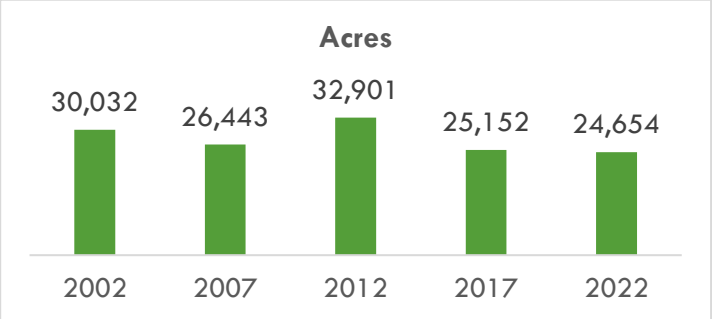
Chart

While ag production remains viable—especially in specialty crops, poultry, and agritourism and on farm value-add—local food and beverage manufacturing is essentially nonexistent. There is some specialized beverage manufacturing, but no other local processing of Southern Maryland produced raw products. This indicates a very low specialization in food, beverage and agricultural supply chain activities that has left the area without the necessary infrastructure and skills to rapidly ramp up sector growth.

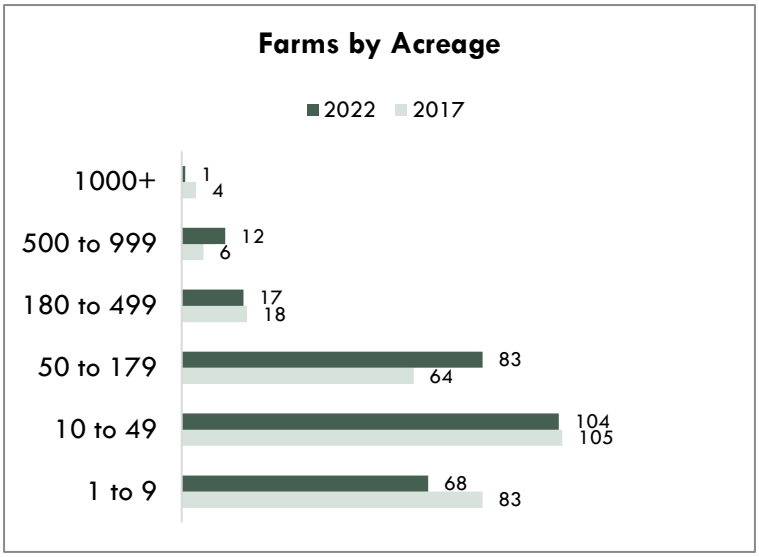
See Appendix A for more detail.

Calvert County

Calvert County's agricultural sector is undergoing significant changes. Approximately 18% of the region's land is dedicated to farming. Despite a 2% increase in the number of farms between 2017 and 2022, the total farmland has decreased by 8,247 acres since 2012. This shift is accompanied by a reduction in both the average and median farm sizes since 2012. There is a slight shift towards larger farms, particularly those ranging from 500 to 999 acres.



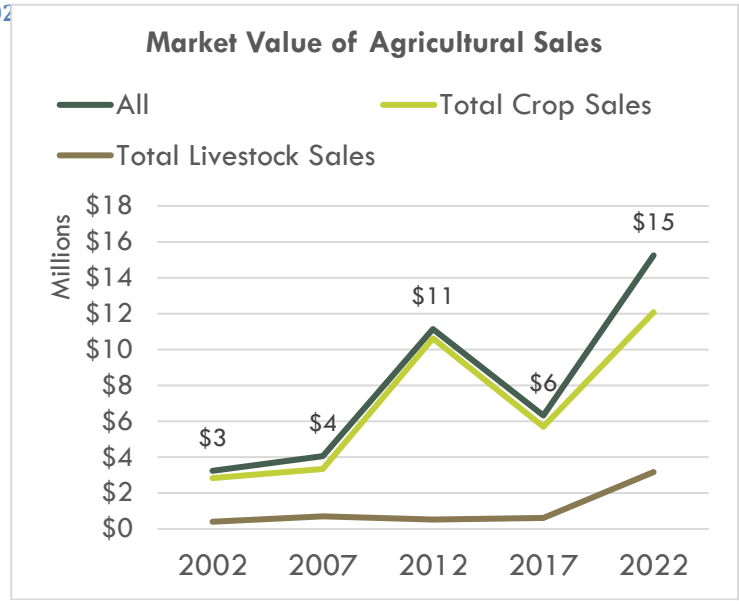
Source: USDA NASS, Census of Agriculture, 2022



Source: USDA NASS, Census of Agriculture, 202

Farmland usage has also seen notable changes. Cropland has increased by 20% since 2017, while pastureland and woodland have decreased by 20% and 33%, respectively. Other types of agricultural land have seen a 12% increase. These shifts reflect broader trends in land use and agricultural practices within the county.

Farmland conservation remains a critical issue. The county has 20,368 acres of prime farmland, but preservation faces challenges due to high land costs. The value of agricultural land has risen to $11,544 per acre in 2022, marking a 53% increase since 2012.



Source: USDA NASS, Census of Agriculture, 2022

Economic contributions from farm sales are significant, with crop sales dominating the market. There has been a recent surge in poultry sales, contributing to the overall increase in the market value of agricultural sales. In 2022, crop sales reached $12.1 million, while livestock sales amounted to $3.2 million.

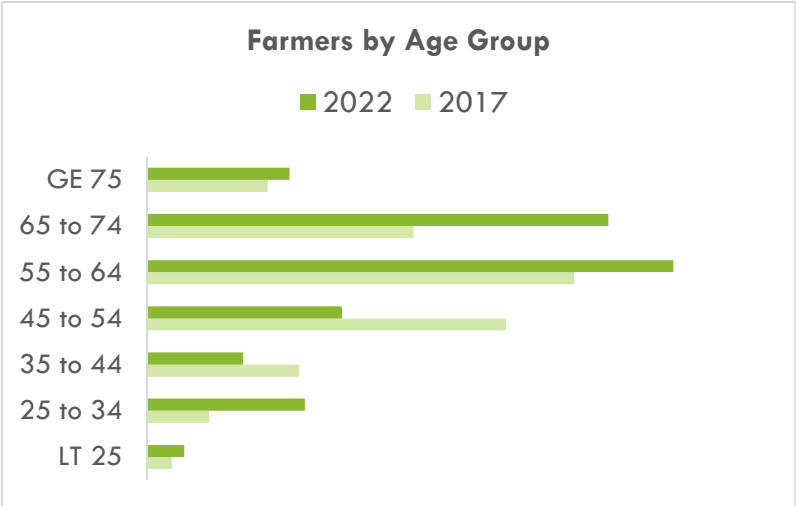
Key agricultural sectors in Calvert County include commodity crops like grains and soybeans, sales of which tripled between 2017 to 2022. Soybeans, corn, and wheat have shown substantial increases in acreage. Specialty crops play a small, but important role. The horticultural sector,

representing 4% of all crop sales, primarily focuses on floriculture production. Produce acres have increase in some crops such as tomatoes, squash, and grapes. Acreage in wine grapes puts Calvert in the top ten production counties.

The livestock and poultry sectors have experienced mixed trends. The number of broilers sold has surged, driving growth in poultry sales. The number of broilers went from 670 to 170,237 in 2022. There has been a decline in cattle farms and sales, with a notable decrease in inventory and dairy sales are practically non-existent. Hog operations with sales have increased slightly, but the farms remain very small.

Farm labor and other expenses present a challenge to profitability. Labor expenses have increased by 23% between 2017 and 2022. Labor as a share of total expenses is around 9% down slightly as a percentage of the total, as total farm expenses have increased 40% since 2017. Almost three quarters of farms operated at a loss in Calvert County in 2022.

Farm demographics impact the future of agriculture as well. The average age of farmers is 58, with a significant portion over 65 years old. Despite this, there is an encouraging increase in younger farmers under the age of 45.



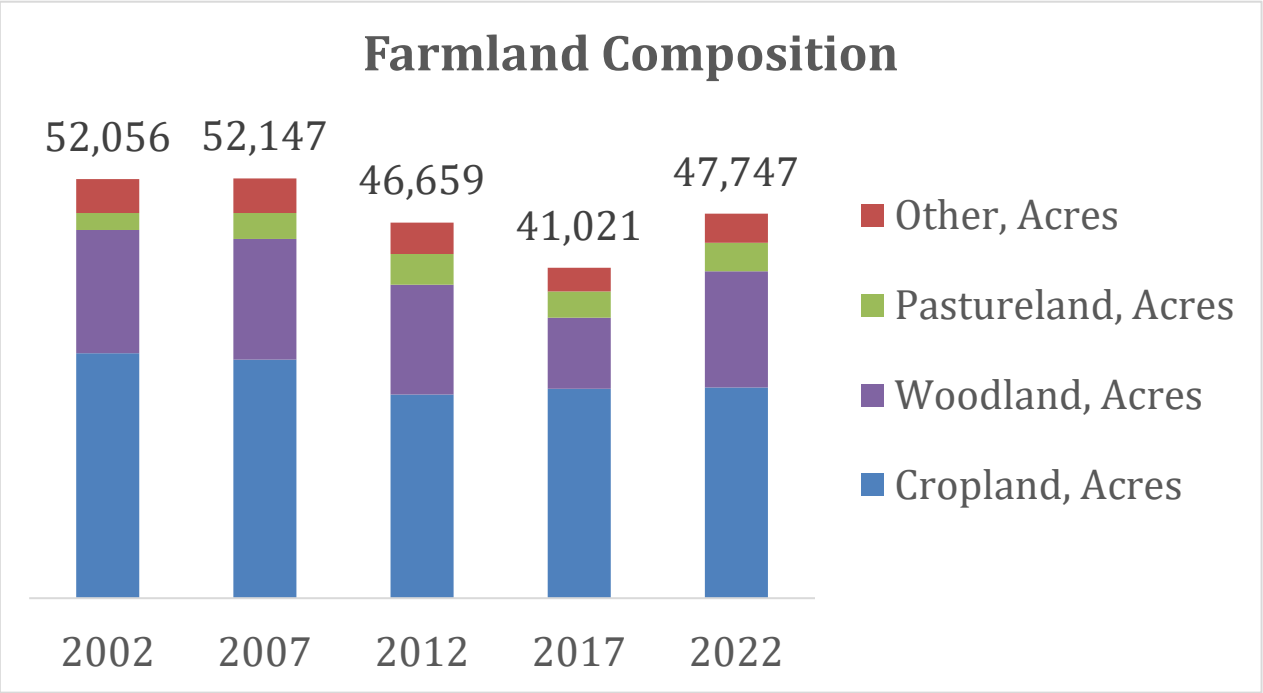
Source: USDA NASS, Census of Agriculture, 2022

Agritourism is growing in Calvert County, although sales remain low. Direct-to-consumer sales have increased by 2% since 2017, while value-added product sales have declined by 24%. These trends highlight the evolving nature of farm profitability and market engagement.

See Appendix B for more detail.

Charles County

Charles County's agricultural sector occupies about 16% of the county's land. Between 2017 and 2022, the number of farms has decreased by 3.6%, although the total farmland has increased by 16.4%. This trend reflects a shift towards more intensive land use and possibly more efficient farming practices. The average farm size has rebounded, with both the average and median farm sizes showing an increase from 2017 levels. This suggests a consolidation of farmland into larger operations. These farms, however, are often forced to produce on small acreage parcels that are geographically dispersed. This challenges efficiency of operation.



Source: USDA NASS, Census of Agriculture, 2022

Farmland composition is changing. While cropland has seen a modest increase of 1% since 2017, pastureland has grown by 7%, and woodland has surged by 63%. Other types of agricultural land have increased by 25%. These changes indicate a diversification in land use, with a significant portion of farmland being converted back to woodland, possibly for conservation or other uses. Interestingly, nearly 50% of all farmed land in Charles County is rented, meaning it is not necessarily under the control of the operator. With an average rental rate for non-irrigated land under $50 per acre, the costs of operating leased land may be lower than the cost of ownership.

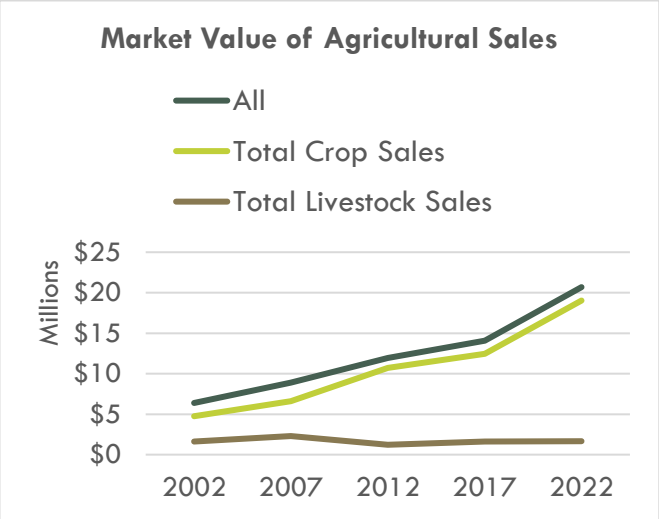
Farmland preservation remains a critical issue in Charles County. The county is home to the bulk of the prime farmland in the SMADC region, with 93,538 acres. It is also home to almost all of acres that would be prime if they are drained or irrigated. However, the value of agricultural land was $7,951 per acre in 2022, a decrease from 2017's high of $9,458, but a 23% increase since 2012.

The concentration of prime farmland means that economic contributions from farm sales are substantial, with crop sales dominating the market. In 2022, the market value of agricultural sales reached $20.7 million, with crop sales accounting for $19 million and livestock sales

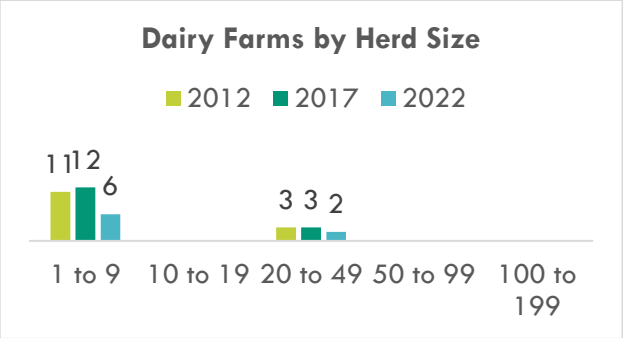
Source: USDA NASS, Census of Agriculture, 2022

contributing $1.65 million. This marks a significant increase from previous years, reflecting the growing importance of agriculture in the local economy.

Key agricultural sectors in Charles County include grains and soybeans, which have seen sales increase from $8.3 million in 2017 to $13.5 million in 2022, a 63% rise. Soybean acreage has grown by 15%, while forage crops have increased by 72.2%. However, corn and wheat acreage have declined by 22.9% and 28.4%, respectively. The horticultural sector, although not fully disclosed, shows significant activity in floriculture, with bedding plants being a major product.



Source: USDA NASS, Census of Agriculture, 2022



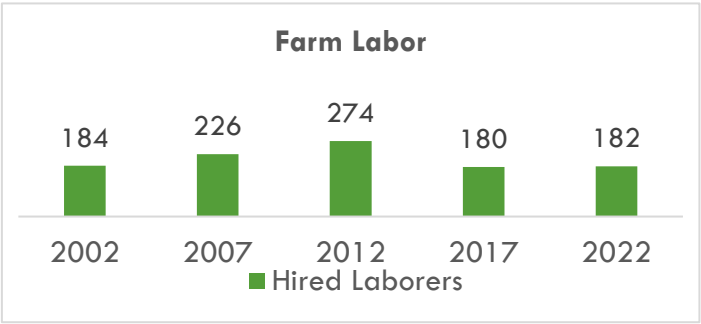
Source: USDA NASS, Census of Agriculture, 2022

Cattle and calf sales have risen by 21.4% to $561,000, despite a 31% decrease in inventory. That decrease matches the decrease in the number of farms with sales. Dairy has also seen significant reductions in both the number of farms and head of cattle. Herd size average is now in the single digits.

The poultry sector has experienced mixed trends, but the number of farms is low enough that some survey data remains undisclosed. The number of layers has decreased by 75.4%, and while broiler numbers have increased, they did so at a much lower rate than Charles County. The number of ducks has increased by 346.5%. Overall, poultry sales—including broilers, eggs, and ducks—have increased 61%.

Charles County saw an 11% increase in the number of farmers in the county, between 2017 and 2022. This is slightly lower than the region's average, but it has an encouraging increase in the number of farmers younger than 45.

Labor continues to be a difficult issue in terms of availability and cost. The number of farm employees is down below 2002 numbers, but wages as a share of expenses is higher. Employment share of total farm expenses has increased to 14%--up from 9% in2007—indicating the upward pressure of wages associated with a shortage of workers.



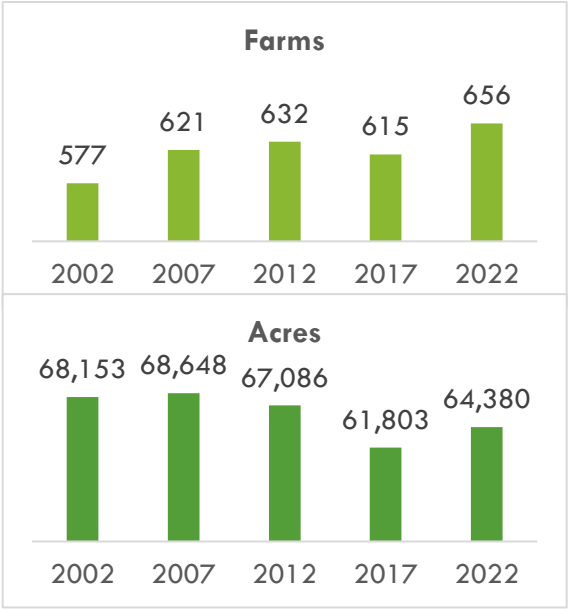
Source: USDA NASS, Census of Agriculture, 2022

Agritourism in Charles County has seen significant growth over the last decade, although activity appears to be tapering off recently. Direct-to-consumer sales have increased by 55% since 2017, with fewer farms involved but generating more revenue. The number of operations involved in wholesale has also increased, indicating a shift towards more diversified marketing strategies.

See Appendix C for more detail.

St. Mary's County

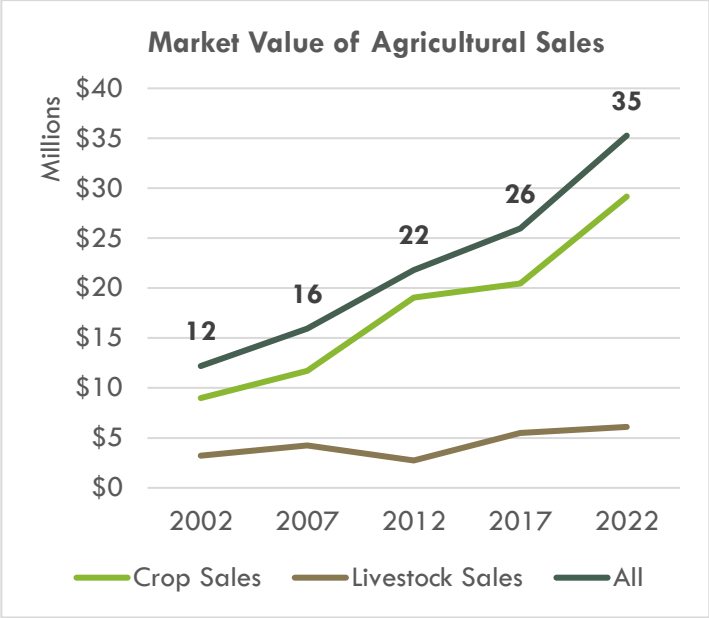
Farmland in St. Mary's County occupies about a little more than a quarter of the county's area. Farm acreage trended downward between 2002 and 2012 but has been on the rebound. Between 2017 and 2022, the number of farms increased by 7%, and the total farmland has grown by 4%. This trend reflects a positive shift towards more intensive land use and possibly more efficient farming practices. However, the average farm size has been declining slowly since 2002, with the median average farm size also lower post-2012. This suggests a trend towards smaller, more specialized farming operations.



Source: USDA NASS, Census of Agriculture, 2022

The composition of farmland has also evolved. From 2017 to 2022, cropland decreased by 6%, while pastureland increased by 36%, and woodland grew by 14%. Almost one-third of the agricultural land is now woodland, but the majority of acres, 54%, is used as cropland. Other types of agricultural land have increased by 28%, reflecting broader trends in land use and agricultural practices within the county.

St. Mary's County has more than 64,000 acres of farmland. These acres are critical for ongoing productivity in the county. The value of agricultural land was $8,652 per acre in 2022, a 31% increase since 2012, although this represents a 13% decrease from the 2017 rate of $9,949 per acre.



Source: USDA NASS, Census of Agriculture, 2022

Economic contributions from farm sales in St. Mary's County make up almost half of region's ag revenue. In 2022, the market value of agricultural sales reached $35.3 million, with crop sales accounting for $29.2 million and livestock sales contributing $6.1 million. This marks a significant increase from previous years, reflecting the growing importance of St. Mary's County in the regional agriculture economy.

Key agricultural sectors in St. Mary's County include oilseed and grain production, which have seen sales

increase significantly. Even though soybean acreage has grown only by 8% sales increased by 62%. Corn acreage has declined by 23%, but sales grew 54%. The horticultural sector, although not fully disclosed, shows significant activity in floriculture, with greenhouse tomato sales increasing by 6% since 2017.

Livestock and poultry sectors have experienced mixed trends. The number of layers has decreased by 11%, while the number of turkeys has increased by 32%. Cattle and calf sales have risen by 21%, despite a 19% decline in the number of farms with cattle sales since 2017. The poultry sector has seen a more than twofold increase in sales, driven by a significant rise in turkey farming operations.

	2007	2012	2017	2022	% Change
Cattle & Calves	4,636	3,706	2,607	3,276	26%
Cows	2,256	1,860	1,649	1,791	9%
Dairy	503	304	234	337	44%
Beef	1,753	1,556	1,415	1,454	3%
Other Cattle	2,380	1,846	958	1,485	55%

Source: USDA NASS, Census of Agriculture, 2022

St. Mary's County is also home to 51% of all the farmers in the Tri-County service area. Labor expenses have increased by 28% between 2017 and 2022 and its total share of expenses is 14%. The average age of farmers is 55.5, with a significant portion over 65 years old. Despite this, there is an encouraging increase in younger farmers under the age of 45.

Agritourism in St. Mary's County is difficult to measure based on USDA Census data. Very few farms indicated their participation in agritourism leading to undependable data regarding this activity. Other added-value activity like direct-to-consumer sales have declined by 35% since 2017, while wholesale sales have declined slightly by 2%.

See Appendix D for more detail.

Section 4 – Economic Contribution Analysis

This economic contribution analysis is an important element of the Agriculture and Aquaculture Analysis (AAA) because it quantifies the value of the relationships between industries and targeted sectors while presenting the relationship of our AAA sectors to the broader economy. By measuring key indicators such as job creation, income generation, and tax revenues, this type of analysis provides critical insights into how specific activities drive economic growth and development.

Economic contribution analysis informs the GAP Analysis, which will be presented in Section 5. It also helps policymakers, business leaders, and stakeholders understand the direct, indirect, and induced impacts of economic activities, allowing them to make informed decisions about investments, resource allocation, and policy interventions. For businesses, knowing their economic contribution can help justify funding, partnerships, or expansion by demonstrating their positive role in the local or regional economy.

Moreover, an economic contribution analysis is crucial for strategic planning and long-term sustainability. By identifying how different sectors interact and contribute to the economy, it highlights areas of strength and opportunities for improvement. It can also show potential vulnerabilities, such as over-reliance on a single industry, and help guide diversification efforts. This type of analysis empowers communities, governments, and businesses to create more resilient economic strategies, ensuring growth is inclusive and benefits various stakeholders while minimizing negative externalities like environmental degradation or economic inequality.

Contribution Analysis using **IMPLAN** is a method for assessing the economic contributions of a specific industry, event, or project to a regional economy. IMPLAN (Impact Analysis for Planning) is a widely used economic modeling tool that measures the ripple effects of economic activity within a defined area. In a Contribution Analysis, the focus is on estimating the role that an existing economic sector or activity plays in supporting jobs, income, and output within the region. The analysis breaks down the effects into three categories: **direct**, **indirect**, and **induced** impacts.

Direct impacts refer to the immediate economic effects resulting from the activity being studied. For example, in agriculture, direct impacts would include the revenue generated by farm operations, the employment of farm workers, and the purchase of inputs like seeds or new livestock.

Indirect impacts arise from the supply chain effects when the directly impacted businesses purchase goods and services from other industries. For instance, a farm may buy equipment, fertilizers, or professional services, which supports jobs and revenue in those supplier industries.

Induced impacts represent the economic effects of increased household spending from wages earned in both the directly and indirectly affected industries. Employees in farming and related industries spend their earnings on housing, food, and other local services, generating further economic activity.

In a Contribution Analysis, these **multipliers**—direct, indirect, and induced—quantify how the initial economic input flows through the regional economy, demonstrating the broader economic significance of the activity being analyzed. See Appendix E for more detail.

Methodology

A multi-industry contribution analysis (MICA) was conducted for the agricultural production sector in Southern Maryland. This analysis uses IMPLAN data from 2022 for the tri-county region and the agricultural industries included in this analysis are listed in the table below.

Industries
Greenhouse, nursery, and floriculture production
All other crop farming
Poultry and egg production
Dairy cattle and milk production
Other animal production
Beef cattle ranching and farming
Grain farming
Oilseed farming
Vegetable and melon farming
Fruit farming
Tree nut farming

Please note that this excludes supporting services such as support activities for agriculture, aquaculture, and forestry that may include activities such as harvesting, handling, and planning. Also, the analysis uses a Local Purchasing Percentage (LPP) of 100%, which tells IMPLAN to model the contribution of the entire industry to the local economy. Note: This is a different methodology than Margin Analysis. See Appendix E for a description of the difference.

Summary

Economic Output Contribution

The agricultural sector contributed $158.2 million to the local economy. Agriculture directly contributed $135.0 million in economic output and drives a total of $14.3 million in output in other industries. The contribution multiplier for the sector is 1.17. In other words, for every $1 of economic output, an additional $0.17 is generated in the local economy.

Employment Contribution

Agriculture supported about 2,298 full-time/part-time jobs (annual average); note that this is not FTE. The agricultural sector directly employs about 2,158 workers. This means the employment contribution multiplier is 1.06, indicating that every agricultural sector job doesn't have a significant impact on supporting jobs in another industry within the region. These employees also spend about $9.0 million in the local economy.

Labor Income Contribution

The industry supported about $25.9 million in labor income. The following is a breakdown of where the labor income is generated.

- About $17.5 million is employee compensation.
- About $8.4 million is proprietor income.

The other value-added components include:

- About $81.4 million is other property income.
- About $2.4 million is taxes on production and imports.

Table 1. Economic Indicators by Impact (2024 $)

Impact	Employment	Labor Income	Value Added[1]	Output
Direct	2,158.30	$19,795,512.44	$97,385,093.27	$134,973,110.12
Indirect	88.19	$3,469,470.15	$6,666,235.60	$14,250,845.16
Induced	51.57	$2,609,206.66	$5,556,363.43	$8,994,946.43
Total	**2,298.05**	**$25,874,189.25**	**$109,607,692.30**	**$158,218,901.71**

Source: IMPLAN

Agriculture Output

Figure 1 shows the economic output for each industry within the sector. The top 5 industries in terms of total economic output are:

1. Other Animal Production[2]
2. Grain farming
3. Greenhouse, nursery, and floriculture production
4. Oilseed farming
5. Vegetable and melon farming

The top 2 industries represent 48% of the total output, and the top 3 industries represent 66% of the total output.

Figure 2 shows the top 10 industries supported by the agricultural sector through indirect and indirect impacts. The main benefactors are real estate, wholesalers, and agricultural support services. Owner occupied dwellings, which is not a standard NAICS, is also among the top "industries." It represents the value of the house as if it was rented.[3]

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[1] Value Added is a large portion of Total Output. It includes Labor Income (LI), Proprietor Income (PI), Employee Compensation (EC), Other Property Income (OPI), and Taxes on Production and Imports (TOPI).
[2] This category encompasses the farming of animals such as aquaculture, equine, sheep, goats, and bees, as well as less common livestock such as alpacas, llamas, and rabbits.
[3] Owner-occupied dwellings pay for repair and maintenance services, real estate fees, and bank financing fees (such as refinancing a mortgage). These payments generate the iterations of Induced Effects from owning, repairing, and maintaining the home.

Figure 1. Agriculture Sector Total Output

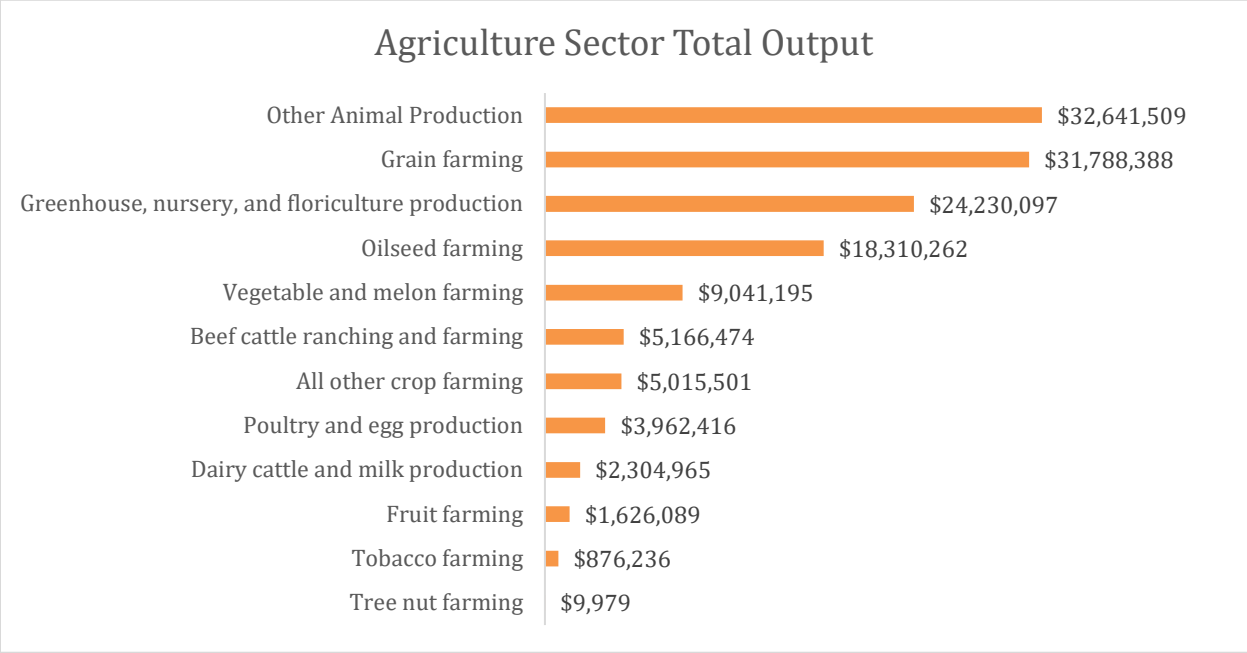
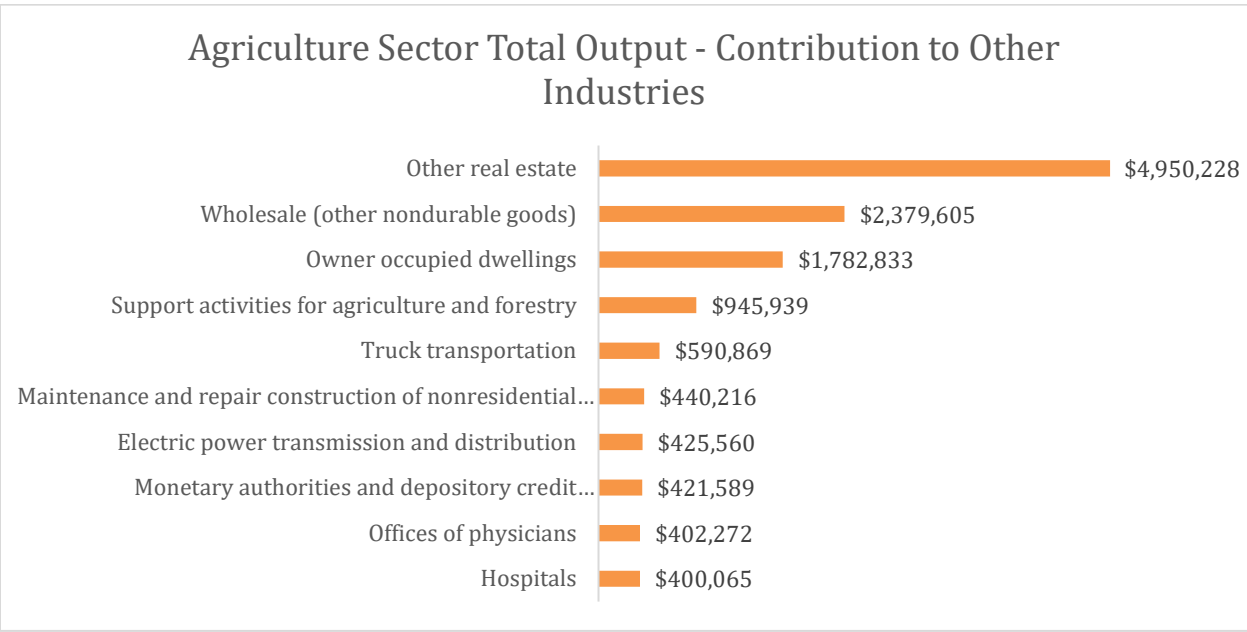


Figure 2. Agriculture Sector Total Output – Contribution to Other Industries



Employment

Most of the employment contribution is through the Aquaculture and Other Animal Production industry. It represents 33% of the sector's total job impact and Is made up entirely of direct employment in the sector. All other crop farming (as an industry) contributes another 387 jobs. Grain farming also contributed about 323 jobs. The top 3 industries combine for about 64% of the sector's total job impact. More details can be found in Appendix F.

Figure 3. Agriculture Sector Total Job Contribution

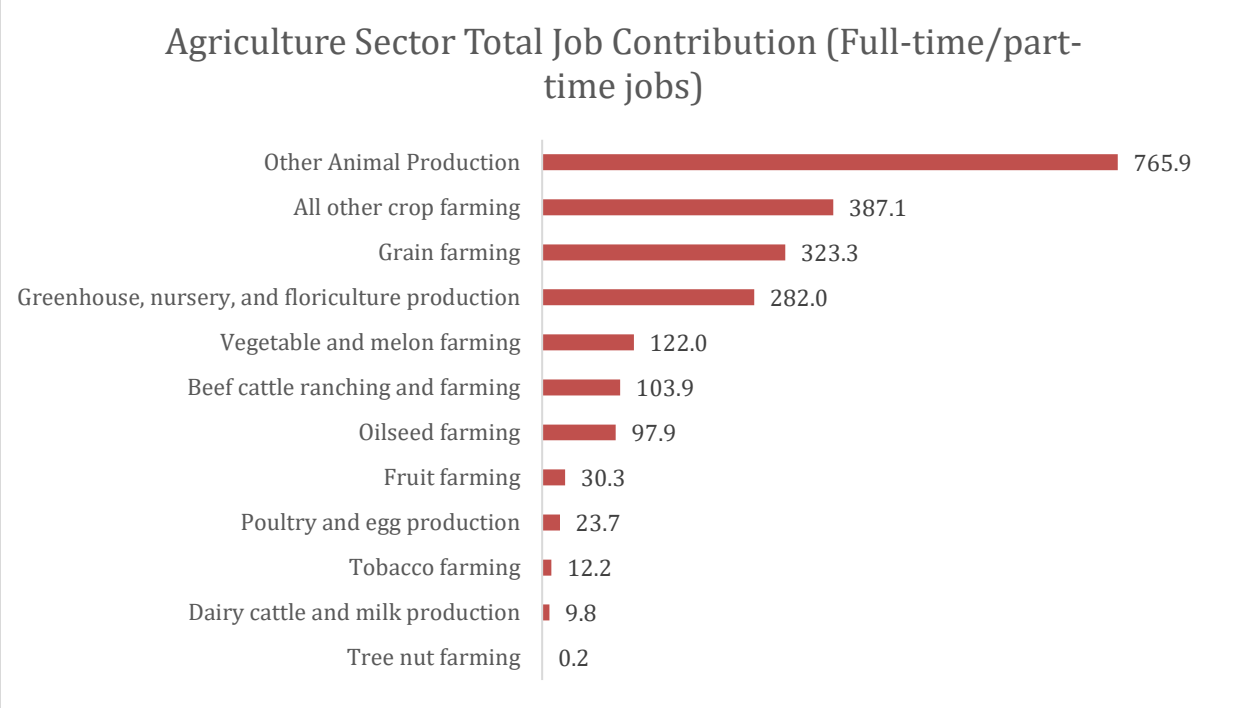


Figure 4 shows the industries the agricultural sector supports through indirect and indirect impacts. The main jobs are in the agricultural support services industry, real estate, and wholesalers. Within the "Other Animal Production" segment, the jobs are nearly all direct employment with many associated with the equine industry. This reinforces the findings from the total economic output. However, the wholesale industry generates more output per job than the agricultural support services industry: $406k compared to $34k respectively. (See Table 2)

Figure 4. Agriculture Sector Total Job Contribution to Other Industries

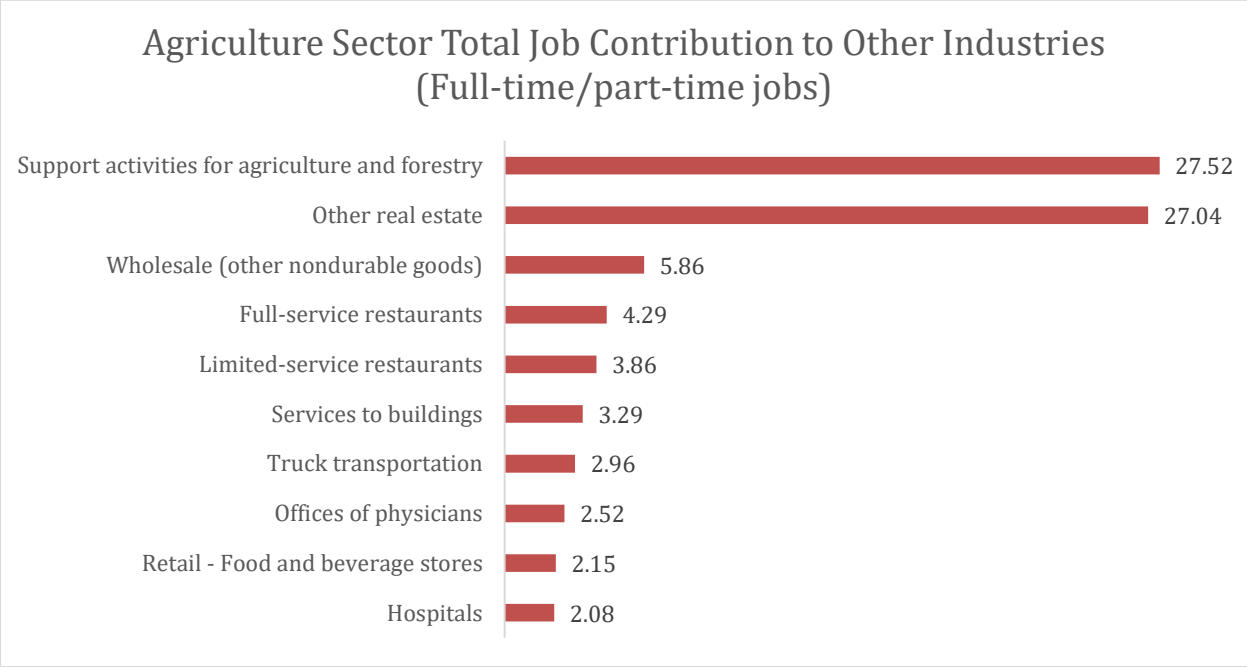


Table 2. Agriculture Sector Contribution to Other Industries

Industry	Total Output	Total Impact Employment	Output per Job
Other real estate	$4,950,228	27.04	$183,066
Wholesale (other nondurable goods)	$2,379,605	5.86	$405,959
Support activities for agriculture and forestry	$945,939	27.52	$34,375

Source: IMPLAN

Taxes

The agricultural sector contributed about $12.4 million to federal, state, and local taxes. This represents about 8% of the total output. About $1.3 million went to the county, $2.9 million to the state, and $8.2 million to the federal government.

Table 3. Tax Impact

Impact	County	State	Federal	Total
Direct	$470,093.08	$1,759,547.77	$6,820,599.17	$9,073,976.85
Indirect	$496,611.03	$679,186.96	$801,317.67	$1,995,080.31
Induced	$288,834.15	$460,148.12	$612,563.51	$1,373,429.61
Total	$1,255,538.27	$2,898,882.85	$8,234,480.35	$12,442,486.76

Source: IMPLAN

Section 5 – Gap Analysis

What is Gap Analysis?

Gap analysis is a strategic planning tool used to evaluate the difference between the current state and desired outcomes for a business, industry, or region. It identifies areas where performance is lacking and helps to create actionable plans to bridge the gap between current capabilities and future goals. By analyzing gaps in performance, resources, and infrastructure, organizations can make informed decisions on where to invest resources to achieve growth.

In economic development, gap analysis plays a crucial role in identifying challenges that inhibit growth. By pinpointing the specific needs of a region or sector, economic planners can develop targeted strategies that address critical areas for improvement, such as infrastructure, workforce development, and market access.

Gap analysis is particularly useful in complex industries like agriculture and aquaculture, where multiple factors—such as production capacity, supply chain efficiency, and regulatory frameworks—affect performance. Addressing these gaps can improve the overall competitiveness of these sectors, supporting long-term economic sustainability.

Overall, gap analysis offers a structured approach to identifying weaknesses and opportunities, ensuring that resources are directed toward areas with the highest potential for positive impact. This approach is essential for developing economic strategies that foster growth and resilience and has been applied collectively to Southern Maryland's food and fiber value chain.

What is the Food and Fiber Value Chain?

The food and fiber value chain encompasses all activities involved in producing, processing, distributing, and consuming agricultural and aquaculture products. It includes a wide range of sectors, from farms and fisheries to manufacturers, distributors, and retailers. Each stage adds value to the raw products, turning them into finished goods ready for the market.

The production sectors form the foundation of the food and fiber value chain. Farmers and fishers grow and harvest crops, livestock, and seafood, providing the raw materials for further processing. These activities are critical for supplying inputs to other sectors in the value chain.

Research and development (R&D) plays a key role in the value chain by driving innovation in farming practices, sustainability, and product quality. Advances in technology and agricultural science help improve yields, reduce waste, and enhance the nutritional value of food products, contributing to the overall strength of the value chain.

Manufacturing is another critical component of the food and fiber value chain. During this stage, raw products are processed, packaged, and transformed into consumer goods. Manufacturing adds value by making products more accessible, convenient, and marketable.

Distribution networks connect manufacturers to retailers and consumers. Efficient logistics systems ensure that products reach their destinations quickly and at a reasonable cost, while maintaining quality and freshness. Distribution is essential for expanding market reach and improving consumer access to locally and globally sourced goods.

The end consumer is the final link in the food and fiber value chain. Consumers' preferences drive demand for certain products, influencing decisions made at each stage of the value chain. As consumer awareness of sustainability and ethical sourcing grows, these preferences are reshaping the value chain to prioritize local, organic, and responsibly sourced products.

What are the Local Gaps?

In agriculture and aquaculture, interviews and data analysis highlight and identify areas where production, supply chains, and markets need improvement. By focusing on the critical gaps in infrastructure, market access, and policy support, economic planners can develop targeted strategies to promote sustainable growth and competitiveness that are essential to sustaining healthy agricultural and aquaculture activities.

The following outlines key gaps in food processing, ethnic market opportunities, on-farm entertainment, retail structures, workforce conditions, and public policy. Addressing these gaps will enhance the regional economy by improving the efficiency and competitiveness of local agriculture and aquaculture. These will be explored in more detail later in this section.

Many of the gaps highlighted below in some manner deal with the concept of value-added agriculture. More succinctly, they identify the gaps that keep our region's farmers from engaging in activities that neighboring states' farmers can engage in with little or no difficulty.

What is Value Added Agriculture?

Value-added agriculture involves transforming raw agricultural products into goods that offer a higher market value and increased revenue potential for farmers and producers. This concept encompasses a range of activities designed to enhance the value of agricultural commodities through processing, branding, packaging, and market differentiation. By adding value to their products, farmers can diversify their income streams, reduce dependency on traditional commodity markets, and meet specific consumer demands.

A common example of value-added agriculture is the production of specialty food products. For instance, a dairy farmer might produce artisanal cheeses instead of selling raw milk. This not only allows the farmer to command higher prices for the cheese but also creates a unique product that can attract niche markets. Similarly, fruit growers might make jams, jellies, or dried fruits, thus extending the shelf life of their produce and providing consumers with convenient, high-quality options.

Another example is organic and sustainable farming practices, which can increase the value of agricultural products through certified cultural practices. By adopting organic certification, a vegetable farmer can market their produce as organic, appealing to health-conscious consumers willing to pay a premium for organically grown foods. This approach often includes eco-friendly farming practices that not only enhance the product's value but also contribute to environmental sustainability.

Farmers can also add value through agritourism, which combines agricultural production with tourism. For example, a vineyard might open a tasting room and offer tours, allowing visitors to experience the wine-making process firsthand. This not only generates additional revenue from tour fees and direct sales but also creates a unique marketing opportunity to build brand loyalty and attract repeat customers.

Simply put, value-added agriculture provides farmers with opportunities to increase profitability and resilience by differentiating their products and tapping into new or expanded markets. Whether through processing, organic certification, category management services, or agritourism, these strategies can help farmers enhance their economic viability while meeting consumer demands for unique, high-quality agricultural products.

Gap 1: Limited Food Processing and Distribution

A significant gap in the agriculture and aquaculture sectors is the lack of local food processing and distribution infrastructure. Without processing facilities nearby, farmers and fishers face high costs to transport raw goods long distances for processing, which reduces their profitability, resiliency. and efficiency.

This gap is listed first because the project team feels that the lack of any real industry structure within the agricultural and aquaculture value chain is a significant limiter of growth for the industry and the region overall. Put simply, the area lacks industry clusters and therefore has no real specialization in assets or workforce to build upon.

To address this gap, investments in regional food processing facilities could allow producers to add value to their products locally. This would reduce transportation costs and enable farmers and fishers to retain a larger share of their earnings. Enhanced distribution networks are also critical for connecting local producers to regional and national markets more effectively. Ultimately, the development of a cluster of related assets would be the goal of closing this gap.

Why are Industry Clusters Important?

Developing industry clusters in the food and seafood value chains is crucial for fostering community growth because it creates a network of interconnected businesses, suppliers, and service providers that can drive innovation and efficiency. Clusters help businesses within the same sector benefit from proximity to each other, which can reduce costs, improve supply chain coordination, and foster collaboration. For example, in a food and seafood cluster, processors, distributors, equipment suppliers, and marketing firms can work to share knowledge, workforce, and resources. This collaboration leads to better access to technology, shared infrastructure, and quicker adaptation to market trends, all of which make the entire sector more competitive and sustainable.

Additionally, industry clusters generate economic growth by attracting investment, creating jobs, and supporting entrepreneurship. A strong food and seafood cluster can create a ripple effect throughout the local economy, as businesses in related sectors—such as transportation, packaging, and retail—also benefit from the increased economic activity. By building specialized skills and knowledge within a concentrated geographic area, clusters can draw in more skilled labor and specialized services, which can lead to higher wages, increased job opportunities, and a more diversified local economy. In turn, this growth provides stability for communities that rely on these industries, ensuring long-term economic health and resilience.

Furthermore, industry clusters foster innovation by encouraging competition and collaboration among businesses. In a food and seafood value chain cluster, companies are more likely to share best practices, invest in research and development, and collaborate on sustainability initiatives that improve overall efficiency and environmental stewardship. This continuous improvement process enhances the competitiveness of individual businesses and strengthens the entire regional economy. As a result, developing industry clusters in food and seafood can lead to more resilient communities, with stronger business ecosystems and greater adaptability to changing market demands.

Gap 2: Large Potentially Underserved Markets

According to a June 19, 2023, article in Food Trade News, the retail food market in the Washington, D.C. metropolitan area is significant, with annual food sales estimated at around **$60.6 billion** in Washington, D.C., Baltimore, and surrounding counties. This figure represents a substantial portion of the overall economy, driven by major grocery retailers like Giant Food, Walmart, Safeway, and others that command significant market shares.

For example, Giant Food, the leading retailer in the Washington, D.C. area, recorded annual sales of approximately **$6.38 billion**, while Walmart, another major player, had sales around **$6.06 billion**. This shows the high demand for food products in the region, which is bolstered by the area's diverse population and relatively high household incomes.

Yet, there is a gap between the scope and scale of the retail marketplace regionally and the proportion captured by local farmers and aquaculturalists. Correcting this gap by even 0.25% would lead to an additional $152 million in sales.

2A Enhancements to Existing Retail Structures

Farmers in Southern Maryland face significant gaps in retail market penetration, particularly due to limited access to year-round marketing opportunities. Much of the agricultural economy in the region remains tied to seasonal sales, such as farmers markets or agritourism events, which restrict revenue generation to specific months of the year. These seasonal outlets do not provide the consistent, year-round income that many farmers need to grow their operations or invest in infrastructure improvements. For many farmers, the largest hurdle with the developing these on-farm options is the cost and uncertainty of development process given the current zoning and land use control conditions.

Additionally, farmers often lack access to larger retail distribution networks, like grocery stores or restaurants, that would provide more stable, long-term sales opportunities because they cannot meet the food safety and merchandising requirements. Without strong distribution channels or direct-to-consumer sales platforms, small farms struggle to meet the demands of modern retail markets.

Another significant barrier is the limited understanding of market needs, preventing farmers from developing on-farm retail operations that effectively cater to local customers. Many farmers in Southern Maryland lack training in consumer behavior, branding, and marketing strategies that are crucial to building successful retail outlets. This knowledge gap leads to missed opportunities for developing value-added products, customized on-farm experiences, or packaging and labeling that appeal to modern consumers. Furthermore, regulatory complexities and lack of business development support make it difficult for small farms to expand into direct sales or retail operations. Farmers in the region need access to business training, marketing tools, and assistance in navigating regulations to fully capitalize on retail opportunities and enhance their market penetration. (See Appendix G for more information on county level branding and marketing programs.)

2B Ethnic Markets in the Washington DC Area

The Washington, D.C. area is home to a diverse range of ethnic communities, many of which have specific cultural preferences for food products that are not currently served by local suppliers. This represents a large, untapped market for local agricultural and aquaculture producers.

Despite the success of the Amish community in reaching a large Hispanic market, most farmers in Southern Maryland face several challenges in filling the growing demand for ethnic products from DC-area customers, including significant language and cultural barriers. Many farmers lack the ability to effectively communicate with diverse ethnic communities, particularly those from immigrant populations, which hinders the ability to understand specific cultural preferences and needs. This language barrier often leads to misunderstandings about the types of crops or products that would be most successful in these markets. Additionally, there are cultural barriers in terms of understanding how certain products are grown, prepared, or marketed to specific ethnic communities which even goes to methods of shopping and the desire to select and bargain for items. Without knowledge of traditional food preferences, product forms, or appropriate packaging, farmers miss opportunities to capture these market segments.

Moreover, Southern Maryland farmers often have a lack of understanding of the ethnic market's specific product needs and variety selections, leading to mismatches between what is grown and what is in demand. For example, farmers may not grow culturally relevant varieties of vegetables or herbs that are staples in immigrant cuisines, such as certain types of peppers, bitter melon, or specialty greens. There is also a lack of targeted outreach and marketing efforts to engage these communities. Most farmers are not using culturally appropriate marketing channels or strategies to reach ethnic consumers, missing the chance to build relationships with key retail or wholesale buyers in the DC area. Access to education on market trends, crop selection, and culturally relevant marketing would help Southern Maryland farmers better serve these growing ethnic markets.

Gap 3: Underserved Demand for On-Farm Entertainment and Food Service

Many interviewees indicated that there was greater demand for on-farm hospitality services than they could meet. On-farm entertainment and food service have become increasingly popular among consumers, particularly in regions with a strong agricultural presence. By expanding on-farm entertainment options, farmers can diversify their income streams and attract both residents and tourists to their operations. However, many farms lack the infrastructure or the private and public support structures needed to offer these experiences, leaving a high demand unfulfilled. This is complicated by antiquated definitions of agriculture in land use code and conflicted policy direction in support of agriculture.

Until these issues are fixed, investment in agritourism infrastructure, such as event spaces, visitor amenities, and food service facilities, will not be forthcoming. As noted in many interactions with farmers and watermen, without sound practices and policies to follow, they will be unable to take advantage of this growing market, and regional customers will continue to go to neighboring jurisdictions in Virginia and Pennsylvania that support and encourage such diversity.

Gap 4: Cooperative Outcomes Face Hurdles

Farmers in Southern Maryland often eschew cooperative structures due to a combination of cultural, economic, and logistical factors. Many farmers in the region value independence and self-reliance, often seeing cooperative models as restrictive or cumbersome. This cultural preference for individualism makes it difficult to form collective enterprises, which require trust, shared decision-making, and collaboration. This is complicated by the fact that many farms are multi-business line enterprises and, as such, their attention is divided as farm profitability of often just one element of family financial success.

Additionally, many small-scale farmers in the area lack the knowledge or experience with successful cooperative models, leading to skepticism about their benefits. Economic concerns also play a role, as farmers may be reluctant to pool resources or revenues due to fears of unequal contributions or profits. Finally, logistical barriers, such as the geographic spread of farms and varying levels of production scale, make organizing and maintaining cooperative efforts challenging. These factors combined make many Southern Maryland farmers hesitant to engage in cooperative structures, or even cooperation, despite the potential benefits of shared marketing, distribution, and cost savings.

Furthermore, there is little institutional cooperation because there is low trust between farmers and the institutions and agencies with which they interact. The project team found it difficult to gain the trust of farmers to complete or even schedule interviews. These issues must be addressed so outcomes can improve.

Gap 5: Improvements to Workforce Conditions

The agriculture and aquaculture sectors face workforce shortages, with many producers struggling to find skilled labor. Additionally, the available workforce often lacks the necessary training to meet the demands of modern agricultural practices. Many consider this gap to be existential in nature as well as being intractable.

To address this gap, investment in workforce development programs that provide training and education tailored to the needs of agriculture and aquaculture is essential. Building a skilled labor force would improve productivity and support the growth of the sectors by ensuring that producers have access to a capable workforce. Training operators and owners to better select and employ technology to replace or enhance labor is another essential element to bridging this gap. See Appendix H for more information on agriculture labor.

Gap 6: Increased Public Policy Support

Public policy plays a critical role in shaping the success of the agriculture and aquaculture sectors. However, current policies may not fully support the unique needs of local producers, particularly when it comes to land use, environmental regulations, and access to resources.

To enhance economic conditions in agriculture and aquaculture, increased public policy support is needed. This could include streamlining regulations, providing tax incentives for sustainable farming practices, and improving access to capital for small-scale producers. This gap is rich territory for development at the local and state level.

Addressing the Gaps

In agriculture and aquaculture, gap analysis is essential in identifying areas where production, supply chains, and markets need improvement. By focusing on the critical gaps in infrastructure, market access, and policy support, economic planners can develop targeted strategies to promote sustainable growth and competitiveness.

By identifying the gaps between the current state and desired objectives, stakeholders can prioritize investments and actions that will have the most significant impact on the economic performance of the agricultural and aquaculture sectors.

The following sections explore key gaps in food processing, ethnic market opportunities, on-farm entertainment, retail structures, workforce conditions, and public policy. Addressing these gaps will enhance the regional economy by improving the efficiency and competitiveness of local agriculture and aquaculture.

Gap 1 - Food Processing Value Chain

Current Status

In addition to limited infrastructure, many existing facilities are outdated and lack the modern equipment or scale needed to meet current safety and efficiency standards. The limited processing capacity has not kept pace with the growth in agricultural production in the region, particularly as local farms diversify their output to meet evolving consumer demands for organic and locally sourced products. Many producers face the costly challenge of transporting their goods to neighboring regions with better processing facilities, which erodes profit margins and weakens their competitiveness.

Moreover, the geographic distribution of processing facilities is another challenge. Facilities are often concentrated in particular areas, creating logistical hurdles for farmers in more remote or underserved parts of Calvert, Charles, and St. Mary's Counties. Farmers in these regions face higher costs for transportation and storage, limiting their ability to participate fully in regional markets.

Furthermore, the lack of support infrastructure—such as trucking, grain marketing systems, cold storage, and efficient supply chain networks—adds to the bottleneck. Producers struggle with spoilage and product degradation, particularly in highly perishable goods like meat, poultry, dairy, fruits, and vegetables. The absence of a well-integrated logistics system within the region further weakens the food processing value chain.

Gaps Identified

In addition to the gaps already mentioned, there is a notable lack of investment in innovation within the food processing sector in the region. Technological advancements such as automated sorting, grading, and packaging systems, which could streamline operations and reduce costs, are largely absent. Many local processors rely on outdated methods that require more labor and time, putting them at a competitive disadvantage compared to larger processors outside the region.

Another key gap is the lack of collaboration between educational institutions and the food processing industry in creating specialized training programs. This has led to a skills gap, where the

available workforce does not possess the technical expertise needed to operate modern processing equipment or adhere to food safety regulations. Without dedicated programs to develop these skills, the region faces continued workforce shortages that inhibit the growth of the food processing sector.

Finally, environmental concerns and regulatory challenges present significant barriers to the development of new processing facilities. Stringent zoning laws and environmental regulations, while necessary for sustainability, slow or discourage investment in food processing infrastructure. Potential investors may find the permitting process cumbersome, which further delays the creation of necessary facilities.

Opportunities for Investment

In addition to investments in infrastructure, there is a need for targeted investments in innovation and technology. Public-private partnerships could foster the development of advanced processing techniques, such as the adoption of clean energy technologies to reduce the carbon footprint of processing operations. Moreover, investment in research and development (R&D) programs focused on improving food processing techniques, sustainability practices, and reducing waste could provide significant benefits to the region.

There is also an opportunity for local governments to streamline the permitting process for new processing facilities and adopt innovative technologies. By simplifying the bureaucratic procedures associated with building and expanding food processing plants, the region could attract more private sector investment. Additionally, tax incentives or grants could be offered to businesses that invest in green technologies or sustainable practices within their operations.

Another area for potential investment lies in workforce development. Creating and supporting vocational training programs in food processing technologies, particularly through collaborations with community colleges and universities, would help close the skills gap. By providing educational resources and on-the-job training, the region could build a highly skilled labor force, ready to meet the growing demands of the food processing industry.

Finally, developing infrastructure and support systems around the plain sect communities could offer quick returns in creating the building blocks for a food processing industry cluster. Many of the labor force issues as well as market development issues are already being solved by these communities.

Gap 2 - Enhanced Retail Experience

An enhanced food retail experience strategy, particularly at existing operations, focuses on creating a more engaging, customer-centered environment that differentiates a farm or aquaculture-based retail business from traditional food retailing competitors. By elevating the overall experience, farms and aquaculture operators can build customer loyalty, increase per transaction value, and foster long-term growth.

Key elements of this strategy:

1. **Customer-Centric Design**: Improving store layouts, signage, and product displays makes shopping easier and more enjoyable. Creating welcoming, clean, and well-organized spaces enhances the customer experience.

2. **Personalized Shopping**: Leveraging technology such as loyalty apps, personalized recommendations, and targeted promotions based on customer preferences can increase customer satisfaction and repeat visits. Technology companies have made it possible for even the smallest businesses to create such programs. Working in a collective environment to developed improved visitor experience for those that travel to the area is also important.

3. **Enhanced Product Offering**: Expanding product variety to include specialty items like ethnic foods, organic, locally sourced, or gourmet foods can attract niche customer segments. Unique product offerings can help retailers stand out from large chains and may be important for the larger DC metropolitan area customer base.

4. **Customer Engagement and Education**: Offering cooking demonstrations, tastings, or workshops can create an interactive and educational experience that turns shopping into an event rather than a task. This can also help build brand loyalty.

5. **Seamless Integration of Technology**: Investing in technology like self-checkout systems, mobile payment options, and online order fulfillment (like click-and-collect) improves convenience and enhances the overall customer experience. These efforts can be built into projects like the Regional Ag Center.

6. **Sustainability and Community Focus**: Implementing eco-friendly practices, such as reducing plastic use, offering reusable shopping bags, or supporting local farmers, can appeal to socially conscious consumers. It also strengthens community ties. This is particularly true for consumers in Maryland who highly value retail products with a strong tie to the environment.

7. **Omnichannel Presence**: Combining physical stores with a robust online presence and delivery options allows customers to shop when and how they want, enhancing convenience and expanding market reach.

By focusing on creating a memorable and enjoyable food retail experience, entrepreneurs can drive customer loyalty, differentiate themselves from competitors, and create lasting business success in a highly competitive sector. There are two specific sub-elements in the retail sector that are described in more detail below.

Gap 2A - Ethnic Market Development Report

Current Status

The ethnic market development within Calvert, Charles, and St. Mary's Counties, as well as the broader Washington, D.C. metropolitan area, reflects the diverse cultures in the region. The area is home to a wide range of ethnic communities, including significant populations from Latin America, Africa, Asia, and the Middle East. The growing diversity has led to an increased demand for ethnic food products, both for personal consumption and in ethnic restaurants, grocery stores, and other retail outlets.

Outside of efforts by the Amish community, food processing in Southern Maryland has not yet fully tapped into the potential offered by these ethnic markets. While there are some local processors that cater to ethnic communities, many consumers still rely on imported goods or products shipped from outside the region. The demand for culturally relevant food items, such as specific spices, grains, and other ingredients, is high, but the supply chain for these goods is often inefficient or inconsistent.

Gaps Identified

One major requirement for ethnic market development is product development. Many local food processors do not have the knowledge or resources to produce culturally specific food items that meet the demands of ethnic communities. This lack of familiarity with cultural preferences and cooking techniques and ingredients makes it difficult for processors to create products that resonate with ethnic consumers.

Cultural learning and language barriers are additional challenges. Many processors and retailers do not have a deep understanding of the cultural nuances that influence purchasing decisions in ethnic communities. Similarly, language barriers can hinder effective communication between food processors and the ethnic market, making it difficult to build strong relationships with consumers and distributors.

Ingredient availability is also a significant gap. Many ethnic food items require specific ingredients that are not commonly grown or produced in the region. As a result, these ingredients must be imported, which adds to the cost and limits the availability of products that meet the standards of ethnic consumers.

Retail structures and market awareness are additional areas where gaps exist. Many ethnic communities rely on small, independent grocery stores to purchase culturally relevant products, but these stores often struggle with supply chain issues. Large retailers in the area have yet to fully integrate ethnic products into their offerings, limiting the availability of these goods for a broader audience.

Opportunities for Investment

Public sector investment in ethnic market development could address many of these gaps. One key area for investment is in product development support, where grants or subsidies could be offered to local processors willing to create culturally specific food items. Workshops and training

programs focused on cultural learning could help processors better understand the needs and preferences of ethnic consumers.

There is also an opportunity to improve ingredient availability. For those items that cannot be grown locally, local retailers could partner with suppliers that specialize in ethnic ingredients. By facilitating these partnerships, the public sector could help reduce the costs associated with importing ingredients and improve the consistency of supply. For ethnic products that can be grown locally, extension services could research best practices for those types of crops. Education could include both the crop growing techniques and cultural learning to further integrate farmers with ethnic communities.

Improving retail structures is another area ripe for investment. Supporting small ethnic grocery stores through tax incentives or grants could help them overcome supply chain challenges and expand their product offerings. Additionally, encouraging larger retailers to incorporate more ethnic products into their inventories could increase accessibility and create a more inclusive retail environment.

Finally, investment in transportation infrastructure would also benefit ethnic market development. Improving transportation routes and logistics networks would reduce the cost of moving goods from producers to ethnic retailers, making it easier for consumers to access the products they need.

Gap 2B - Improved Farm Based Retail Activity

Current Status

The on-farm and off-farm retail sectors within Calvert, Charles, and St. Mary's Counties play a significant role in supporting the region's agriculture and aquaculture operations. Local farmers and producers have increasingly sought to expand their direct-to-consumer sales through farmers markets, farm stands, and other retail channels. These efforts have allowed producers to capture more of the retail value of their products while fostering closer relationships with consumers.

While many farms have seen success through retail expansion, the overall retail infrastructure in the region remains underdeveloped. Farmers and producers often struggle with limited market coverage, particularly in reaching residents and tourists beyond their immediate vicinity. Despite these challenges, the potential for growth in the retail sector is high, especially with the increasing interest in locally sourced and sustainable food products.

Gaps Identified

One of the primary gaps in the enhanced retail activity is market coverage. Many farmers and producers are unable to reach a broader audience due to the lack of infrastructure, such as distribution networks and retail outlets. This limits their ability to expand their customer base and grow their businesses. Without a reliable way to transport and sell their goods, many producers are confined to local farmers markets, which may not provide enough revenue to sustain operations.

Another gap is the need for new product introductions. The retail offerings in the region often lack diversity, with many farms selling the same types of products. Introducing new and innovative products, such as value-added goods, could help differentiate local farms and attract more

consumers. However, developing new products requires investment in research, development, and processing capabilities, which many small farms lack, and institutions in the region, such as the region's land grant universities, no longer offer.

Success in reaching tourists and residents is another gap in the retail sector. While the region attracts a steady flow of tourists, many farms have not fully capitalized on this market. Effective marketing and strategic partnerships with local tourism boards could help farmers draw more visitors to their retail outlets and farm-based experiences. Additionally, outreach efforts targeting residents who may not frequent farmers markets could help increase sales.

The final gap is the lack of retail infrastructure. The region lacks sufficient retail spaces dedicated to local agricultural products, and existing outlets may not have the capacity to stock or promote local goods effectively. This limits consumer access to fresh, locally grown products, particularly in more urbanized areas of the counties.

Opportunities for Investment

Public sector investment in retail infrastructure could help address many of these gaps. Building or upgrading retail spaces specifically for local agricultural products, such as permanent farmers markets or local food hubs, would provide producers with more opportunities to sell their goods. Additionally, investment in transportation infrastructure could help expand market coverage by connecting rural producers with urban consumers.

There is also an opportunity for investment in product development. Grants or subsidies for value-added product creation could help farms diversify their offerings and attract a wider range of consumers. Workshops and training programs focused on product development could help farmers learn how to create new goods that meet consumer demand.

Marketing and outreach initiatives are another key area for investment. By partnering with local tourism boards and marketing agencies, farmers can better promote their retail outlets to both tourists and residents. Additionally, public campaigns that highlight the benefits of buying local could help raise awareness and drive sales for regional producers. As technology plays a larger and larger role in reaching consumers under the age of 35, it is likely to become an important factor in bridging this gap.

Gap 3 - On-Farm Tourism, Entertainment, and Hospitality

Current Status

On-farm recreation and retail activity within Calvert, Charles, and St. Mary's Counties has become an increasingly popular way for farmers to diversify their income. These activities range from farm tours and pick-your-own produce operations to more elaborate events such as festivals, weddings, and farm-to-table dining experiences. The region's proximity to Washington, D.C. and other metropolitan areas makes it a prime location for agritourism, as urban dwellers seek out rural experiences.

Despite the potential for growth, on-farm hospitality activities face several regulatory challenges. Land use regulations vary across the counties, and not all areas are supportive of agritourism ventures. Some farms struggle to obtain the necessary permits to host events or open retail spaces due to zoning restrictions. Additionally, the process for obtaining permits is often complex and time-consuming, discouraging many farmers from pursuing these opportunities.

Nevertheless, there are existing examples of successful on-farm recreation in the region, particularly in areas where local governments have been more proactive in supporting agritourism. In these cases, farmers have been able to capitalize on the growing demand for rural experiences by developing hospitality offerings that align with their agricultural activities.

Gaps Identified

One of the most significant gaps in the on-farm hospitality sector is land use compatibility. Many farms are located in areas where zoning codes do not account for mixed-use operations that combine agriculture with hospitality and retail activities. This creates tension between farmers and local authorities, particularly when neighbors raise concerns about increased traffic, noise, or environmental impact. Clearer guidelines for agritourism zoning would help resolve these issues.

Local codes and enforcement also present challenges. Farmers often report inconsistent enforcement of regulations, with some receiving citations for minor infractions while others are allowed to operate without interference. This inconsistency creates uncertainty for farmers looking to invest in on-farm hospitality and deters new entrants into the market.

Another gap is the lack of market awareness and customer service skills. While many farmers are skilled in agricultural production, they may not have the expertise needed to develop and market recreational experiences. Customer service is also an area where many farms could improve, as hospitality requires a different skill set from traditional farming activities.

Finally, product development and product mix are areas where on-farm hospitality operations often fall short. Consumers today are looking for authentic, unique experiences that go beyond simple farm tours or produce sales. Farms that do not offer a well-rounded selection of activities may struggle to attract repeat visitors or stand out in an increasingly competitive market.

Opportunities for Investment

Public sector investment in supporting agritourism through policy reform could make a significant difference in the success of on-farm hospitality ventures. Simplifying the permitting process for

farm-based events and retail operations, while also providing clearer guidelines on zoning for agritourism, would encourage more farmers to diversify their operations.

Investment in education and training programs aimed at helping farmers develop customer service skills and business strategies for agritourism would also be beneficial. Workshops on marketing, event planning, and hospitality management could help farms build more attractive offerings for visitors.

There is also an opportunity for public-private partnerships to fund infrastructure improvements on farms, such as building event spaces or upgrading facilities for visitors. Incentivizing private investment through grants or tax credits could further encourage farmers to explore the economic potential of on-farm hospitality. See Appendix G for details.

Gap 4 - Inter and Intra-Industry Cooperation Report

Current Status

The current state of cooperation between industry segments in Calvert, Charles, and St. Mary's Counties, as well as across Maryland, is generally limited but evolving. Some efforts have been made to foster collaboration between agricultural producers, food processors, and distributors, but these initiatives are sporadic and not fully institutionalized. Government agencies at the state and local levels have recognized the importance of cooperation in enhancing economic performance, but there is still room for stronger partnerships.

Currently, intra-industry cooperation is primarily facilitated through informal networks or associations. However, there is a lack of formal frameworks that promote sustained collaboration. The Maryland Department of Agriculture has initiated some programs to encourage partnerships between various industry players, but these efforts often face challenges due to resource constraints and a lack of strategic alignment.

Gaps Identified

One of the key gaps in inter- and intra-industry cooperation is the absence of robust communication channels between different sectors. Agricultural producers, for example, do not consistently engage with food processors or distributors to optimize the supply chain. This lack of interaction hinders the potential for collaborative problem-solving and innovation, which could otherwise improve efficiency and reduce costs.

Another significant gap is the limited collaboration between industry and government in workforce development. Many industries within Calvert, Charles, and St. Mary's Counties are facing labor shortages, yet there are few coordinated efforts to create training programs tailored to the needs of local employers. Improved collaboration between educational institutions, industries, and government bodies could help address this issue by aligning workforce training with industry needs.

Additionally, the lack of a comprehensive policy framework to encourage inter-industry collaboration is a barrier to progress. While some government agencies are supportive of industry collaboration, there are few concrete policies or incentives in place to formalize such partnerships. This has resulted in fragmented efforts, with no cohesive strategy to ensure long-term cooperation.

Finally, industry players often face regulatory hurdles that inhibit cooperation, particularly in sectors such as food processing and distribution. Regulatory complexities, along with a lack of harmonized standards, make it difficult for businesses to collaborate across the value chain. This regulatory misalignment needs to be addressed to enable more fluid cooperation between industries.

Opportunities for Investment

There are several opportunities for public and private sector investment to strengthen cooperation across industries. One key area for investment is the development of industry-specific communication platforms that facilitate regular interaction between different segments of the

supply chain. These platforms could be used to share best practices, discuss common challenges, and explore joint opportunities for innovation.

Another investment opportunity lies in workforce development. By supporting vocational training programs that are co-developed by industries and educational institutions, government bodies can help address the skills gap and prepare a workforce that meets the needs of the local economy. Incentives for businesses that invest in workforce development partnerships should also be considered.

Moreover, investment in policy development that fosters collaboration is crucial. The government could offer tax breaks or subsidies to companies that engage in cooperative projects, such as joint ventures or cross-industry research initiatives. Such incentives would encourage businesses to look beyond their individual interests and collaborate for mutual benefit.

Gap 5 - Workforce Development Report

Current Status

The current state of workforce development in the food processing industry within Calvert, Charles, and St. Mary's Counties is facing numerous challenges. While there is a growing demand for locally produced food, the availability of skilled labor has not kept pace with the industry's needs. Many local employers in the farming, aquaculture, and food processing sector are finding it difficult to hire and retain employees with the technical skills necessary to operate modern processing equipment and adhere to food safety standards.

The region has seen improvements in education and training programs, particularly at the community college level, but these efforts are still not enough to address the gap. Moreover, the food processing industry's expansion in recent years has led to a labor shortage, as many individuals in the local workforce are either underemployed or not adequately trained for the specialized roles required by the industry.

Gaps Identified

Several significant gaps exist in workforce development within the region. One of the most prominent is the impact of low unemployment rates. While a low unemployment rate is generally seen as a positive indicator, it creates challenges for industries like food processing that rely on a steady influx of labor. Local employers are struggling to compete for the limited number of available workers, particularly as technology continues to replace certain manual labor positions.

Another gap is the need for technological training. As food processing becomes increasingly reliant on automation and advanced machinery, the workforce needs to develop technical expertise to operate and maintain this equipment. Without adequate training programs, workers lack the necessary skills to keep up with technological advancements in the industry.

Workforce transportation is another key issue. Many workers in rural areas do not have reliable access to transportation, limiting their ability to commute to food processing facilities. This has a direct impact on employee retention and limits the labor pool available to local businesses. Addressing transportation challenges would allow more workers to participate in the industry.

Career preparation and second-career training programs are also lacking. While some initiatives exist, they are not widespread or well-integrated into the regional workforce development strategy. Additionally, military trailing-spouse programs, which could provide a valuable labor pool for local businesses, are underutilized due to a lack of coordination between industry and military institutions.

Opportunities for Investment

There are several areas where public sector investment could significantly improve workforce development in the region. One of the most promising opportunities is the development of vocational training programs that focus specifically on the needs of the food processing industry. These programs could be offered in partnership with local community colleges, ensuring that

students acquire the necessary skills to work with modern processing equipment and meet food safety regulations.

Another opportunity for investment is in workforce transportation solutions. Public sector initiatives that provide affordable and reliable transportation options for workers in rural areas would expand the labor pool and improve retention rates. Additionally, incentives for businesses that invest in employee training and career development would encourage local employers to create more comprehensive training programs.

Gap 6 - Public Policy in Land Use, Food Safety, and Transportation Report

Current Status

The current state of public policy in land use, food safety, and transportation within Calvert, Charles, and St. Mary's Counties in Maryland reflects a complex regulatory environment. Land use regulations in the region are generally restrictive, especially for agricultural and aquaculture industries. These rules often limit the types of activities that can occur on farms and hinder the development of on-farm processing and retail operations. Food safety regulations, while necessary, pose challenges for small-scale producers who struggle to meet federal standards without local infrastructure support.

Regulatory conditions in the State of Maryland and the federal government are designed to ensure public health and safety, but the complexity of these regulations makes compliance difficult for smaller agricultural producers. Local enforcement agencies often lack the training and resources to help farmers navigate the regulatory landscape, leading to misunderstandings and enforcement delays.

What is the Bioeconomy?

The bioeconomy refers to the portion of the economy that is based on products, services, and processes derived from biological resources. This includes a wide range of activities, from agriculture and biotechnology to renewable energy and bioproducts. The bioeconomy leverages biological processes and innovations to create sustainable economic growth, improve health, and address environmental challenges. **Agriculture is expected to provide over 60% of the inputs to this sector.**

The Congressional Research Service (CRS) categorizes the bioeconomy into three main visions. Agriculture plays a vital role in all three.

1. Biotechnology Vision: Focuses on generating scientific knowledge enabled by the purposeful manipulation of DNA. This includes genetic engineering, synthetic biology, and advancements in biomedicine.

2.Bioresource Vision: Emphasizes the use of biological resources, such as plants and microorganisms, to produce goods and services. This vision is closely linked to agriculture, forestry, and bio-based industrial products.

3.Bioecology Vision: Concentrates on the sustainable management of ecosystems and biodiversity. It involves ecological innovations and practices that maintain the health of natural resources while supporting economic activities.

The bioeconomy is seen as critical for national security and economic competitiveness and is one of the most important emerging industrial clusters in the United States. It aims to address key challenges such as climate change, food security, and energy sustainability through innovative biological solutions.

For more detailed information, access the Congressional Research Service report on the bioeconomy here and the White House report here.

Transportation issues further complicate the situation, as many rural areas lack the infrastructure necessary to efficiently move goods to market. Limited road networks and a lack of investment in transportation systems put local producers at a disadvantage compared to larger competitors in more urbanized areas. This disconnect between agricultural production zones and consumer markets is a significant challenge for the region. Inconsistent road signage is another pain point.

Gaps Identified

One significant gap in public policy is the poor understanding of agricultural practices by policymakers and regulators. Many regulations are crafted without input from the farming community. Additionally, farming represents a secondary focus in the underlying residential code, resulting in policies that do not address the realities of modern agriculture. These disconnects lead to restrictive land use regulations that limit the growth of on-farm processing and retail activities, thereby reducing opportunities for value-added production.

Zoning codes in the region are another issue. Many rural areas have limited industrial zoning, which hampers the development of processing and distribution centers. This lack of zoning flexibility means that even when there is demand for local food processing, businesses are unable to expand or establish new facilities.

Additionally, the definition of agriculture used in zoning and regulatory frameworks is often outdated, failing to account for new technologies and practices in modern farming. For example, aquaculture operations, value-added activities, emerging research and development activities in the bioeconomy, and vertical farming are not always recognized in traditional zoning definitions, creating legal hurdles for these emerging sectors.

Training for local enforcement officials is also lacking. Many officials tasked with enforcing food safety and land use regulations do not have a deep understanding of the agricultural sector, which leads to inconsistent enforcement and confusion among producers.

Opportunities for Investment

Public sector investment in regulatory reform could help address many of these gaps. Streamlining land use regulations to allow for more flexibility in agricultural zones would encourage the development of on-farm processing and retailing. Additionally, updating zoning codes to reflect the realities of modern agriculture, including new practices like aquaculture, would enable growth in these sectors as well as new crops that reach new and expanded markets.

There is also an opportunity for investment in transportation infrastructure. Improved road networks and logistics hubs in rural areas would reduce transportation costs for local producers, making it easier to bring goods to market and compete with larger, more urbanized producers.

Finally, investment in training programs for enforcement officials could help bridge the gap between regulatory requirements and practical enforcement. By providing officials with a deeper understanding of agricultural operations, the public sector could ensure more consistent and fair application of regulations.

Section 6 – Strategic Recommendations

This section of the Agriculture and Aquaculture Analysis Report outlines a roadmap for addressing key challenges and unlocking opportunities in these vital sectors. It aims to provide actionable ideas with which decision-makers can drive sustainable growth, enhance competitiveness, and ensure long-term resilience. By focusing on both public and private sector collaboration, the recommendations are designed to stimulate economic development while promoting environmental sustainability and technological innovation.

The following has been divided into three subsections: Prioritized Investment Areas, Prioritized Policy Areas, and Implementation Strategies. The Prioritized Investment Areas subsection identifies specific sectors where public and private investments can generate the most significant impact. These investments are targeted to modernize infrastructure, boost innovation, and create a more resilient agricultural and aquaculture ecosystem. By directing capital towards these areas, the aim is to enhance local economic activity and stimulate job creation.

The Prioritized Policy Areas subsection focuses on the regulatory and legislative frameworks that need to be adapted or introduced to support these investment efforts. The recommended policy changes are designed to address existing gaps, streamline operations, and facilitate growth, particularly in rural and underserved regions. These policy areas cover a wide range of factors, from zoning regulations to workforce development initiatives, all intended to create a supportive environment for both farmers, aquaculture operators, and agribusinesses.

Finally, the Implementation Strategies subsection provides a comprehensive approach to executing the investment and policy recommendations. This includes identifying key stakeholders, establishing timelines, and developing metrics to track progress. By aligning resources with goals and ensuring continuous collaboration among public, private, and community partners, these strategies aim to turn the recommendations into measurable outcomes that benefit Maryland's agricultural and aquaculture sectors.

Prioritized Opportunities for Public-Private Investment

This section of the report offers prioritized investment areas where the public sector can build programming that both attracts and augments private sector investment. Investment recommendations are divided into four sections.

1. ***Infrastructure*** - Public and private sector investment in the infrastructure required to build and support agriculture and aquaculture industry clusters is crucial because it fosters collaboration, innovation, and resource sharing, driving economic growth and increasing competitiveness across interconnected industries.

    a. **Invest in regional food processing facilities that are privately managed and operated** to ensure alignment with market needs and to increase private investment in outcomes. Due to widely varying opportunities, investment should be allocated across the region to both enhance outcomes and reduce risk. A good technique that helps achieve such goals is to competitively offer matching funds to incentivize public-private partnerships that enhance returns to farmers and aquaculture operators by vertically and horizontally integrating within the supply chain. Funds should be allocated across geographic regions and commodity sectors such as seafood, meat, poultry, produce, dairy, grain, and oilseeds as a method of risk management. Significant private investment is encouraged as it tends to bring greater accountability and speed to project development.

    b. **Improve incentives for shared distribution and storage systems for dry, cold, and frozen goods.** Currently farmers have little access to such facilities though they are in high demand. A relatively inexpensive remedy can be developed using grants, tax incentives, and microloans. The effort should seek to link any investments into a collaborative system of shared services for uses such as post-harvest conditioning and aggregation for shipment as well as creating season extension through frozen storage.

    c. **Develop a networked system to facilitate more efficient transportation of commodities** like cattle and grain that must now travel long distances to market. Shared systems like FoodLogIQ and Cascadia Food Coalition's trucking program offer examples of how collaborative trucking solutions can be organized to increase market efficiency and ultimately the bottom line of small businesses.

    d. **Advocate for targeted tax incentives to encourage on-farm value-added infrastructure development**—such as processing facilities, cold storage, and packaging equipment—to reduce the costs associated with start-up and seasonal operations. These tax incentives would help offset the capital investments required for farmers to diversify their income streams through value-added activities like food processing, agritourism, and direct-to-consumer sales. By reducing the financial barriers to entry, this initiative would enable more farmers to invest in infrastructure that enhances profitability, increases product marketability, and extends the

operational season, ultimately fostering greater economic resilience and sustainability within the agricultural sector in Southern Maryland.

e. **Work with regional partners to develop a transportation and aggregation hub to facilitate commodity movements.** It is recommended that a regional transportation and aggregation hub be created to facilitate the efficient movement of key agricultural commodities such as grains, oilseeds, and livestock. This hub would serve as a centralized facility for aggregating, processing, and distributing products, equipped with specialized infrastructure including grain silos, oilseed storage, livestock handling facilities, and cold storage. The hub would also feature modern rolling stock, such as grain trailers and livestock haulers, to ensure safe and timely transport to markets. By centralizing these operations, the hub would reduce transportation costs, improve logistical efficiency, and strengthen market access for local producers, enabling them to reach broader markets while maintaining product quality and reducing losses.

   To ensure the hub's success, a comprehensive workforce training and development program should be established, focusing on specialized skills required for managing and operating the hub's facilities and transportation equipment. This would include training in logistics management, commodity handling, and equipment operation to build a skilled labor force capable of supporting the hub's operations. The transportation and aggregation hub will not only streamline the movement of agricultural products but also drive economic growth by enhancing Southern Maryland's capacity to serve both local and regional markets efficiently, ultimately positioning the region as a key player in the agricultural supply chain.

2. ***Workforce*** - Public and private sector investment in agriculture and aquaculture workforce development is essential to equip workers with the necessary skills to adopt modern technologies, increase productivity, and ensure the long-term sustainability of these industries in a competitive global market.

   a. **Develop a workforce survey and assessment toolkit for agriculture, aquaculture, and related value chains.** It is recommended that the region create a comprehensive workforce survey and assessment process, accompanied by a toolkit, to evaluate the current and future workforce needs of the agriculture, aquaculture, and related value chains. This initiative will involve developing a standardized survey to gather data from industry stakeholders, identifying skills gaps, labor shortages, and training requirements across these sectors. The toolkit will include resources for employers to assess their workforce capacity, access labor market information, and identify opportunities for upskilling and recruitment. The results from the survey will inform workforce development programs, training initiatives, and policy recommendations, ensuring the region's labor force is well-equipped to support the growth and sustainability of these critical industries.

b. **Fund and host the agricultural curriculum by ACT WorkKeys on the SMADC website.** It is recommended that SMADC fund and sponsor the new agricultural curriculum offered by ACT WorkKeys, making it available and accessible as part of the College of Southern Maryland's workforce training programs. This curriculum provides critical workforce development resources tailored to the agricultural sector, helping farmers, farm workers, and agricultural businesses enhance their skills and improve productivity. By sponsoring this curriculum, SMADC can support the professional development of the agricultural workforce in Southern Maryland, ensuring access to industry-relevant training that meets the region's needs. The curriculum focuses on essential skills such as problem-solving, safety, machinery operation, and technical agricultural knowledge, all of which align with SMADC's goals of fostering a sustainable and innovative agricultural sector. Funding this initiative would not only support workforce development but also enhance the visibility of SMADC as a leader in agricultural education and training.

   ACT WorkKeys is a workforce development initiative that offers comprehensive assessments, training programs, and certification designed to align individuals' skills with the demands of various industries, including agriculture. Their mission is to bridge the skills gap and equip workers with the tools they need to succeed in today's evolving job market. The vision of ACT WorkKeys is to create a workforce that is more prepared, skilled, and competitive by offering training that covers essential workplace skills, from foundational to specialized industry-specific knowledge. The ACT WorkKeys programs offer nationally recognized certification, including the National Career Readiness Certificate (NCRC), which serves as a benchmark for assessing key competencies in areas such as applied mathematics, workplace communication, and critical thinking. Their agricultural curriculum is designed to help workers in the agricultural sector meet these high standards, ensuring a more skilled, knowledgeable, and efficient workforce.

c. **Invest in additional rural transportation options to increase workforce availability.** It is recommended that a fund is established, and incentives put in place, to develop innovative transportation solutions that increase accessibility for workforces commuting between rural Southern Maryland and urban areas like the DC metropolitan region. This initiative would provide grants or tax incentives to support highly creative ideas, such as ride-sharing cooperatives, app-based shuttle services, employer-sponsored transportation programs, or partnerships with private transportation companies. These solutions would address the lack of efficient and affordable transportation options in rural areas, helping to reduce travel time and costs for workers, while also improving connectivity to job opportunities in or willing laborers from urban centers. By encouraging public-private partnerships and fostering innovation, this program would enhance workforce mobility, stimulate rural economic growth, and ensure that transportation is not a barrier to employment in the region.

3. ***Innovation*** - Public and private sector investment in agriculture and aquaculture innovation and technology deployment is vital to enhance efficiency, increase sustainability, and drive competitiveness, ensuring these industries can meet growing global demands and adapt to environmental, workforce efficiency, and market challenges.

    a. **Create an agricultural technology fair to focus on scale appropriate labor-saving technologies, automation, and efficiency.** This event would provide a platform for farmers, agri-tech companies, researchers, and policymakers to come together to explore cutting-edge solutions such as automation, precision farming, robotics, and sustainable technologies. The fair should feature live demonstrations, hands-on workshops, expert panels, and networking opportunities to help participants understand how these technologies can be implemented on farms of all sizes. By facilitating knowledge sharing and fostering connections between stakeholders, the Agricultural Technology Fair will accelerate technology adoption, improve farm productivity, and contribute to the long-term sustainability of the agriculture sector. Given the expense of running such an event, it will be important to secure public and private funding to ensure the event is accessible to farmers and continues to drive innovation in the region.

    b. **Establish and fund a product testing and new product development lab** dedicated to supporting local food and aquaculture producers in creating and refining market-ready products. This lab would offer farmers, aquaculture operators, and small-scale food businesses access to state-of-the-art facilities for testing product safety, quality, and marketability, while also assisting with recipe development, packaging design, and compliance with food safety regulations. By providing these critical resources, the lab will enable producers to innovate, improve product consistency, and meet consumer demands, ultimately helping them enter new markets and increase profitability. Funding for the lab will ensure that it remains accessible to small and medium-sized producers, fostering growth in the local food and aquaculture sectors.

    c. **Fund and manage a comprehensive marketing database designed to support local farmers, aquaculture producers, and food businesses to reach broader markets.** This database would serve as a centralized resource for collecting and analyzing consumer data, market trends, and purchasing behaviors, enabling producers to target their marketing efforts more effectively. By integrating information on regional demand, consumer preferences, and competitive analysis, the database will provide valuable insights for producers to tailor their products and promotional strategies. Creation of this tool will empower small and medium-sized businesses to increase market visibility, improve sales, and compete more effectively in both local and broader markets.

4. ***Finance*** - Public and private sector investment in financing facilities that support agriculture, and aquaculture is crucial to provide farmers and producers with accessible capital, enabling

them to modernize operations, adopt new technologies, and ensure sustainable growth in these vital sectors that build value for communities and business.

a. **Expand agribusiness credit enhancements for new and beginning farmers as well as value chain expansion.** It is recommended that the state implement an expanded agribusiness credit enhancement program to provide financial support for new and beginning farmers, as well as for existing agribusinesses and aquaculture operations seeking to expand. Using models like the **Wisconsin Farm Business Initiative**, this program would address the financial barriers that often prevent new entrants from starting their operations and hinder established businesses from scaling up. The initiative would focus on offering a range of credit enhancements, including loan guarantees, low-interest loans, and risk-sharing mechanisms that make capital more accessible and reduce the financial risks associated with agricultural investments.

   In addition to financial support, the program should include technical assistance to help new and beginning farmers navigate loan applications, business planning, and financial management. This assistance can be provided through partnerships with local extension services, nonprofit organizations, and agricultural cooperatives. A comprehensive credit enhancement program will encourage more young entrepreneurs to enter the industry and provide established businesses with the capital needed to modernize, diversify, and expand.

   The Wisconsin Farm Business Initiative offers a proven framework for such a program, successfully leveraging partnerships between state agencies, private financial institutions, and agricultural cooperatives to provide credit and financial management training to farmers. Maryland could adapt this model by developing a similar structure that focuses on key regional industries, including specialty crops, livestock, and aquaculture. The program could be expanded to include grants, or credit guarantees for purchasing new technology, farm equipment, or expanding into value-added processing, all of which are critical for modernizing operations and improving competitiveness. See Appendix I for more details.

   Ultimately, expanding agribusiness credit enhancements will stimulate rural economic development, ensure a steady pipeline of new farmers, and position Southern Maryland's agriculture and aquaculture sectors for sustainable growth. To be successful, the program will require public-private collaboration, involving financial institutions, state agencies, and local agricultural organizations, to provide a broad base of support for the region's farmers and agribusinesses.

b. **Conduct an eight-module finance bootcamp focused on business readiness to increase financing success rate.** It is recommended to establish a comprehensive finance-oriented adult learning program designed to enhance financial literacy and empower individuals to make informed decisions about managing their personal finances. This program would be structured around eight key modules: Earning, Spending, Saving, Risk Management, Investing, Borrowing, Protecting, and Transferring.

Each module would provide practical, actionable insights, offering participants the tools and knowledge needed to build financial stability, improve wealth management, and prepare for both short- and long-term financial goals. By offering these modules in a flexible, accessible format—through in-person workshops, online courses, or hybrid learning—the program can reach a diverse audience, including those from underserved or economically vulnerable communities.

The first half of the program would focus on the foundational aspects of financial literacy. The Earning module would cover strategies for increasing income through job skills, entrepreneurship, and side businesses. The Spending and Saving modules would emphasize the importance of budgeting, expense tracking, and building emergency savings. Risk Management would teach participants how to assess and mitigate financial risks through insurance and other protective measures. These modules would form the core of personal finance, providing essential knowledge for establishing healthy financial habits and improving day-to-day money management.

The second half of the program would concentrate on wealth-building and financial security. The Investing module would introduce participants to the basics of stocks, bonds, mutual funds, and retirement savings, while Borrowing would cover responsible use of credit, loans, and debt management strategies. The Protecting module would focus on safeguarding assets through insurance, legal protections, and estate planning. Finally, Transferring would educate participants on inheritance planning and transferring wealth to future generations. This comprehensive program would not only address immediate financial concerns but also empower participants to plan for long-term financial success. Creating and funding this initiative would strengthen the community's financial resilience and enhance overall economic stability.

Policy Recommendations

The following recommended policy changes support the identified investment opportunities. Policy recommendations are divided into five sections.

1. ***Market Development*** - Policy support for agriculture and aquaculture market development is vital because it fosters sustainable growth, improves market access, and drives innovation, ultimately enhancing local economies, expanding cultural richness, creating jobs, and ensuring food security.

    a. **Participate in Frederick County's Retail Innovation Center project to develop regional best practices that improve the performance and reach of on-farm retail.** Frederick County is taking the lead in structuring and financing a Farm Retail Center of Excellence based on the model of Dairy Innovation Centers. This effort will be a first of its kind in the nation and will require regional support.

    Provide ethnic food market support services such as market research, product development guidance, food preference consultation, translation services, and matchmaking with ethnic retailers outside of Southern Maryland. This program would assist local farmers, food producers, and entrepreneurs in creating products tailored to the diverse cultural communities in the region, identifying market trends, and understanding consumer preferences. By conducting in-depth market research and working with cultural consultants, the program would ensure authenticity and relevance in product offerings. Additionally, it would provide support in building consumer relations through targeted marketing campaigns and community engagement strategies. This initiative would open new market opportunities, increase sales for local producers, and strengthen connections with Maryland's growing ethnic communities.

2. ***Workforce*** - Policy support for agriculture and aquaculture workforce development is essential in economic and community development because it equips workers with the skills necessary for innovation and productivity, ensuring long-term industry growth, job creation, and the resilience of rural economies.

    a. **Advocate for a state-level agricultural workforce training initiative to address skills gaps at all levels of the value chain.** There should be a specific focus on high tech skills and bio-economy integration. The initiative should focus on developing specialized training programs in areas such as precision agriculture, automation, sustainable farming practices, and aquaculture technology. By partnering with community colleges, universities, industry experts, and local extension services, this program would offer certifications and hands-on training that equip the current and next generation of workers with the skills needed to meet the evolving demands of modern farming and aquaculture. This initiative would not only bridge the skills gap

but also increase productivity, drive innovation, and ensure the long-term viability of Southern Maryland's agricultural and aquaculture industries.

b. **Create a local training program to teach farm operators how to use and train employees in the use of emerging technologies such as drones, robotics/automation, virtual and augmented reality, and other cutting-edge technologies**. Structured as a combination of hands-on workshops, online modules, and field demonstrations, the program will cater to varying levels of technological proficiency. By partnering with agricultural extension services, technology providers, and local colleges and universities, the program will provide farmers with access to the latest tools and expertise. Training should emphasize practical applications, such as using data from sensors to optimize crop yields or integrating GPS technology for efficient planting and harvesting. Additionally, the program should offer ongoing support, including one-on-one consultations and troubleshooting resources, to ensure sustained adoption of these technologies. This initiative will help farmers improve productivity, reduce operational costs, and enhance sustainability.

c. **Sponsor an annual food safety certification training for HACCP managers, Seafood HACCP managers, and SQF 1000.** This relatively straightforward recommendation would have SMADC hire a qualified food safety consultant to implement a tailored training and certification program to ensure compliance with state, federal, and private sector food safety requirements. The consultant will design and conduct comprehensive training sessions to help staff identify, prevent, and control food safety hazards, specifically in agricultural and aquaculture operations. Upon completion, employees will be certified in these critical areas, ensuring the organization meets both local and international food safety requirements. The consultant will also provide ongoing support, including audits and refresher courses, to maintain compliance and continuously improve food safety management practices.

3. ***Policy*** - Building a broad policy framework to support agriculture and aquaculture is crucial because it ensures the long-term sustainability, competitiveness, and resilience of these sectors in the face of changing market demands, environmental challenges, and technological advancements.

    a. **Produce an agribusiness policy guidebook related to on-farm activities** such as processing, retailing, hospitality, tourism, special events, and other value-added uses. A primary focus of this activity is to simplify compliance with food safety regulations by producing a guidebook on local, state, federal, and private food safety programs requirements. The Ohio Farm Bureau has produced an excellent example of this type of document. Additional guidebook development should include a deep

dive into land use, environmental, health, labor law, building codes and transportation policy.

b. **Work to establish an accepted regional definition for value-added agriculture and seek adoption into code of each county**. The model definition should define agriculture and aquaculture as dynamic and multifunctional land uses that integrate traditional production practices with diverse on-farm businesses, such as agritourism, food processing, retail, and light manufacturing. This definition recognizes the evolution of farming beyond crop and livestock production to include activities that support economic sustainability, such as farm-to-table restaurants, event venues, and artisanal product sales. Modern agriculture promotes sustainable land use while balancing agricultural productivity with entrepreneurial diversification, thereby contributing to the rural economy and community development. This inclusive approach to land use code reflects the dual nature of farms as both agricultural and business enterprises, fostering innovation and local economic resilience.

c. **Develop a model framework to streamline county permitting processes for on farm valued-added activities.** This framework could consolidate multiple permits into a single application process, reducing redundancy and processing times. Counties should create clear, flexible zoning categories that allow for both traditional farming and diversified business activities on the same property, while offering pre-approved permit pathways for common agricultural enhancements like barns, processing facilities, and aquaculture tanks. Additionally, establishing dedicated liaisons within county offices to assist farmers and aquaculture operators with navigating regulations would promote efficiency, foster compliance, and reduce the administrative burden on small and medium-sized operations. This will require coordination with numerous state regulatory and taxing authorities. These efforts would encourage economic growth while preserving agricultural productivity and sustainability in Southern Maryland.

d. **Advocate for improvements to state and local transportation policy** to include improved road standards for slow moving equipment and improved signage to enhance value added market development. Advocates must recognize that farmers in Southern Maryland face several transportation issues that significantly impact their operations, especially in rural areas where agricultural activities intersect with infrastructure designed primarily for suburban or commuter traffic. One major concern is the lack of road design standards that accommodate farm vehicles, particularly regarding road and bridge clearance, road shoulder width, and weight limits. Many local roads are not built to handle the size and weight of modern farm machinery, creating difficulties for farmers transporting crops, livestock, or equipment. Oversize limits and restrictions on farm vehicle weights can hinder access to markets, particularly during harvest seasons when large equipment or

bulk products need to be moved. Additionally, inadequate road shoulder width can make it dangerous for slow-moving vehicles, like tractors, to share the road with fast-moving cars.
Another critical issue is the need for improved signage, both for marketing and safety. Farmers face restrictions on placing directional and marketing signage, limiting their ability to attract customers to on-farm businesses such as agritourism venues or roadside markets. Safety signage is also a priority, particularly in regions with large Amish and Mennonite populations who rely on horse-and-buggy transportation. These slow-moving vehicles are vulnerable on roads designed for faster cars, creating potential safety hazards. Advocacy efforts should focus on better road signage to alert drivers to slow-moving farm equipment and horse-drawn vehicles, as well as modifications to road and bridge clearance, ingress and egress lanes for farm events, and support for safer infrastructure that accommodates both agricultural operations and diverse transportation methods. Conduct regular training of enforcement officials to ensure clear understanding of policy structures as well as the needs of agriculture.

e. **Establish a cross-county agriculture and aquaculture value-chain workforce development partnership** involving the College of Southern Maryland, local workforce development boards, secondary schools, vocational programs, and industry to ensure that workforce training meets the needs of industry. The partnership would be responsible for developing workforce needs surveys for agriculture, food, aquaculture, and related industries and reviewing the nexus of the needs identified with programming offered or planned within vocational, education, industry certification, and adult education settings.

4. ***Innovation*** - Policy support for agriculture and aquaculture innovation and technology development is critical in economic and community development because it accelerates the adoption of cutting-edge solutions, boosts productivity and sustainability, and drives local job creation, ensuring these industries can thrive in competitive markets while strengthening rural economies.

    a. **Advocate for the expansion of state funding programs to support agricultural innovation and bioeconomy expansion in four key areas**.

        i. Research – Develop research and extension programming with local colleges and universities to increase the availability, accessibility, and appropriateness of technology-based farming and aquaculture techniques. This includes ensuring the extension agents have the resources needed to deliver modern advice on topics as wide ranging as automation, robotics, artificial intelligence, and agricultural data analytics. The University of California's Small Farm Program based in UC Extension provides targeted

programs in this area and can serve as an example of how effective programs can be developed.

ii. Product development – The highly diverse nature of the regional market means there are significant opportunities to use data backed research to create and test new products designed to fit the food and fiber needs of specific ethnic, cultural, and culinary niches. The Wisconsin Dairy Center provides an example of the successful implementation of such practices.

iii. Field trials - Farmers are often visual and hands on learners. Field demonstrations will play a key role in introducing labor saving innovations to the region. Funding "Demonstration Farms" where farmers can see modern farming technologies in action will allow limited-resource farmers to learn how to implement automated systems and other modern tools without the upfront investment.

iv. Manufacturing – Recruitment of advanced manufacturing firms that work in the agricultural and aquaculture sectors can increase adoption rates of modernization while building on existing technology strengths in the region related to sensors and UAVs.

b. **Create a peer-based program to share learning and experiences with adoption of technology and automation** to include field days, demonstrations and a bi-annual farm technology winter meeting. By providing match funding local or regional learning groups can engage in hands-on demonstrations, group discussions, and field visits to see innovations in action, allowing them to learn directly from their peers who have successfully adopted technology such as automated harvesting, AI based health management, drones, or precision agriculture tools. Extension agents or tech experts can serve as facilitators, providing targeted guidance while encouraging peer-to-peer exchange. Additionally, by pooling resources, farmers can collaborate on bulk purchasing, shared leasing of equipment, or cooperative tech investments, significantly lowering the financial barriers to entry. This peer-driven model helps reduce the risk associated with new technology adoption, increases accessibility, and accelerates innovation diffusion within the farming community.

c. **Provide funding to work with manufacturers and distributors to conduct an autonomous machinery and machine learning field day for both agriculture and aquaculture** operations that are scale appropriate to local operations. A farm and aquaculture field day focused on autonomous machinery and machine learning would be structured around interactive demonstrations, hands-on workshops, and expert-led discussions to showcase cutting-edge technologies and their applications.

5. ***Collaboration*** - Supporting collaboration in building community and industry support for agriculture and aquaculture is crucial because it unites stakeholders to share resources,

drive innovation, and strengthen local economies, ensuring these sectors are sustainable, competitive, and resilient in the face of evolving challenges.

a. **Work with public and private sector partners to simplify cross-business insurance and liability coverage.** It is crucial to address this risk management issues in Southern Maryland because it protects local farms' diverse operations. Many farms function as multi-enterprise operations, incorporating farm and nonfarm activities such as agritourism, on-site retail, or even auto repair, alongside traditional farming or aquaculture. Each of these business lines presents distinct risks and liabilities, from machinery accidents to visitor injuries, which can expose farmers to significant financial vulnerabilities if not properly insured. A comprehensive, cross-business insurance policy allows farm owners to manage these diverse risks under a single plan, streamlining coverage and potentially reducing costs. Without such coverage, farmers may face legal or financial challenges, as standard farm insurance may not cover non-agricultural activities. This type of insurance is essential in protecting assets, ensuring business continuity, and providing peace of mind as Southern Maryland's farms evolve into multi-faceted business hubs that contribute more broadly to the rural economy.

b. **Create networking opportunities for cross business and cross industry promotions to encourage knowledge sharing, collaboration business development, and partnership creation.** A cross-industry marketing and business development cooperative in Southern Maryland would bring together agriculture, aquaculture, manufacturing, tourism, food service, distribution, and business services to leverage shared resources and create synergies across sectors. Structured with a multi-industry board and subcommittees, the cooperative would offer shared facilities like processing plants, commercial kitchens, and distribution hubs, while developing unified marketing campaigns to promote the region. It would foster collaborative product innovation, integrated supply chains, and business services, such as legal and financial support, through an innovation hub. The cooperative would also provide training programs and collective bargaining power, helping businesses reduce costs, streamline operations, and advocate for favorable regulations. By integrating these industries, the cooperative would boost economic growth and enhance Southern Maryland's visibility as a destination for local food, tourism, and sustainable products.

c. **Collaborate with the Chamber of Commerce and various industry organizations to advocate for a temporary business exemption from local zoning codes** that would allow farmers or other property owners to operate non-agricultural or supplementary businesses on agricultural land for a limited period without requiring permanent zoning changes. This exemption would enable activities such as farm-to-table pop-up restaurants, seasonal markets, craft fairs, or temporary workshops, providing economic flexibility while maintaining long-term

zoning integrity. Under Charles County's current zoning code, such exemptions could be granted through a streamlined approval process, possibly through a temporary use permit, which already exists in some sections of the local zoning codes. The process would involve submitting an application that outlines the business's purpose, duration, and expected impact on land use. The exemption could be valid for a set period—ranging from a few weeks to several months—and would include conditions to minimize disruption to the surrounding area, such as limits on traffic, noise, or environmental impact. This approach would allow landowners to explore new revenue streams while ensuring that any business activity aligns with the county's broader land use and agricultural preservation goals, without undergoing the more complex and time-consuming process of permanent rezoning.

High Impact Regional Actions

Resource limitations will make it impossible for SMADC to finance and develop all the recommendations described earlier. The project team has selected a subset of the above recommendations that it believes will have the highest and most immediate impact on agriculture, aquaculture and related value chains. These high impact recommendations can be found in the following pages as an outline a high-level implementation strategy, including key goals, objectives, and budget guidance.

Impact Recommendation 1: Build a Value Chain Infrastructure Program for Agricultural and Aquaculture Sectors in Southern Maryland.

This recommendation outlines a comprehensive plan to build value chain infrastructure in Southern Maryland's agricultural and aquaculture sectors through a public-private partnership model. The program will focus on enhancing regional food processing, improving storage and distribution systems, and establishing efficient transportation networks. By leveraging private sector leadership, supported by public sector incentives, this initiative aims to vertically and horizontally integrate farmers and aquaculture operators within the supply chain, ensuring long-term economic sustainability.

Goals:

1. Increase regional food processing capacity: Invest in regionally managed and operated food processing facilities to ensure alignment with market demands and increase private sector investment.
2. Enhance storage and distribution systems: Improve infrastructure for dry, cold, and frozen storage, and establish shared distribution systems to meet high demand and reduce costs for small producers.
3. Create efficient commodity transportation networks: Develop collaborative transportation systems to facilitate efficient movement of commodities like seafood, poultry, produce, grain, and livestock to reduce travel distances and improve market access.

Objectives:

1. Private management of processing facilities: Support the development of food processing facilities managed by private operators to ensure market-driven approaches and faster project development.
2. Collaborative storage and distribution models: Introduce shared storage and distribution systems by offering grants, tax incentives, and microloans for short-term post-harvest uses and long-term frozen storage, which will support season extension and market resilience.
3. Networked commodity transportation solutions: Implement shared transportation systems for key commodities, modeled after programs like FoodLogIQ and the Cascadia Food Coalition's trucking program, to improve market efficiency and enhance profitability for small businesses.

The Role of Private Sector Partners and Leadership

Private sector involvement is critical to the success of this initiative. Private companies tend to bring greater accountability, faster project development, and stronger alignment with market needs. By integrating private sector leadership with public sector incentives, the program can attract significant private investment, which encourages innovation and ensures sustainable, scalable solutions. Competitive matching funds and grants could be offered to incentivize public-private partnerships that align with the program's mission of increasing returns for farmers and aquaculture operators by fostering integration across the supply chain.

Public sector incentives—such as tax credits, grants, and low-interest loans—will further drive private sector involvement and encourage shared systems for distribution, storage, and transportation. These incentives will also promote risk mitigation by spreading investments across various geographic regions and commodity sectors, reducing vulnerabilities to market fluctuations and supporting diversification.

Program Implementation and Public-Private Partnership Rationale

Building on successful models such as the Loveville Produce Auction, West Forty Market LLC, Port of Leonardtown Winery, Clover Hill Dairy (cheese plant), , the Buy Local Challenge, BlueDyer Distilling, and Home Grown Farmers Market this program will ensure that regional food processing facilities are privately managed and operated to maximize market outcomes. Private management allows for greater responsiveness to changing market conditions and reduces bureaucratic delays, ensuring faster project execution. The program will also prioritize matching funds and competitive grants to encourage innovative private-public partnerships, where both private accountability and public investment come together to achieve common goals.

Shared storage and distribution systems, as well as collaborative transportation networks, will be established to facilitate the efficient flow of goods from farms and aquaculture operations to market. By promoting regional collaboration, producers will be able to access markets previously out of reach due to transportation costs or limited infrastructure. This approach will improve market efficiency, increase profitability for small businesses, and stimulate local economic growth.

The estimated public sector budget for implementing this Value Chain Infrastructure Program is $3 million to $5 million, which should be used to leverage private investment on 1:10 basis. This investment will ensure the long-term sustainability and profitability of Southern Maryland's agriculture and aquaculture industries by building the infrastructure necessary to establish effective industry clusters while fostering innovation, collaboration, and market access through public-private partnerships. This includes:

1. Food processing facility investments: Allocation of $1.5 million to $2 million for grants and matching funds to support the development of privately managed processing facilities.
2. Storage and distribution systems: An estimated $500,000 to $1 million for the establishment of shared storage and distribution infrastructure, focusing on dry, cold, and frozen storage needs.

3. Transportation networks: Around $500,000 to $1 million for the development of collaborative commodity transportation networks, leveraging existing programs and models.
4. Public-private partnerships and incentives: Additional $500,000 for competitive grants, tax incentives, and microloans to encourage private investment and collaboration across sectors.

See Appendix J for a short case study on HVADC as a case study in private-public partnerships.

Impact Recommendation 2: Fund and Sponsor the Agricultural Curriculum by ACT WorkKeys on the SMADC Website.

It is recommended that the SMADC fund and sponsor the new agricultural curriculum provided by ACT WorkKeys, making it available through the SMADC website. The curriculum offers essential workforce development resources specifically tailored to the agricultural sector, focusing on skill-building in areas such as problem-solving, safety, machinery operation, and technical agricultural knowledge. By making this program accessible, SMADC will directly support the growth and development of Southern Maryland's agricultural workforce, ensuring that local farmers, agricultural workers, and businesses have access to industry-relevant training. The integration of ACT WorkKeys' agricultural curriculum into the SMADC platform will enhance workforce productivity, support innovation, and create opportunities for skill advancement in alignment with the commission's broader goals of fostering a sustainable and competitive agricultural sector.

In addition to aligning with SMADC's mission, sponsoring this program would position SMADC as a key leader in agricultural education and skills development. ACT WorkKeys' curriculum is widely recognized for its emphasis on core workplace competencies and industry-specific skills, making it an ideal resource for both new and experienced workers in the agricultural sector. The program offers certification through the National Career Readiness Certificate (NCRC), which assesses key competencies such as applied mathematics, workplace communication, and problem-solving, and is valued across industries for its rigorous standards. Providing this curriculum online will increase its accessibility, ensuring that workers can participate in the training at their convenience, whether they are based on farms, in rural areas, or part of Southern Maryland's agricultural support network.

Goals:

1. Enhance workforce skills: Equip agricultural workers, farmers, and businesses with the knowledge and practical skills needed to increase productivity and meet industry demands through targeted training in areas like problem-solving, safety, and equipment management.

2. Promote economic growth: Foster regional economic development by creating a highly skilled agricultural workforce that can drive innovation, enhance operational efficiency, and increase competitiveness in the agricultural sector.

3. Increase accessibility to training: Make agricultural training and certification widely available through online access on the SMADC platform, allowing workers to participate at their own pace and ensuring that those in rural areas can benefit from the program.

Objectives:

1. Deliver ACT WorkKeys certification: Facilitate the certification of at least 100 agricultural workers in the first year of implementation through the ACT WorkKeys National Career Readiness Certificate (NCRC), ensuring they are equipped with essential workplace competencies.

2. Develop a user-friendly platform: Create an intuitive and accessible digital platform on the SMADC website where workers and businesses can access the ACT WorkKeys agricultural curriculum, with an initial user engagement target of 500 website visitors in the first six months.

3. Foster ongoing support: Establish a feedback loop with program participants to continuously improve the curriculum, with bi-annual reviews to assess the relevance of the content and adapt it based on user input and industry trends.

To successfully fund and sponsor this initiative, SMADC should allocate an estimated $20,000 to $30,000 for initial integration, marketing, and licensing fees associated with the ACT WorkKeys agricultural curriculum. This budget will cover costs such as program implementation, digital infrastructure on the SMADC website, and outreach to the agricultural community. Additional funding should be considered for ongoing program support, including potential scholarships or subsidies for individuals who wish to pursue certification but may face financial barriers. By making this investment, SMADC will help enhance the agricultural workforce's skills and ensure long-term sustainability and growth within the region's agricultural economy.

Impact Recommendation 3: Conduct Certified Annual Food Safety Training.

To ensure the highest standards of food safety in agricultural and aquaculture operations, it is recommended that the organization hire a qualified food safety consultant to implement a comprehensive training and certification program. This program should focus on certifying key staff members in HACCP (Hazard Analysis Critical Control Point), Seafood HACCP, and SQF 1000 (Safe Quality Food), which are essential for managing food safety risks and maintaining compliance with industry regulations.

Program Outline:

1. Hiring a qualified consultant: The organization should seek a food safety consultant with proven expertise and certifications in HACCP, Seafood HACCP, and SQF 1000 standards. This individual should have a background in food processing and safety, particularly within agricultural and aquaculture sectors, and should be accredited by recognized food safety authorities or bodies, such as the Food Safety Preventive Controls Alliance (FSPCA) or the Safe Quality Food Institute (SQFI).

2. Customized training program: The consultant will develop a customized training program tailored to the specific needs of the organization. The program will include comprehensive training sessions on HACCP principles, Seafood HACCP requirements for aquaculture operations, and SQF 1000 standards, which cover food safety and quality management systems for primary producers. The program will ensure that employees understand how to identify, prevent, and control food safety hazards at critical points in their production processes.

3. Certification process: Upon completion of the training, participants will undergo certification assessments for HACCP, Seafood HACCP, and SQF 1000. The consultant will facilitate the certification process, ensuring that all relevant staff members meet the necessary qualifications to comply with both local and international food safety standards.

4. Ongoing support and compliance: In addition to the initial training and certification, the consultant will provide ongoing support to ensure that the organization maintains compliance with food safety regulations. This will include periodic reviews of the HACCP plans, audits of the food safety management systems, and refresher courses as needed to adapt to any updates in regulations or industry best practices.

By hiring a qualified consultant to certify employees in these key food safety standards, the organization will enhance its ability to produce safe, high-quality products while maintaining regulatory compliance, reducing risk, and building consumer trust.

Impact Recommendation 4: Fund and Host an Autonomous Machinery and Machine Learning Field Day for Agriculture and Aquaculture

It is recommended to provide funding and resources to organize an Autonomous Machinery and Machine Learning Field Day specifically tailored for small- and medium-scale agriculture and aquaculture operations. This event would bring together farmers, aquaculture operators, technology manufacturers, and distributors for hands-on demonstrations, expert-led workshops, and peer-to-peer knowledge sharing. The field day would showcase cutting-edge technologies, such as autonomous tractors, drones, robotic systems, and machine learning platforms. Participants would observe these technologies in action, test them in breakout sessions, and explore how machine learning and data analytics can optimize their operations. Experts from academia and industry would offer guidance on integrating these tools into local farming and aquaculture practices, focusing on implementation, cost management, and troubleshooting.

Goals:

1. Promote technology adoption: Increase awareness and understanding of autonomous machinery and machine learning applications among local farmers and aquaculture operators.
2. Foster collaboration: Create a platform for knowledge exchange, allowing early adopters to share practical insights and form networks for ongoing support.
3. Enhance efficiency and sustainability: Equip participants with the skills to utilize automation and AI tools, reducing labor costs, improving operational efficiency, and promoting sustainable practices.

Objectives:

1. Engage at least 100 participants: Attract farmers, aquaculture operators, and stakeholders to the field day, ensuring representation from a broad cross-section of the local agriculture and aquaculture industries.
2. Facilitate technology demonstrations: Provide at least ten live demonstrations of autonomous machinery and machine learning applications, offering hands-on experiences with modern agricultural and aquaculture tools.
3. Build support networks: Establish peer-to-peer learning and collaboration networks, facilitating ongoing discussions and partnerships between participants and technology providers.

An estimated $50,000 to $75,000 is needed to fund the Autonomous Machinery and Machine Learning Field Day. This budget will cover the costs of event planning, technology demonstrations, speaker fees, and logistical support, including venue rental, equipment transport, and marketing. Additional funding should be considered for follow-up workshops or online resources to support ongoing technology adoption efforts after the event. This investment will drive technology innovation and long-term sustainability for local farms and aquaculture operations.

Impact Recommendation 5: Build a Public Policy Advocacy Program for Agricultural Value-Added Activities

It is recommended to build a comprehensive public policy advocacy program to address the challenges and opportunities faced by farmers and agribusinesses in Southern Maryland. The program should focus on advocating for state and local policy actions that streamline regulations, support value-added activities, and enhance the long-term economic sustainability of agricultural and aquaculture operations. Key areas of focus include simplifying food safety compliance, modernizing land use codes, improving transportation policies, and promoting temporary business exemptions for supplementary on-farm activities.

Goals

1. Simplify compliance with food safety regulations by developing a guidebook on local, state, federal, and private food safety programs.
2. Establish a regional definition for value-added agriculture and seek its adoption in county zoning codes.
3. Advocate for improvements to transportation infrastructure and signage to support agricultural operations.
4. Create a model framework to streamline permitting processes for on-farm value-added activities.
5. Promote temporary business exemptions to allow flexibility in agricultural land use.

Objectives

1. Produce an agribusiness policy guidebook that simplifies compliance with food safety regulations and educates farmers on land use, labor laws, and transportation policy.
2. Develop a clear, flexible regional definition of value-added agriculture that includes agritourism, processing, retail, and other business activities.
3. Work with local governments to streamline permitting processes and create pathways for agricultural enhancements like barns and processing facilities.
4. Collaborate with industry partners to advocate for transportation policies that improve road standards and safety for slow-moving farm equipment.
5. Promote temporary use permits in zoning codes to allow non-agricultural business activities on farms for limited periods.

Public Policy Advocacy Program Focus Areas

1. Simplify Food Safety Compliance

Develop a comprehensive guidebook for farmers that simplifies compliance with food safety regulations. The guidebook should cover local, state, federal, and private food safety programs and provide clear instructions on meeting these requirements. Additionally, the guidebook should include information on land use, environmental health, labor laws, and building codes that apply to on-farm value-added activities such as processing, retailing, and agritourism. This initiative will help farmers understand and navigate complex regulations more efficiently.

2. Establish a Regional Definition for Value-Added Agriculture

Work to establish an accepted regional definition of value-added agriculture and seek its adoption into the zoning codes of each county in Southern Maryland. This definition should recognize agriculture and aquaculture as multifunctional land uses that integrate traditional production practices with on-farm businesses like agritourism, food processing, and retail. Defining value-added agriculture in this way will provide legal clarity and support for farmers looking to diversify their operations.

3. Streamline Permitting Processes

Develop a model framework to streamline county permitting processes for on-farm value-added activities. The framework could consolidate multiple permits into a single application process, reducing redundancy and processing times. This would allow for faster approval of activities such as building barns, processing facilities, and aquaculture tanks. Establishing dedicated liaisons in county offices to assist farmers with navigating regulations would further promote efficiency and reduce the administrative burden on small and medium-sized farms.

4. Improve Transportation Policy

Advocate for state and local transportation policy improvements that accommodate slow-moving farm vehicles, including better road standards, wider shoulders, and increased road and bridge clearance. Improved signage is also essential for both safety and marketing purposes, particularly in areas with large Amish and Mennonite populations who rely on horse-drawn transportation. Enhanced road infrastructure and safety signage would support agricultural market development and reduce safety risks.

5. Create a Model Temporary Business Exemption for Farms

Collaborate with local governments to establish temporary business exemptions from zoning codes that allow farmers to operate supplementary businesses, such as farm-to-table pop-up restaurants or seasonal markets, for limited periods. This flexible approach would enable farmers to explore new revenue streams without undergoing a lengthy rezoning process, while still maintaining agricultural land use integrity.

The estimated budget for the implementation of the public policy advocacy program is $75,000 to $125,000. This includes costs for:

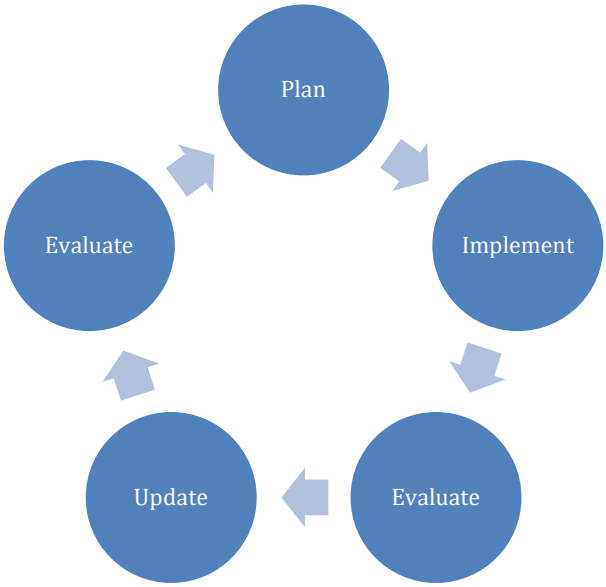
- Guidebook Production: Research, content development, and publication of the agribusiness policy guidebook.
- Legal and Policy Consultation: Engaging legal experts and policy advisors to develop model frameworks for streamlining permits and establishing temporary business exemptions.
- Advocacy and Outreach: Public engagement efforts, workshops, and outreach programs to build support for the adoption of value-added agriculture definitions and improved transportation policies.
- Collaborative Efforts with Private Partners: Building partnerships with private sector stakeholders and industry groups to ensure long-term collaboration and support for value-added activities.

This investment will ensure that Southern Maryland's agriculture and aquaculture sectors remain competitive, diversified, and economically resilient, while fostering public-private collaboration for sustainable growth.

Section 7 – Work Planning and Evaluation

Accommodating change while keeping the AAA Plan relevant will be critical to the success of both agriculture and aquaculture economic development efforts in Southern Maryland. Therefore, the project team suggests creating a plan advisory committee to be collectively managed by SMADC and the county agricultural marketing professionals and include heavy engagement from the private sector. This advisory committee will work with SMADC to coordinate both county-level, regional, and statewide development activities that will be driven by an annual work plan. This agricultural advisory committee will identify the top four to five initiatives annually to incorporate into the work plan. ACDS views this advisory committee as an important step in addressing the trust gap between industry and government.

The annual work plan will serve as the centerpiece of plan implementation. It will include specific actions to be taken and identify community resources and partners. A periodic review of the complete plan is also expected and should follow a schedule used for comprehensive plan updates to assist each county with the process of supporting, protecting, and developing agriculture, aquaculture, and related industry value chain activities. The graphic below summarizes the update process.



The project team must spend time establishing a thorough set of process guidelines. For example, there may be standard processes for collecting data, reviewing the data, and determining the critical data point at which action is required. Similarly, there will be a set of policies and processes for the farmer-led reviews and a format for the work plan.

Appendix A – Tri-County Region Data

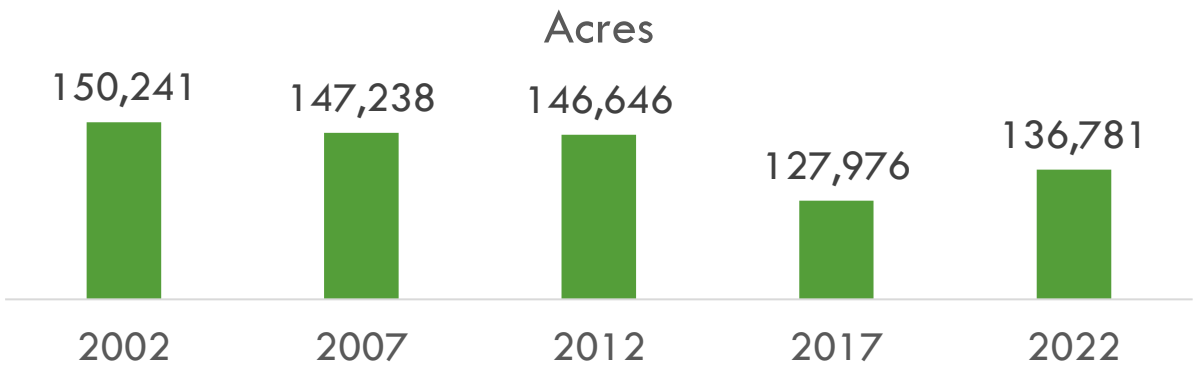
AGRICULTURAL SNAPSHOT SOUTHERN MD (UPDATE)

July 31, 2024
Prepared by ACDS, LLC

FARM TRENDS

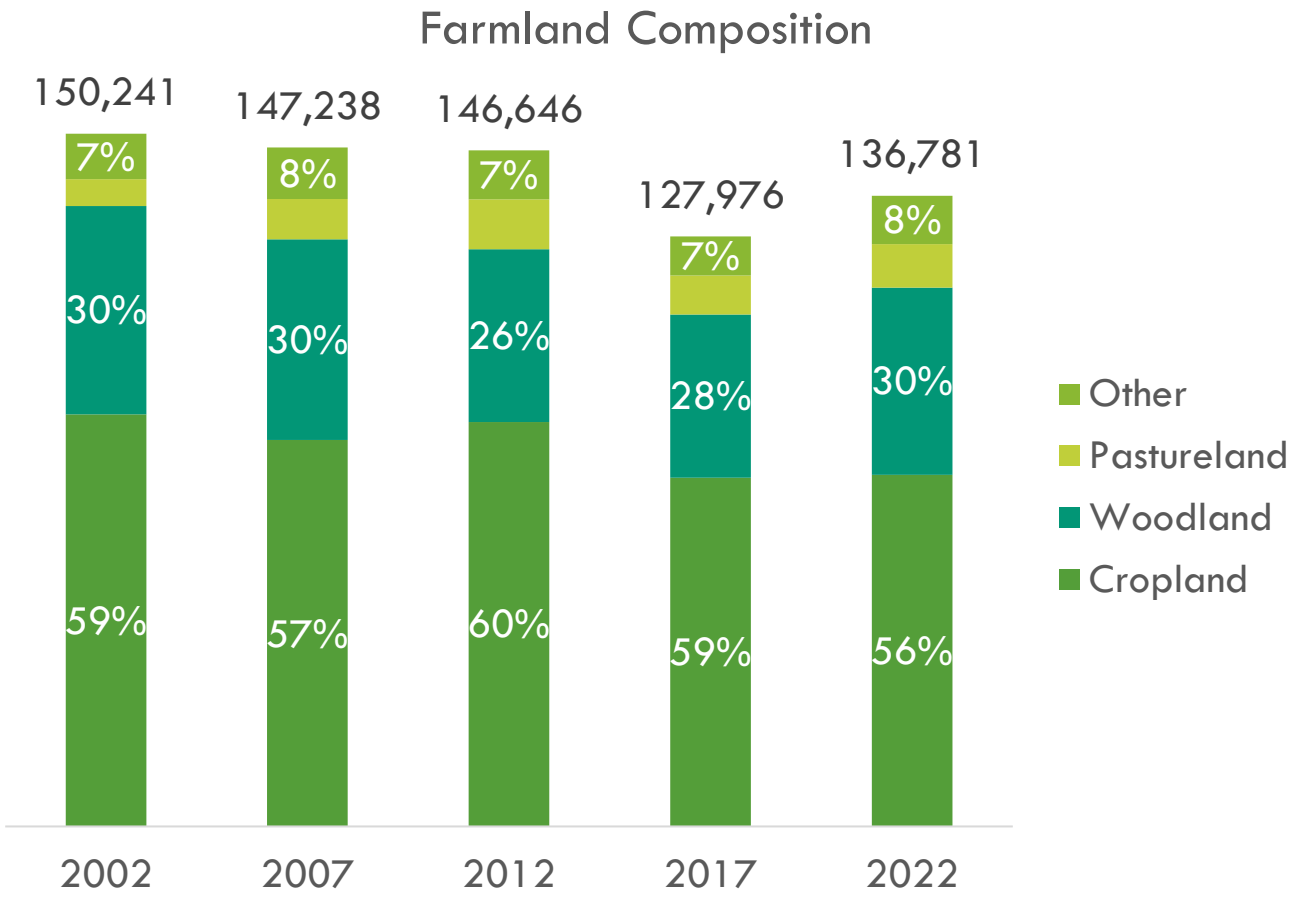
FARMS AND FARMLAND

- About 21% of the region's land is farmland
- **2.5% increase** in farms from 2017
- **6.9% increase** in farmland from 2017
- Number of farms has been trending upwards since 2017
- Average farm size is down post 2012
- Median average farm size is also lower post 2012



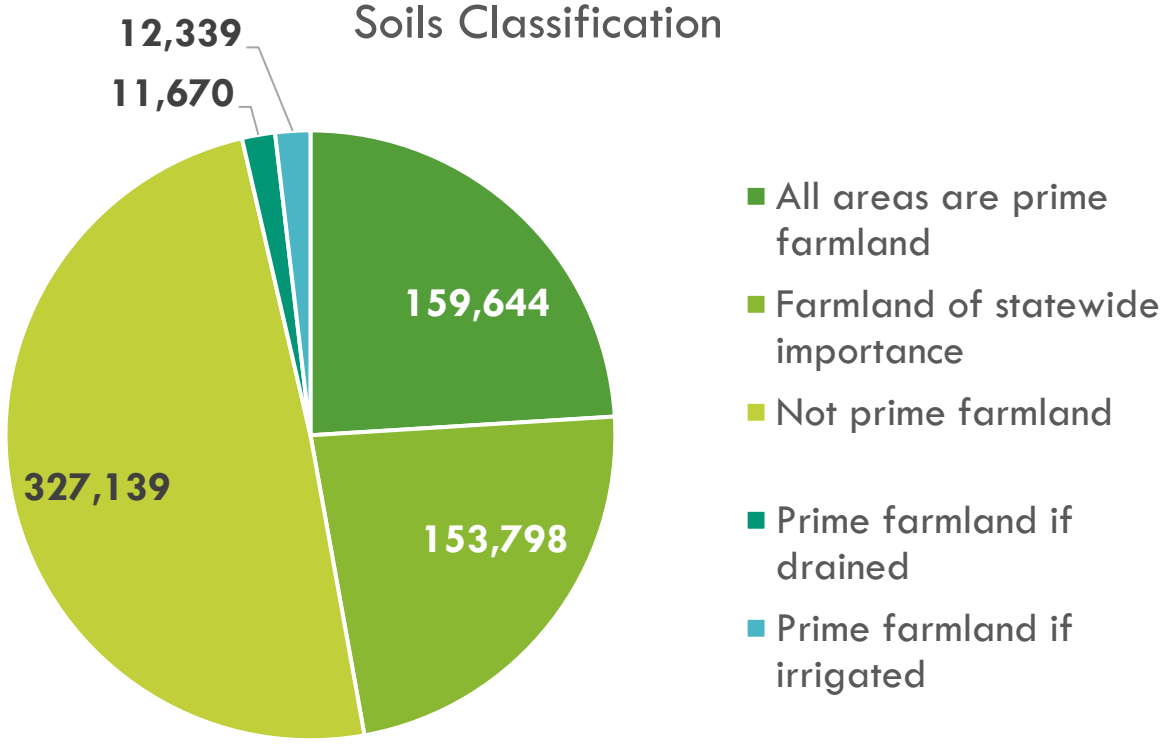
FARMLAND COMPOSITION

- Total farmland has been increasing since 2017; most of that has been in woodland
- Cropland decreased 1% since 2017
- Pastureland increased 11% since 2017
- Woodland increased 15% since 2017
- Other agricultural land increased 7% since 2017



SOILS AND CONSERVATION

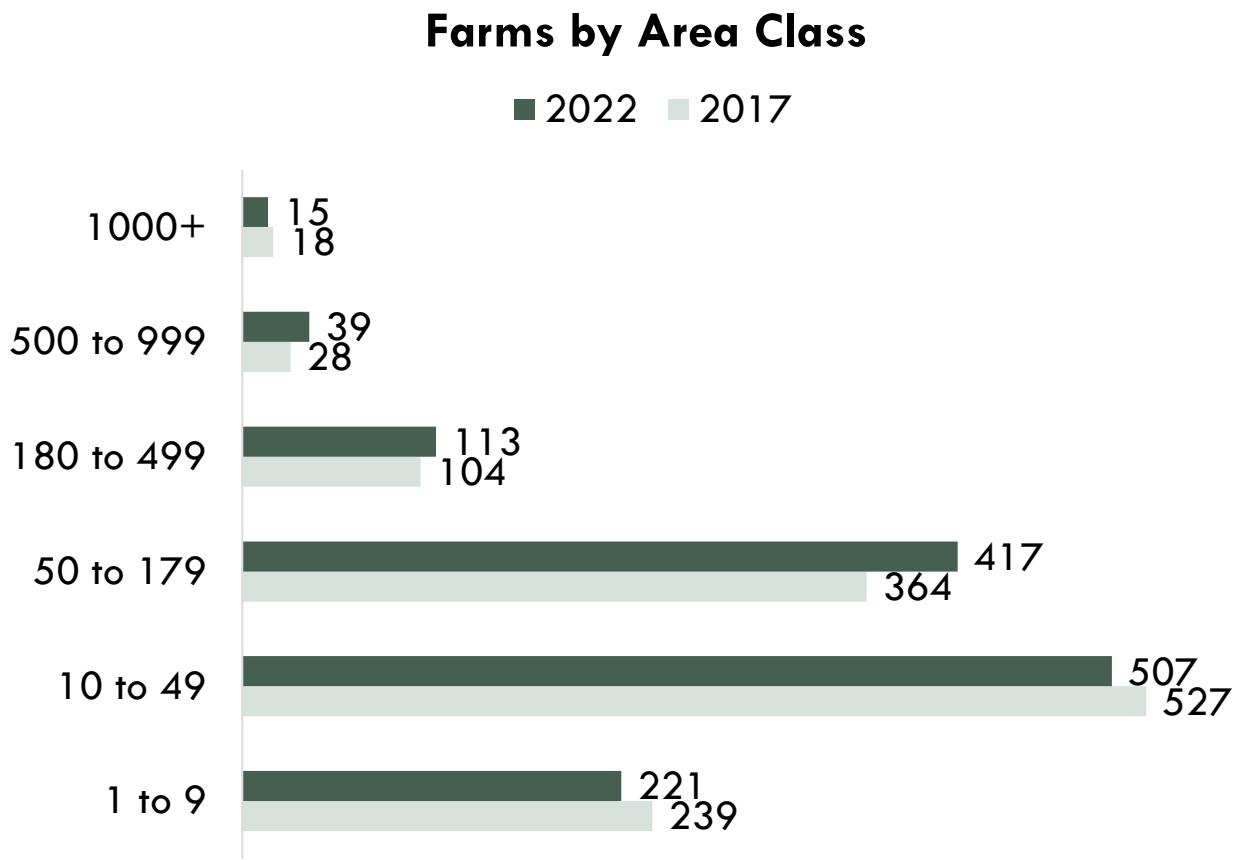
- 159,644 acres of prime farmland
- SMADC funds preserved more than 17,000 acres since 2002
- These funds were leveraged to help preserve an additional 22,000 acres
- Continued challenge with high cost of land in the region
- Value of agricultural land was **$9,638/acre** in 2022; **27% increase** since 2012; slight increase from 2017 rate of $9,605/acre



FARM SIZE

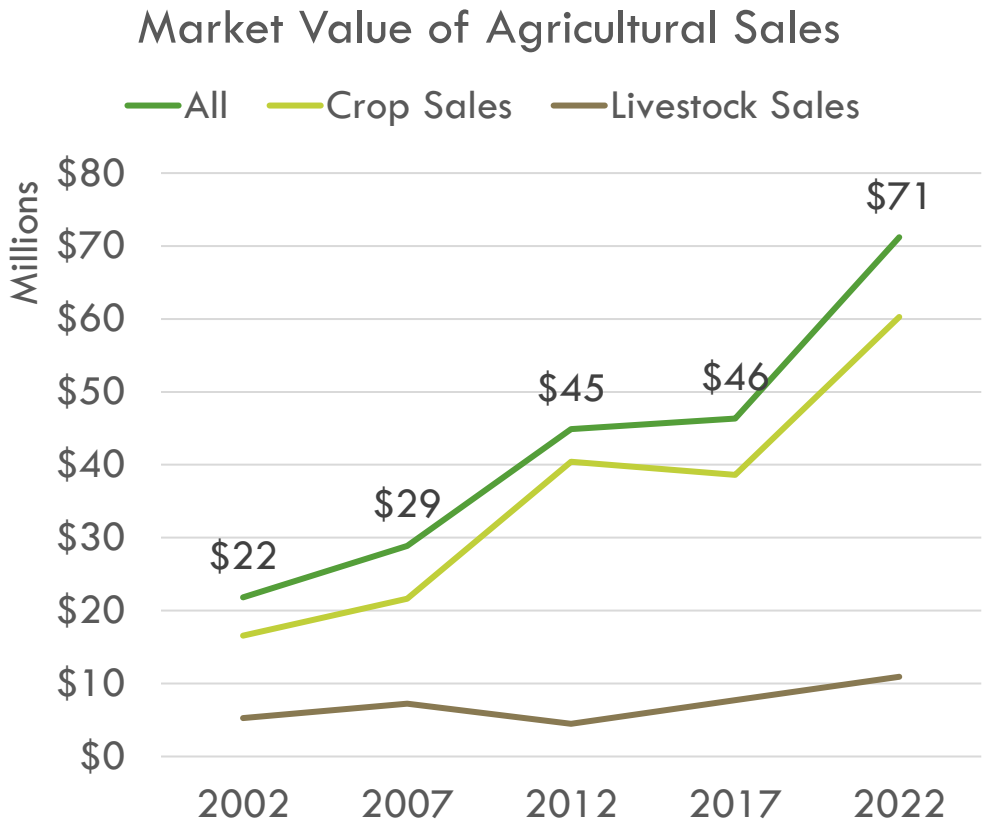
- There is a shift towards larger farms
- Increase in median avg. acreage between 2017 and 2022; still lower than what it was between 2002 and 2012, which was ~50 acres
- **39% increase** in farms with 500 to 999 acres
- **13% increase** in the number of farms with 50 to 499 acres

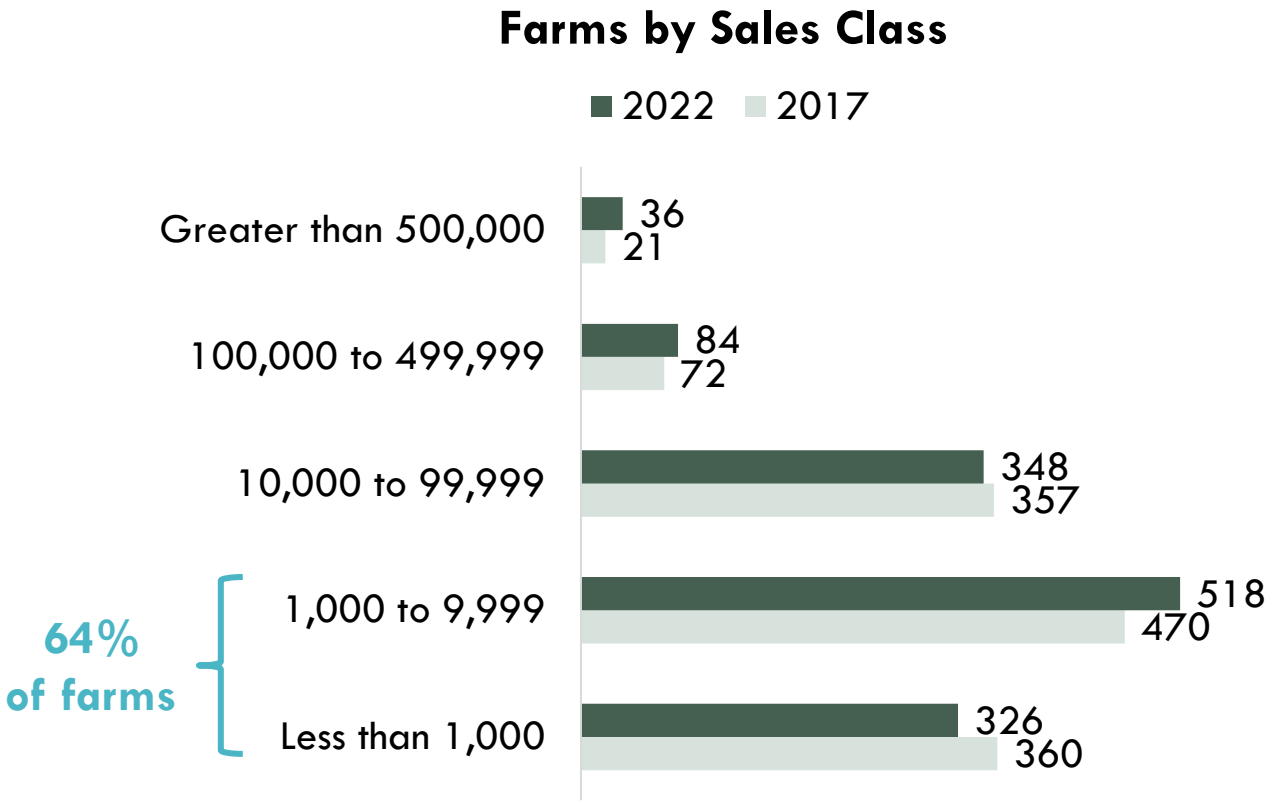
	2012	2017	% Change
Avg. Acreage	100.0	104.3	6.9%
Median Avg. Acreage	31.3	37.3	2.5%



FARM SALES

Majority of Ag Sales are from Crops





FARMS BY INDUSTRY

Hay →

Diversified →

Industry	2022	% Change from 2017
Other crop farming	278	-9.2%
Oilseed and grain farming	259	11.6%
Animal aquaculture and Other animal production	222	9.9%
Beef cattle ranching and farming	167	15.2%
Poultry and egg production	103	267.9%
Vegetable and melon farming	91	-36.4%
Fruit and tree nut farming	80	73.9%
Greenhouse, nursery, and floriculture production	60	-3.2%
Sheep and goat farming	35	-59.8%
Dairy cattle and milk production	13	-23.5%
Hog and pig farming	3	-72.7%
Cattle feedlots	1	0.0%

COMMODITY SALES

Top 10 Commodities by Sales, 2022

Commodity	Sales (Million $)	% Change in Sales from 2017
Soybeans	20.2	105.8%
Corn	16.9	91.8%
Vegetables	7.6	31.5%
Poultry & Eggs	3.6	657.7%
Wheat	3.0	-14.2%
Aquaculture	2.2	-30.5%
Other crops and hay	1.7	-26.5%
Milk from cows	1.7	95.5%
Cattle & Calves	1.7	-8.0%
Fruits, tree nuts, and berries	1.4	84.7%

Aquaculture fell in ranking from $3.2 M in 2017 to about $2.2 M in 2022.

PRODUCTION HIGHLIGHTS

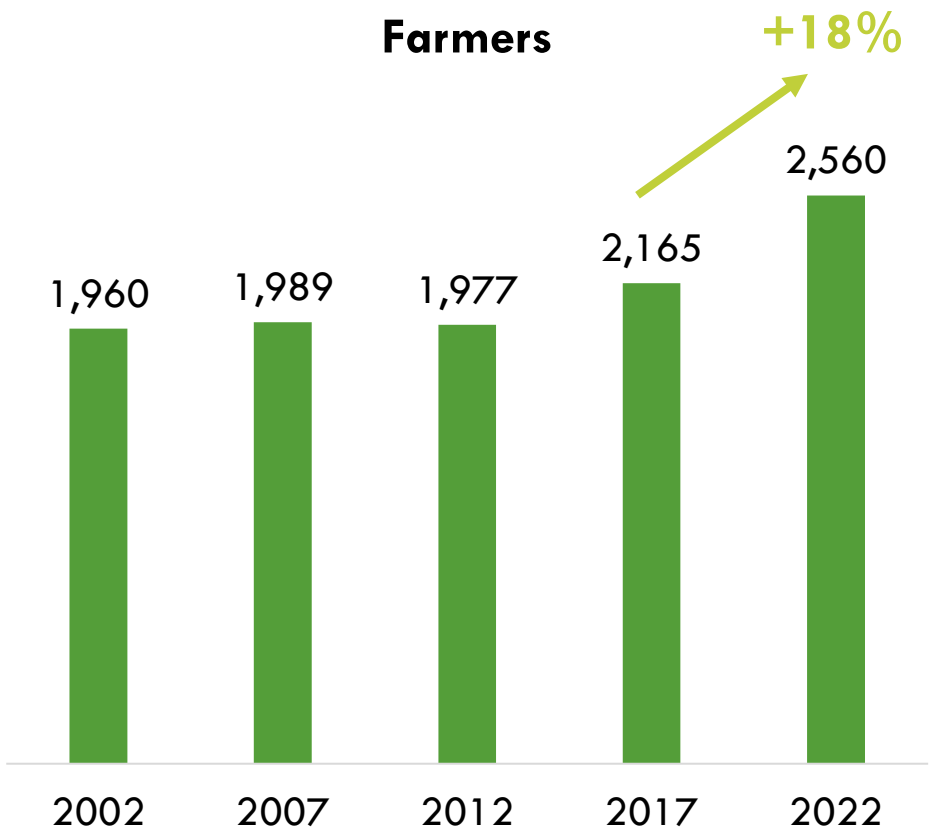
Crops and Livestock

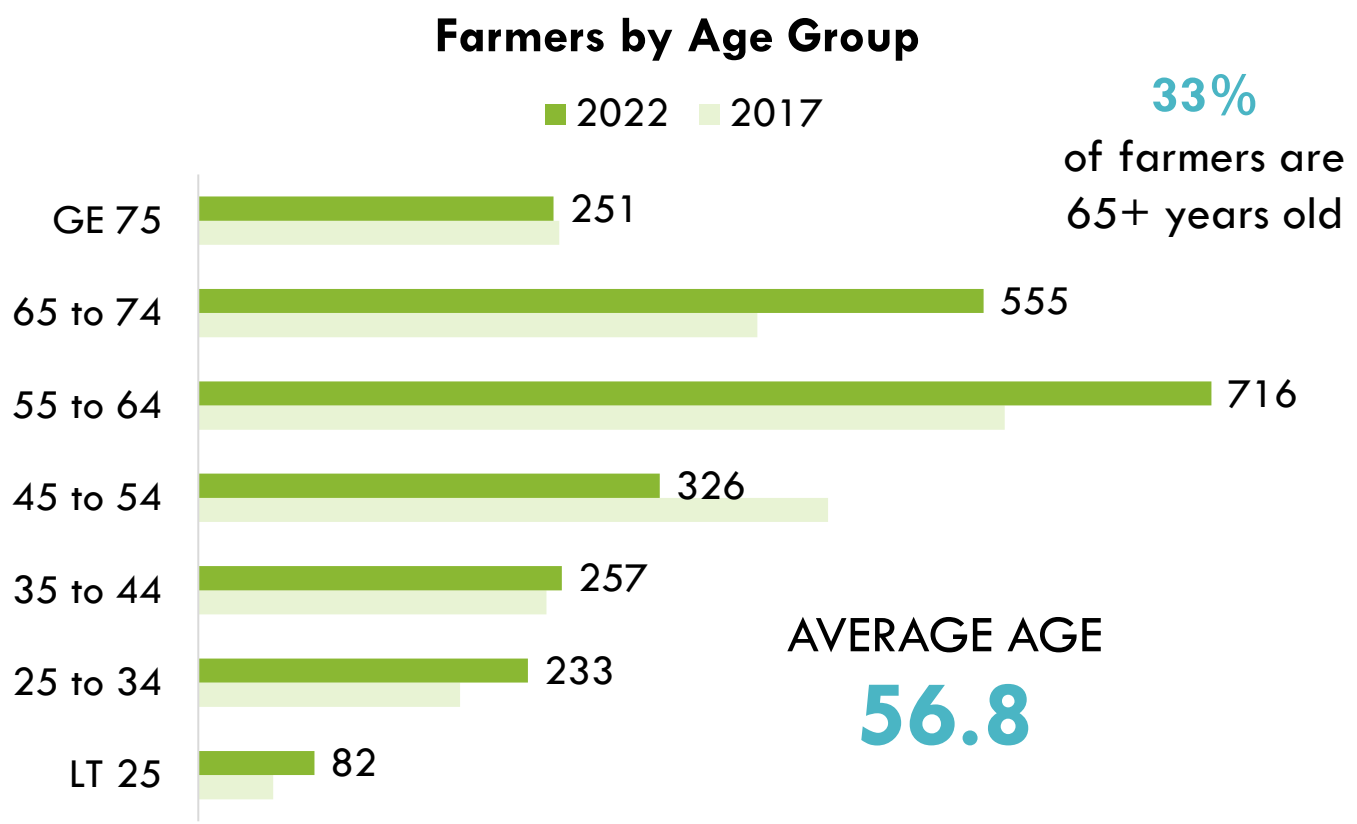
Crop (acres)	2022	% Change from 2017
Soybean	32,138	18.3%
Corn	16,602	-7.8%
Forage	13,420	29.9%
Wheat	9,490	-24.0%
Vegetable	1,794	-34.0%
Barley	613	-29.7%
Sorghum	468	-81.0%
Oat	282	89.3%

Livestock (head)	2022	% Change from 2017
Broilers	170,237	712.5%
Layers	12,006	-46.6%
All Cattle	5,323	-5.1%
Hogs	1,585	25.0%
Goats	1,212	-40.6%
Sheep and lambs	1,136	3.0%
Turkeys	1,078	58.5%
Ducks	564	-20.1%

FARM TRANSITION AND FARM LABOR

FARMER DEMOGRAPHICS



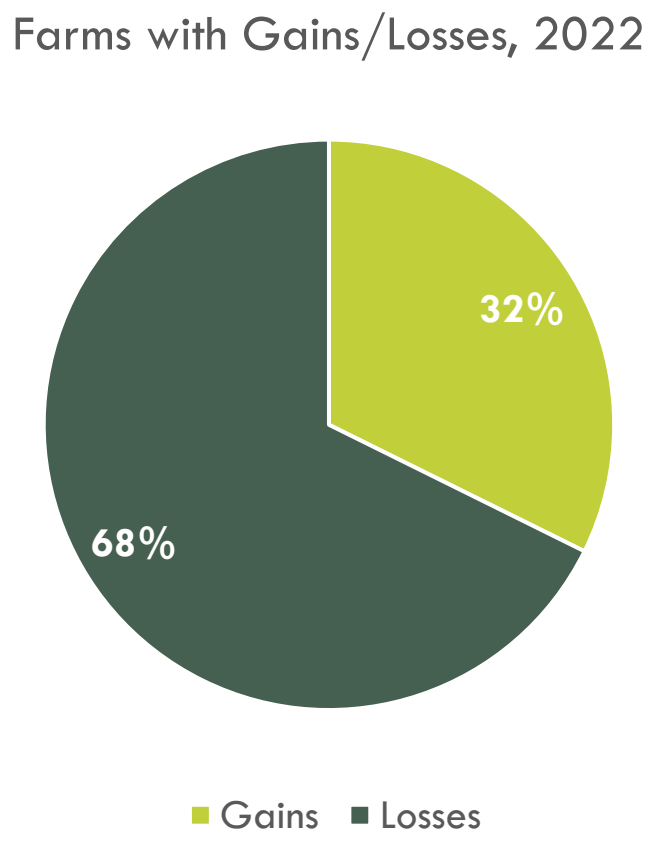


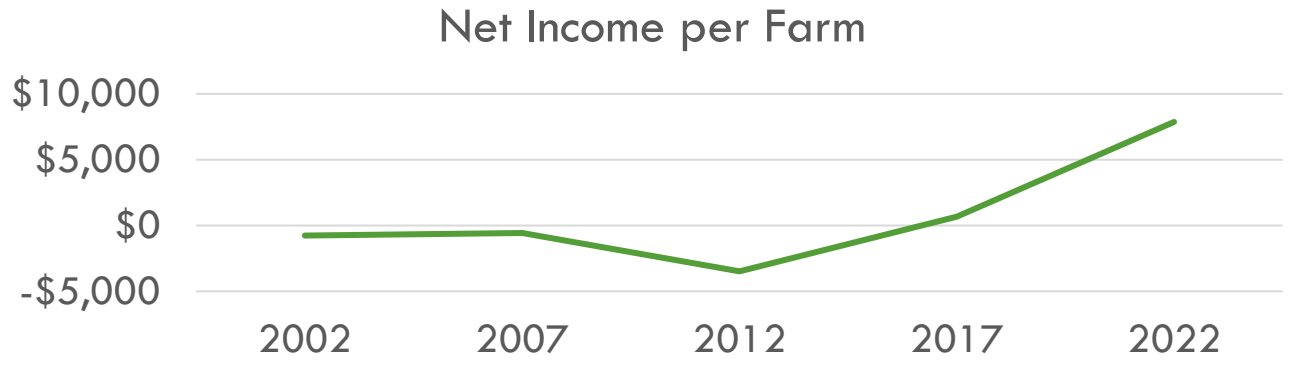
33%
of farmers are
65+ years old

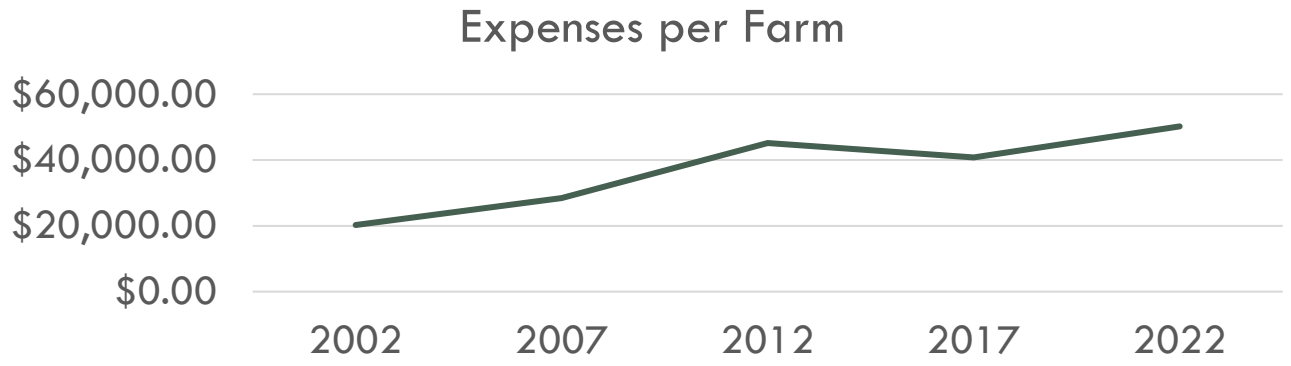
AVERAGE AGE
56.8

FARM PROFITABILITY

Average Net Income has improved, but many farms are still reporting a loss

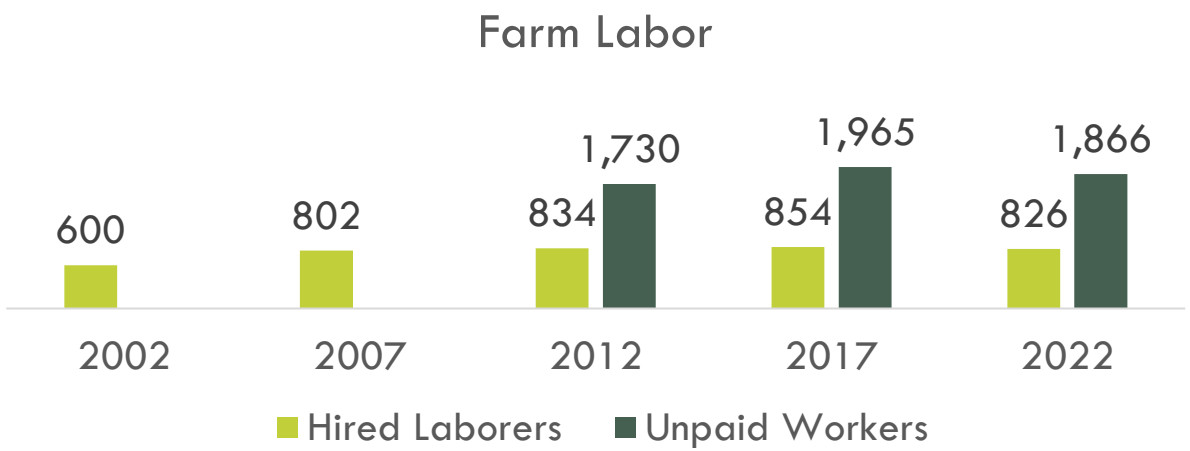






FARM LABOR

- **22% increase** in labor expenses between 2017 and 2022
- Labor as share of expenses is 13%
- Hired labor has been between 800-860 between 2007 and 2002; relatively stable
- Continued high levels of unpaid laborers

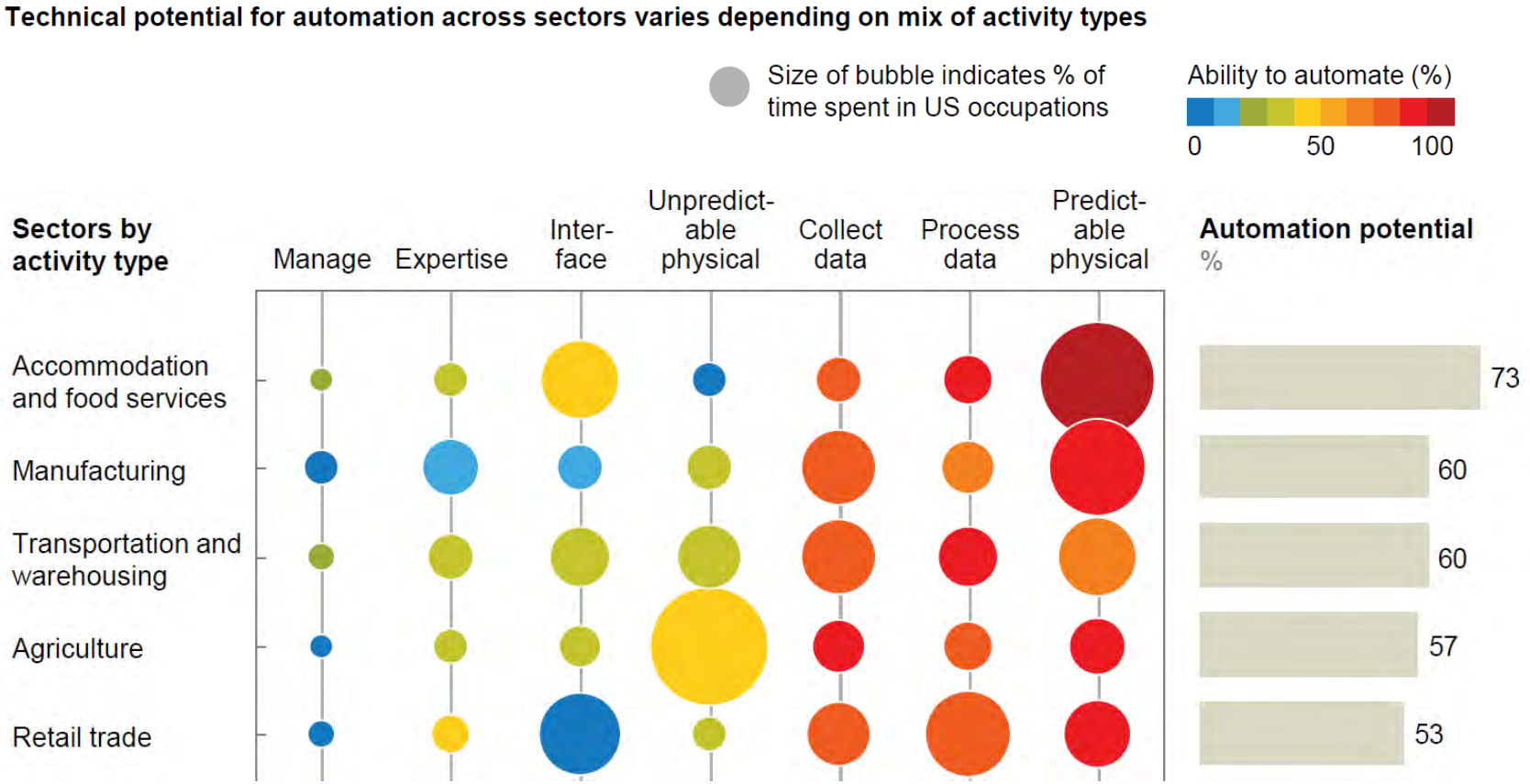


	2007	2012	2017	2022	% Change from 2017
Labor Expenses ($1,000)	$3,182	$5,613	$6,847	$8,376	22%
Total Farm Expenses ($1,000)	$37,329	$57,982	$52,183	$65,884	26%
Share of Total Farm Expenses	9%	10%	13%	13%	-3%

SKILLS GAPS & AUTOMATION

Skills Needed

- Organic Farming
- Livestock Management
- Pest Identification
- Food Safety
- Farm Equipment Repair
- Management Skills
- Technology / Robotics



Source: McKinsey Global Institute, "A Future That Works: Automation, Employment, and Productivity." (2017)

KEY AGRICULTURAL SECTORS

GRAINS, SOYBEANS, AND OTHER CROPS

- Grains and oilseed sales **have almost doubled** since 2017: $24.6 million to $42.9 million
- Grain and oilseed acreage has fluctuated around 70k and 87k ac. over the years; mostly around 70k acres
- Potential niche opportunities to explore: industrial hemp
- 14% of the region's soils are suited or moderately suited for industrial hemp

Crop Acreage	2007	2012	2017	2022	% Change from 2017
Soybeans	23,724	26,529	27,161	32,138	18.3%
Corn	22,134	23,282	17,997	16,602	-7.8%
Forage	13,141	11,309	10,332	13,420	29.9%
Wheat	9,725	16,835	12,488	9,490	-24.0%
Barley	1,655	3,252	872	613	-29.7%
Sorghum	(D)	4,620	2,462	468	-81.0%
Oat	262	198	149	282	89.3%
Tobacco	380	203	235	156	-33.6%
Corn Silage	683	336	145	59	-59.3%
Total	**71,704**	**86,564**	**71,841**	**73,228**	**2%**

HORTICULTURE & INDOOR PRODUCTION

- Horticultural sales are **5%** of all crop sales in the region
- In 2017, the horticultural sector was represented primarily by floriculture production
- In 2022, greenhouse produce production has increased
- Greenhouse vegetable sales have skyrocketed; **sales increased 12.5x**
- Greenhouse tomato sales has declined slightly since 2017
- 69,427 SF of greenhouse tomatoes in 2022; **12% increase** from levels in 2017

Sales ($)	2012	2017	2022
Vegetables, Greenhouse	(D)	$18,936	$236,525
Tomatoes	(D)	$226,132	$220,246
Other Vegetables	(D)	(D)	$16,279
Fruits, Greenhouse	(D)	(D)	(D)

HORTICULTURE & INDOOR PRODUCTION

Sales, 2022 ($)	Maryland	Southern MD
Horticulture Total	312,443,000	3,143,000
Floriculture	90,016,048	2,472,305
Greenhouse Vegetables & Fruits	2,058,302	473,050
Cut Christmas Trees & Short-Term Woody Crops	2,972,000	19,000
Aquatic Plants	998,100	(D)
Bulbs & Corms & Rhizomes & Tubers, Dry	40,280	(D)
Mushrooms & Mushroom Spawn	(D)	(D)
Nursery	105,050,748	(D)
Propagative Material	5,826,133	(D)
Sod	--	--

PRODUCE

- About **897 acres** of vegetables and melons
- **$7.6 million** worth of vegetables sold
- Decline in vegetable acres since 2017
- About **438 acres** of fruits, tree nuts, and berries
- Almost **$1.4 million** worth of fruit sales
- Increase in fruit acres over the years

Crop Acreage	2002	2007	2012	2017	2022	% Change from 2017
Fruits	173	222	228	230	438	90%
Orchard	173	188	194	129	360	179.1%
Non-Citrus	--	160	17	46	(D)	n/a
Tree Nut	--	2	(D)	6	(D)	n/a
Berries	--	34	34	101	78	-22.8%
Vegetables & Melons	1,136	1,493	1,373	1,360	897	-34.0%

PRODUCE

Top Vegetables & Fruits by Acres

Acres	2017	2022	% Change
Sweet Corn	280	172	-38.6%
Bell Peppers	52	104	100.0%
Tomatoes	123	79	-35.8%
Pumpkins	122	51	-58.2%
Kale	32	30	-6.2%
Squash	73	26	-64.4%
Cucumbers	23	20	-13.0%
Potatoes	31	19	-38.7%
Chile Peppers	4	17	325.0%
Cabbage	9	16	77.8%

Acres	2017	2022	% Change
Grapes	93	277	197.8%
Watermelon	141	89	-36.9%
Cantaloup	104	75	-27.9%
Blueberries	36	50	38.9%
Apples	31	35	12.9%
Pears	6	5	-16.7%
Honeydew	0	5	inf%
Peaches	6	4	-33.3%
Blackberries	11	3	-72.7%
Plums & Prunes	2	3	50.0%

VINEYARDS AND WINERIES

- St. Mary's and Calvert counties make the top 10 list
- St. Mary's is ranked #2 in 2022; previously ranked 7th in 2017
- 277 acres of grapes in 2022; this is a significant increase since 2017
- 63 grape farms in 2022
- 36 grape farms in 2017

Top 10 MD Counties	Grape Acres
FREDERICK	343
ST MARYS	**165**
QUEEN ANNES	145
BALTIMORE	118
HARFORD	105
WASHINGTON	94
ANNE ARUNDEL	90
CALVERT	**60**
PRINCE GEORGES	60
CARROLL	58

AQUACULTURE

- Maryland reported 85 aquaculture operations in 2022 with total sales of $15.1 million
- Southern MD had about 27 aquaculture operations in 2022
- Southern MD reported total sales of about $2.2 million (underestimate due to undisclosed data); was $3.2 million in 2017

	2007	2012	2017	2022
Aquaculture Operations	**8**	**5**	**17**	**27**
Mollusks	8	4	15	26
Ornamental Fish	--	--	1	1
Food Fish	2	1	1	1
Sport Fish	--	--	1	1
Aquaculture, Other	--	--	1	1

Total not intended to sum up. An operation can be involved in more than one commodity

CATTLE AND CALVES

- Cattle sales contributed **$1.6 million** in sales in 2022
- **8% decrease** in cattle sales ($) since 2017
- **5% decrease** in cattle inventory since 2017
- Decline in number of cattle farms since 2002
- Decline in number of farms with cattle sales since 2007

	2007	2012	2017	2022	% Change
Cattle & Calves	8,143	6,782	5,612	5,323	-5.1%
Cows	4,496	3,540	3,376	3,076	-8.9%
Dairy	793	414	358	397	10.9%
Beef	3,128	3,126	2,378	2,186	-8.1%
Other Cattle	3,647	3,242	2,236	2,247	0.5%

Cattle & Calves	2007	2012	2017	2022	% Change
Farms with Sales	288	254	228	168	-26.3%
Inventory Sold	4,764	2,428	2,306	1,952	-15.4%
Value of Sales ($1,000)	3,390	2,036	1,797	1,653	-8.0%

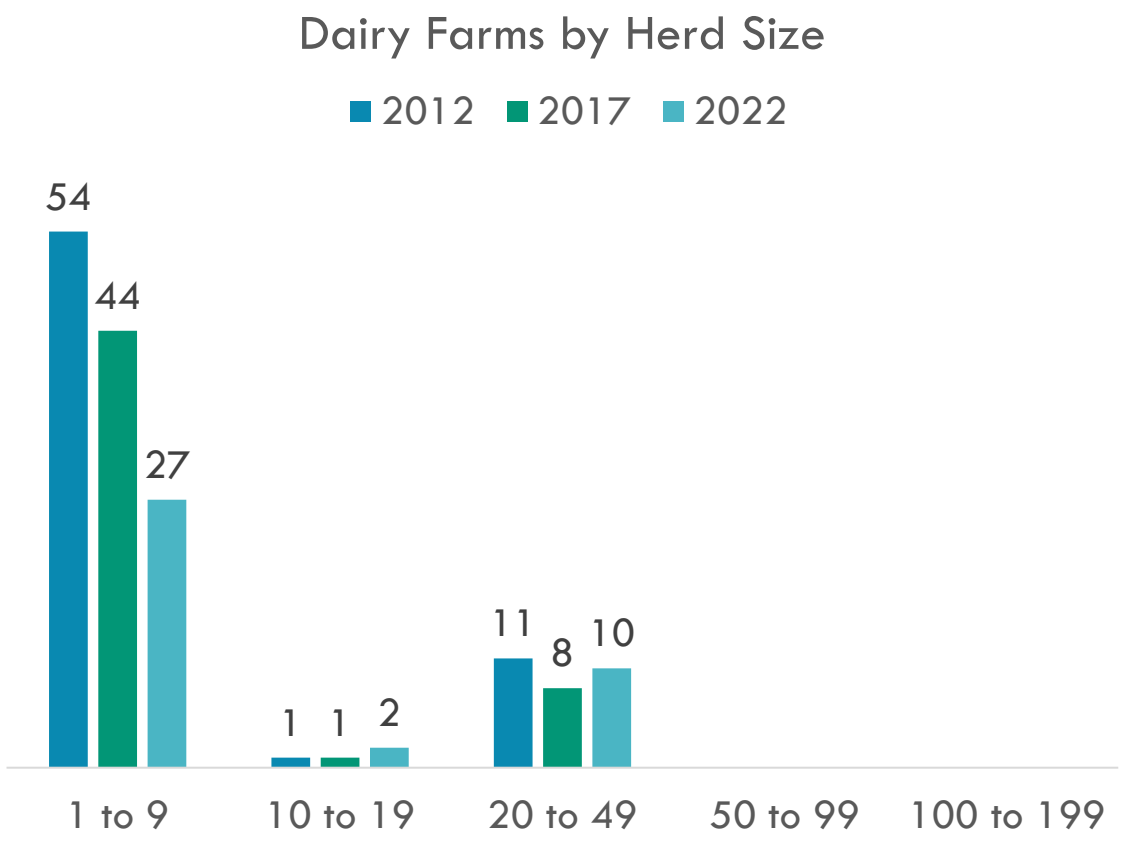
DAIRY

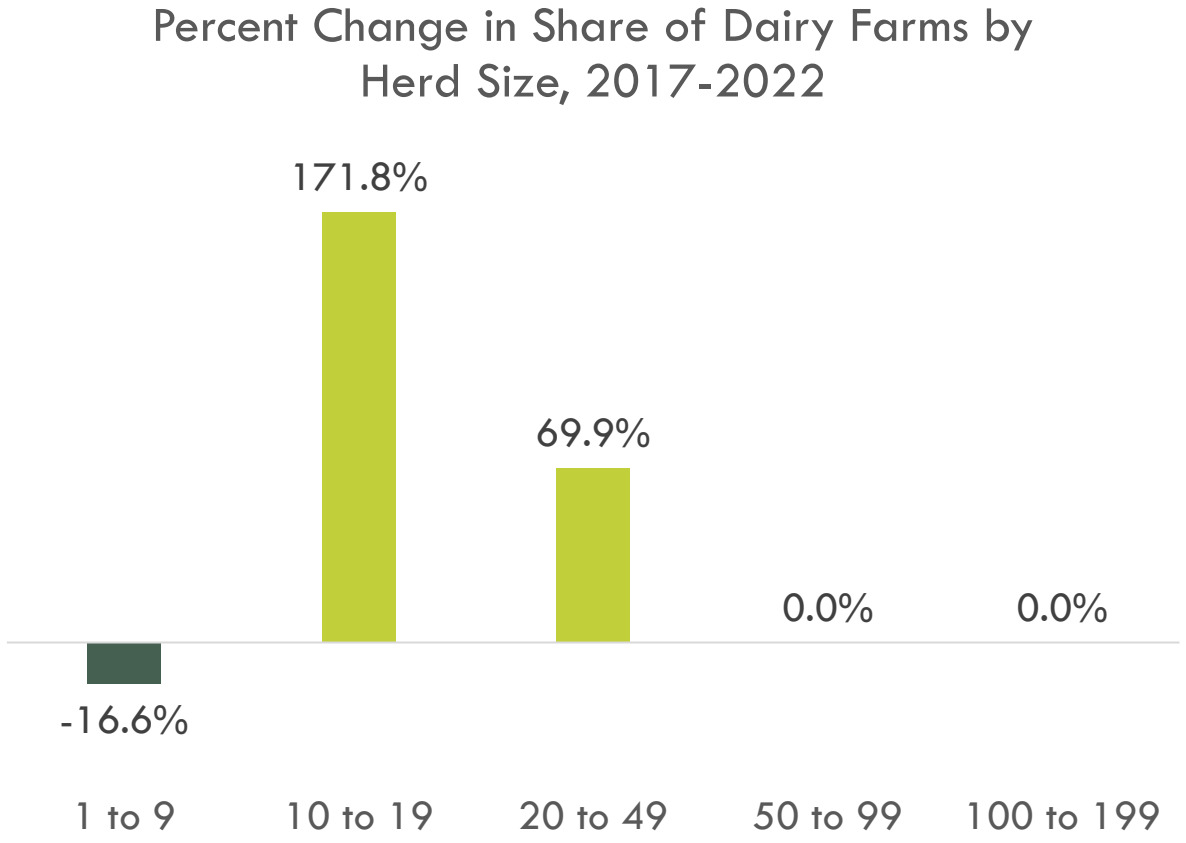
- **$1.7 million** in milk sales in 2022; 2x increase since 2017
- Most of the milk is sold in Federal Milk Market Order 1
- Decrease in number of dairy farms since 2017
- Decrease in dairy cows since 2007
- Average herd size has fluctuated over the years
- Most of the dairy operations have small herds
- Despite decline in dairy farms, the **sales per farm has improved from $13k in 2012 to $43k in 2022**

	2007	2012	2017	2022	% Change since 2017
Dairy Farms	64	66	53	39	-26.4%
Cow Inventory	793	414	358	397	10.9%
Cows per Farm	12	6	7	10	42.9%

DAIRY

Dairy operations are small-scale; general decline in industry





POULTRY

- **$3.6 million** in sales in 2022; 7.5x increase
- Broiler chickens are driving growth
- Strong growth in the number of broilers sold; operations are growing in production

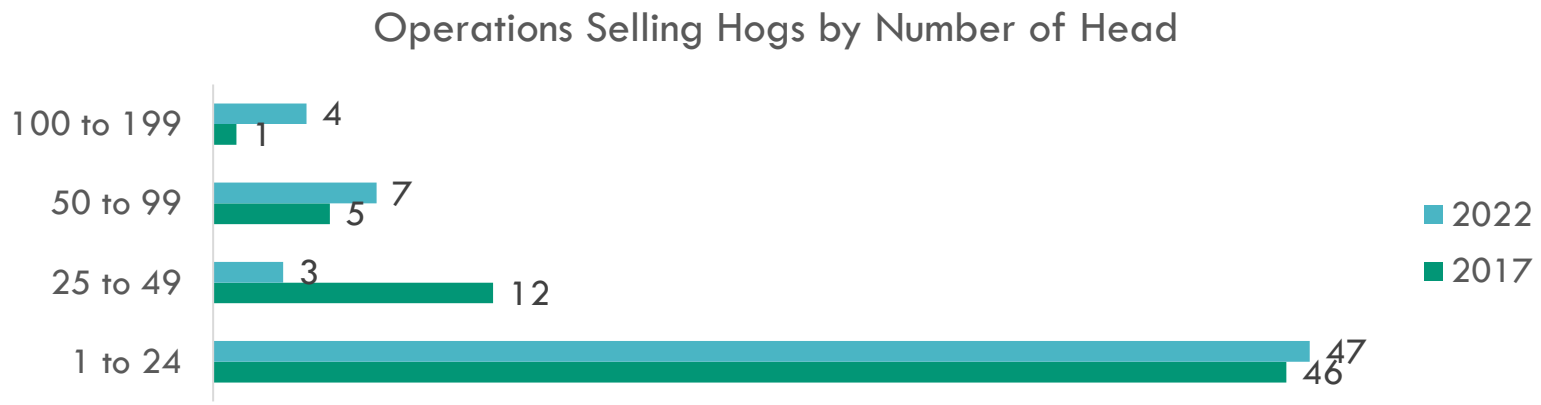
	2007	2012	2017	2022	% Change
Broilers	10,783	1,935	20,951	170,237	712.5%
Layers	9,098	10,384	22,485	12,006	-46.6%
Turkeys	774	1,226	680	1,078	58.5%
Ducks	342	80	706	564	-20.1%

	2007	2012	2017	2022	% Change
Farms w/ Broiler Sales	25	30	39	33	-15.4%
Broilers Sold	2,718	18,012	21,833	510,540	2238.4%
Farms w/ Duck Sales	8		10	12	20.0%
Ducks Sold	16		283	28	-90.1%
Farms w/ Turkey Sales	17	22	12	16	33.3%
Turkeys Sold	889	1,373	1,151	943	-18.1%
Poultry & Eggs Sales ($)	210,000	288,000	480,000	3,637,000	657.7%

HOGS

- **$358,000** in sales in 2022
- Most hog operations are small scale
- 77% sell fewer than 25 hogs
- Hog and pig sales have declined 8% from levels in 2017
- Declining red meat prices will lower industry revenue, but lower feed prices should help profits.
- Increase in poultry prices expected to improve demand

	2007	2012	2017	2022	% Change
Farms	69	73	88	104	18.2%
Inventory	1,964	1,116	1,268	1,585	25.0%
Farms with Sales	61	55	70	65	-7.1%
Inventory Sold	2,621	2,100	3,758	2,839	-24.5%
Value of Sales ($)	236,000	204,000	389,000	358,000	-8.0%



SHEEP AND GOATS

- Estimated sales of sheep and goat products was at least **$185,000** in 2022; mostly goat and goat product sales
- Sales **increased 33%** since 2017; still lower than sales in 2012
- Relatively consistent number of farms with goats and sheep over the years
- Most of the goats sold in 2017 were for goat meat/mohair/other products (non-milk)

	2007	2012	2017	2022	% Change from 2017
Sheep Farms	76	85	95	80	-15.8%
Sheep Inventory	986	1,344	1,103	1,136	3.0%
Sheep Farms with Sales	46	43	48	34	-29.2%
Sheep Sold	537	881	612	342	-44.1%

	2007	2012	2017	2022	% Change from 2017
Goat Farms	134	111	165	128	-22.4%
Goat Inventory	1,663	1,157	2,041	1,212	-40.6%
Goat Farms with Sales	65	58	80	60	-25.0%
Goats Sold	599	363	815	378	-53.6%

AGRITOURISM AND ADDING VALUE

Growing Agritourism

- Agritourism in the region has been growing over the last decade
- Significant growth over the years; sudden decline around 2017
- A decline in number of operations since 2017
- **2.5x increase** in agritourism revenue since 2017

	2002	2007	2012	2017	2022	% Change From 2017
Farms	17	20	30	44	30	-31.8%
Revenue ($)	205,000	219,000	594,000	195,000	505,000	159.0%

AGRITOURISM AND ADDING VALUE

Value-Added Sales Experiencing Declines

- Need to ground-truth direct-to-consumer activity given the changes in USDA reporting
- Both Direct-to-Consumer (DTC) and Wholesale numbers include value-added sales
- Farms sold **$921,000**worth of value-added products; a 28% decline since 2017
- DTC sales have declined 15% since 2017
- Wholesale sales have declined 16% since 2017

DTC (Retail)	2017	2022	% Change
Farms	177	164	-7.3%
Sales ($1,000)	3,522	3,010	-14.5%

Wholesale	2017	2022	% Change
Farms	63	75	19.0%
Sales ($1,000)	2,332	1,970	-15.5%

Value-Added	2017	2022	% Change
Farms	47	50	6.4%
Sales ($1,000)	1,273	921	-27.7%

AGRITOURISM AND ADDING VALUE

Shift Towards Value-Added Processing and Organic Farming

- Not many organic operations
- Decline in number of organic farms
- Sales are undisclosed due to low number of operations

Organic Production	2007	2012	2017	2022	% Change
Farms	--	6	4	2	-50.0%
Sales ($1,000)	--	(D)	(D)	(D)	n/a

DEMOGRAPHIC FACTORS

POPULATION AND INCOME

386,220 Population	**2.73** Avg. Household Size	**139,793** Total Households	**65.3** Diversity Index
$101,091 Avg. Disposable Income	**$115,388** Median HH Income	**$53,460** Per Capita Income	**146** Wealth Index

Source: ESRI Business Analyst, 2024

PSYCHOGRAPHICS

Statement	Expected Number of Adults	Percent of Adults	MPI
Am Interested in How to Help Env	49,633	16.6%	97
Buying American Is Important	85,723	28.7%	99
Buy Based on Quality Not Price	42,428	14.2%	98
Buy on Credit Rather Than Wait	**37,657**	**12.6%**	**102**
Only Use Coupons Brands Usually Buy	29,791	10.0%	98
Will Pay More for Env Safe Prods	32,537	10.9%	97
Buy Based on Price Not Brands	76,847	25.8%	97

Source: ESRI Business Analyst, 2024

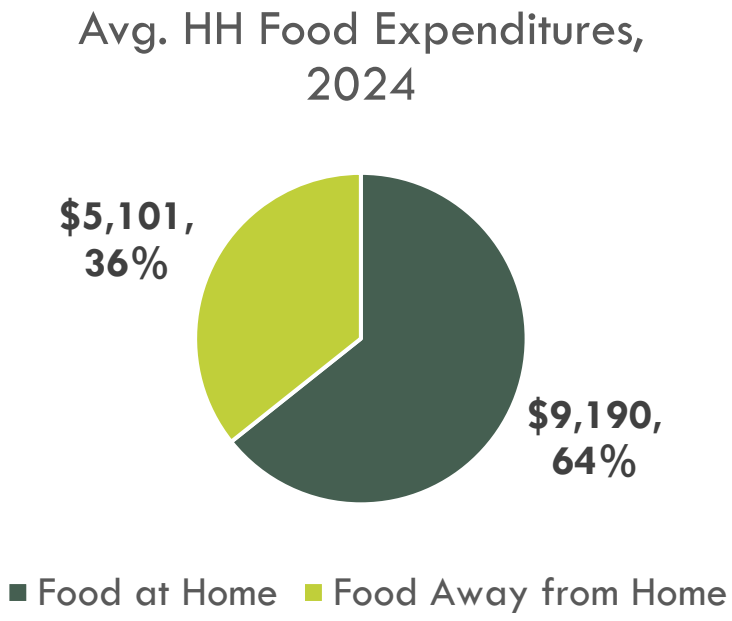
FOOD PURCHASING & CONSUMPTION TRENDS

2024 FOOD TRENDS

- **Emphasis on health-conscious choices, affordability, and nutritional quality**
- **Put the "Plant" back in "Plant-Based"**: mushrooms, walnuts, tempeh and legumes in place of complex meat alternatives
- **Buckwheat**: both a cover crop and super food that contains protein, carbs, and fiber; can be seen in soba noodles, plant-based milk alternatives, crackers, and granola
- **Clean & Conserve**: consumer interest in water stewardship/conservation, regenerative agriculture, soil health initiatives
- **Empowering Experiences**: consumers desire personalized experiences that are exciting, engaging, enjoyable, and memorable; implications for on-premise dining and food tourism
- **Glocal**: fusion of global and local culinary elements as well as cross-cultural fusion

FOOD CONSUMPTION

- About 11.2% of the household budget is spent on food
- Higher propensity towards seafood consumption



Source: ESRI Business Analyst, 2024

Grocery Market Potential	Expected Number of Adults	Percent of Adults	MPI
HH Used Bread/6 Mo	132,407	94.7%	100
HH Used Chicken (Fresh or Frozen)/6 Mo	110,463	79.0%	103
HH Used Turkey (Fresh or Frozen)/6 Mo	31,352	22.4%	108
HH Used Fish or Seafood (Fresh or Frozen)/6 Mo	83,665	59.8%	102
HH Used Fresh Fruit or Vegetables/6 Mo	125,505	89.8%	101
HH Used Fresh Milk/6 Mo	116,109	83.1%	101
HH Used Organic Food/6 Mo	36,789	26.3%	103

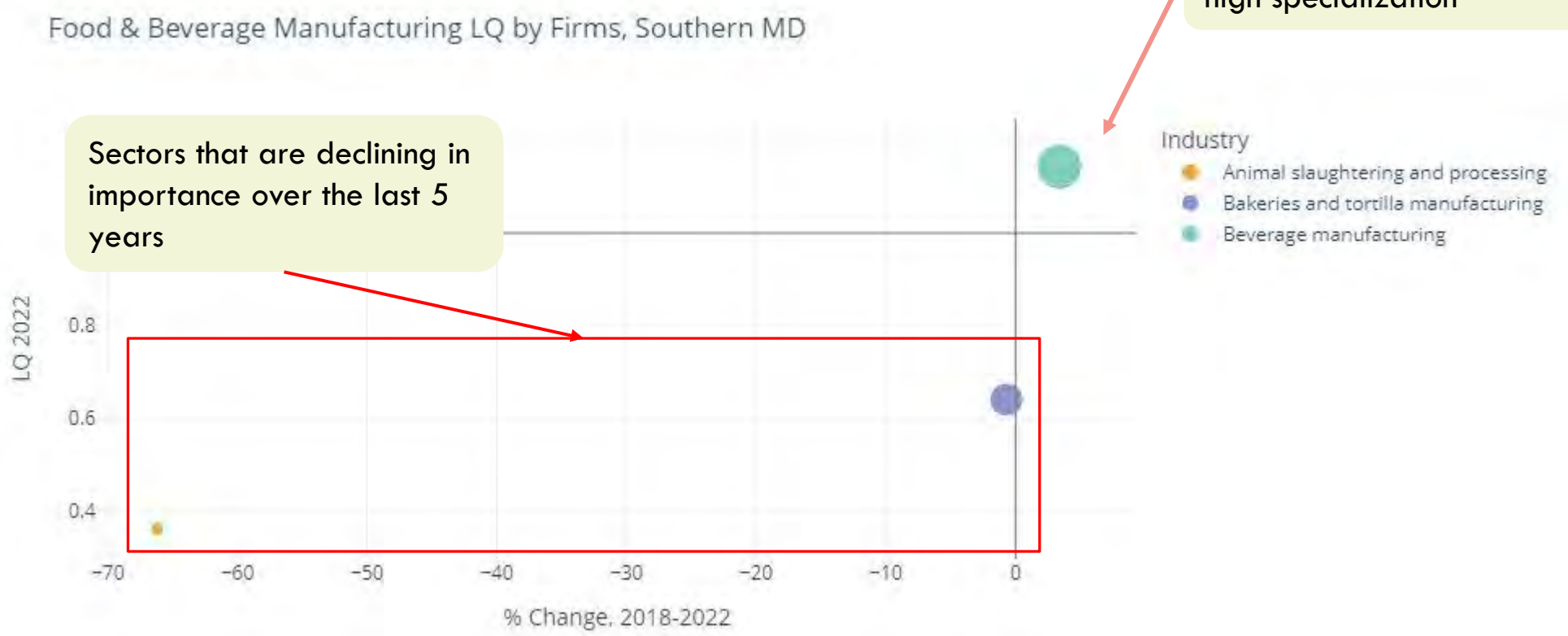
INDUSTRY CLUSTER ANALYSIS

INDUSTRY CLUSTER ANALYSIS

Firm Data

Beverage manufacturing has high specialization

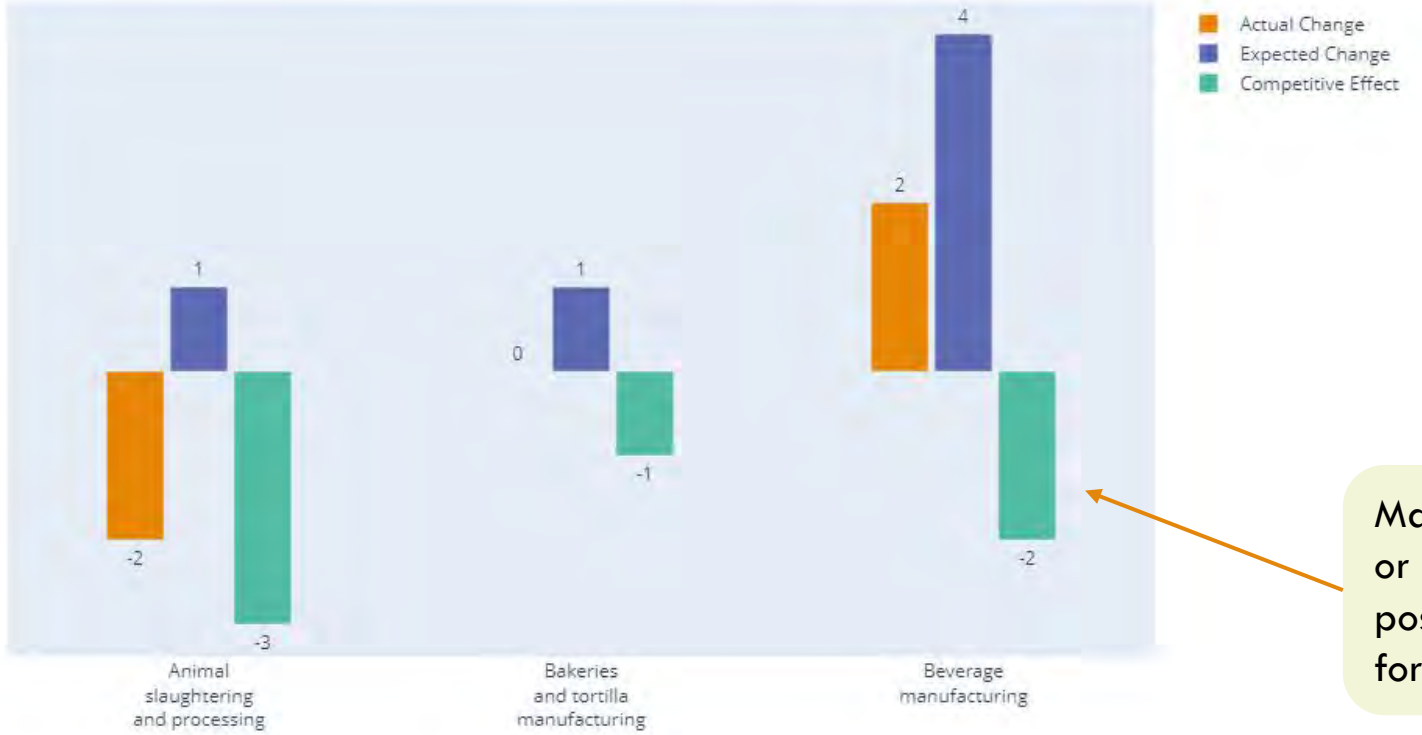
Sectors that are declining in importance over the last 5 years



INDUSTRY CLUSTER ANALYSIS

Firm Data

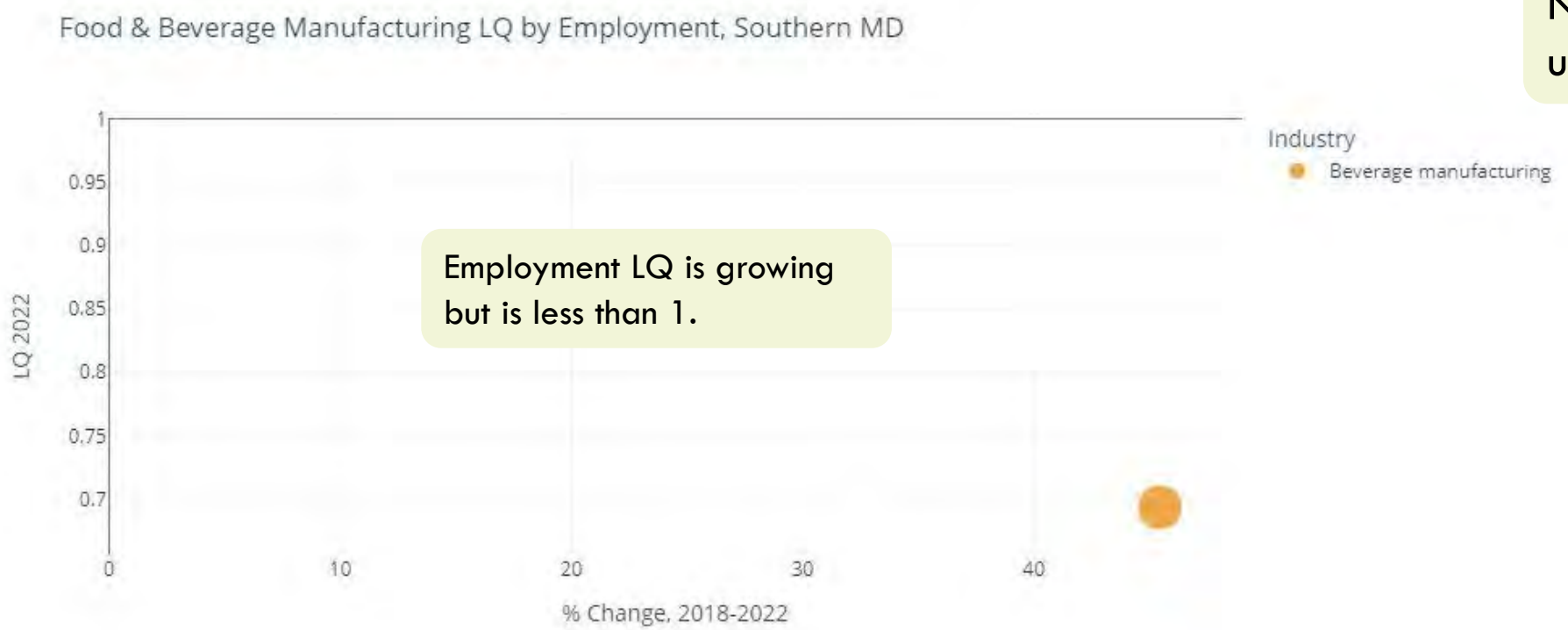
Food and Beverage Manufacturing: Shift Share Analysis by Firms, Southern MD, 2018-2022



May be reaching capacity or market saturation; possible consolidation; LQ for firms is declining

INDUSTRY CLUSTER ANALYSIS

Employment Data

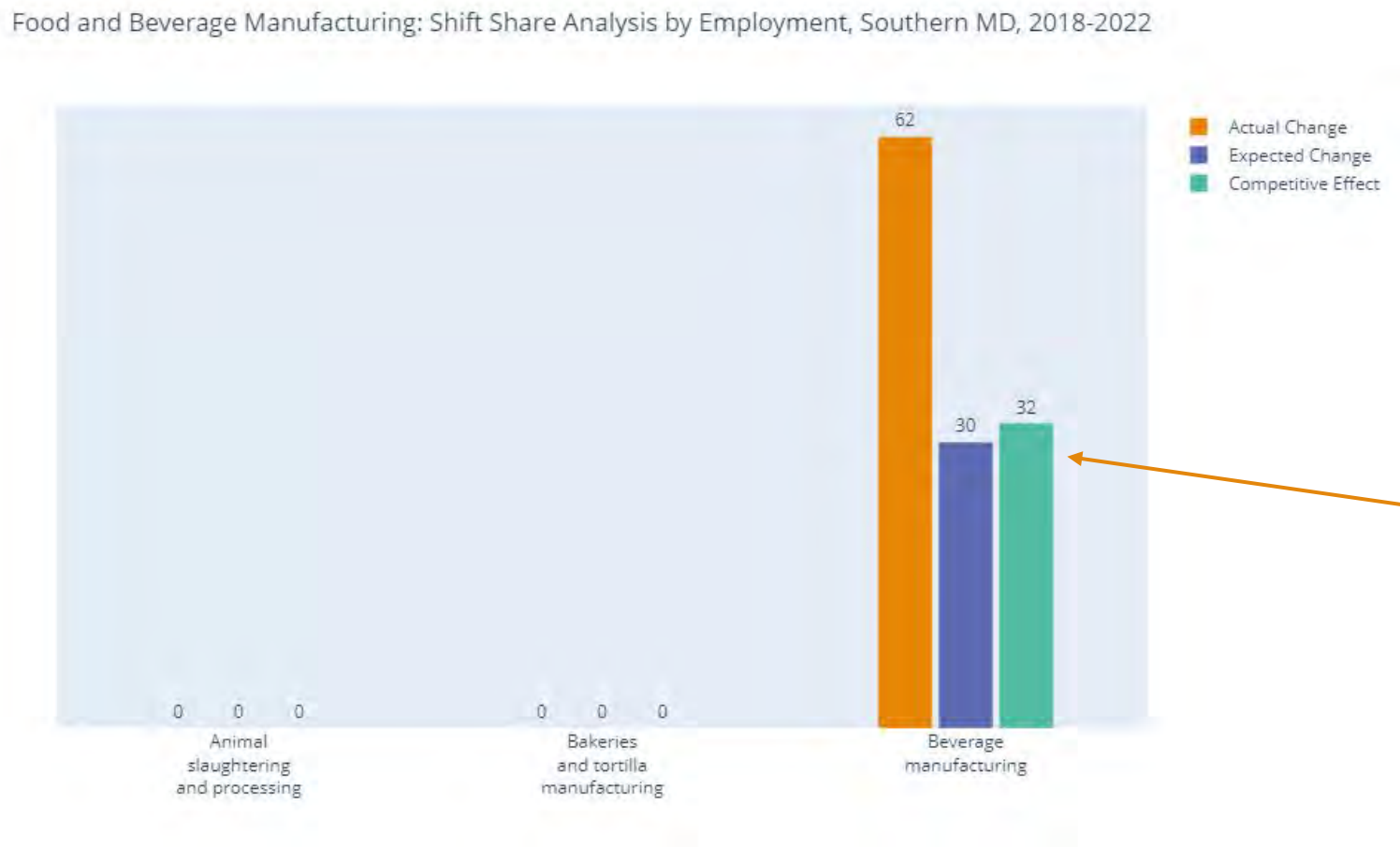


Employment LQ is growing but is less than 1.

NOTE: A lot of undisclosed data.

INDUSTRY CLUSTER ANALYSIS

Employment Data



NOTE: A lot of undisclosed data.

Significant growth in employment for beverage manufacturers

Appendix B – Calvert County Data

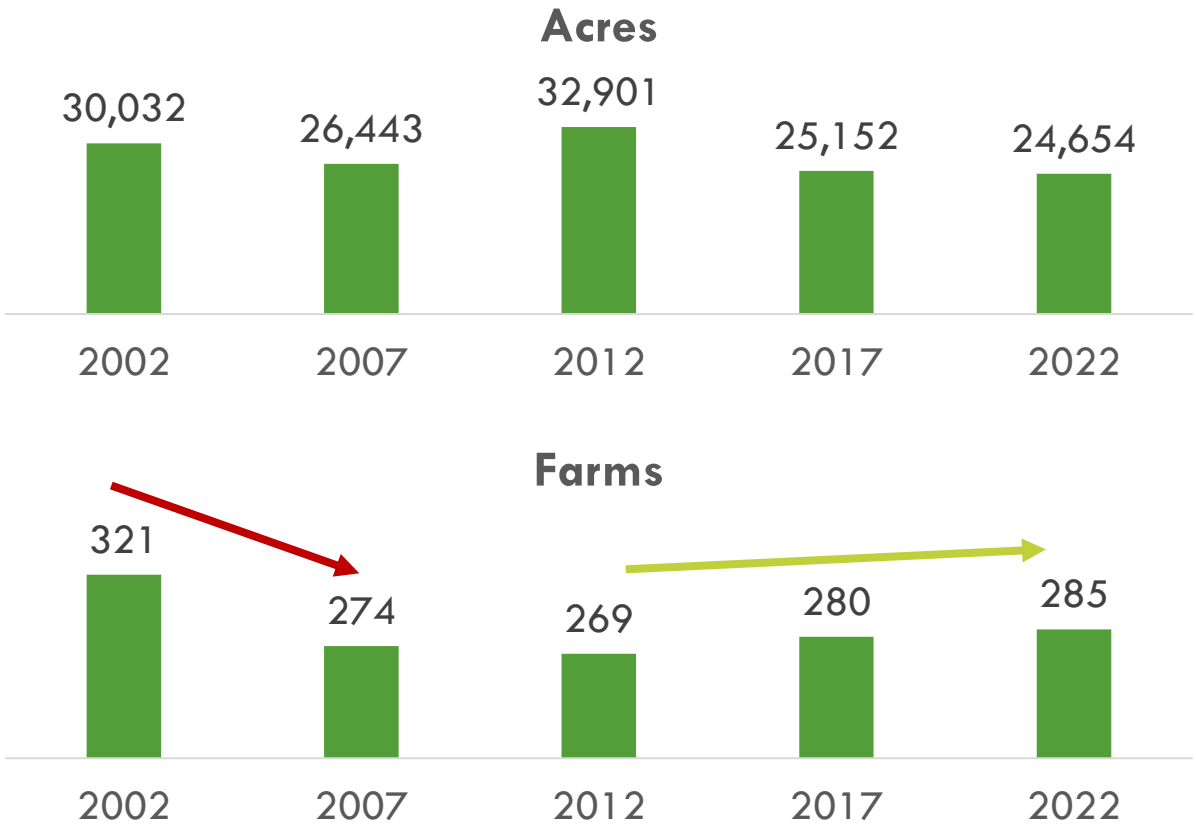
AGRICULTURAL SNAPSHOT CALVERT COUNTY, MD

September 17, 2024
Prepared by ACDS, LLC

FARM TRENDS

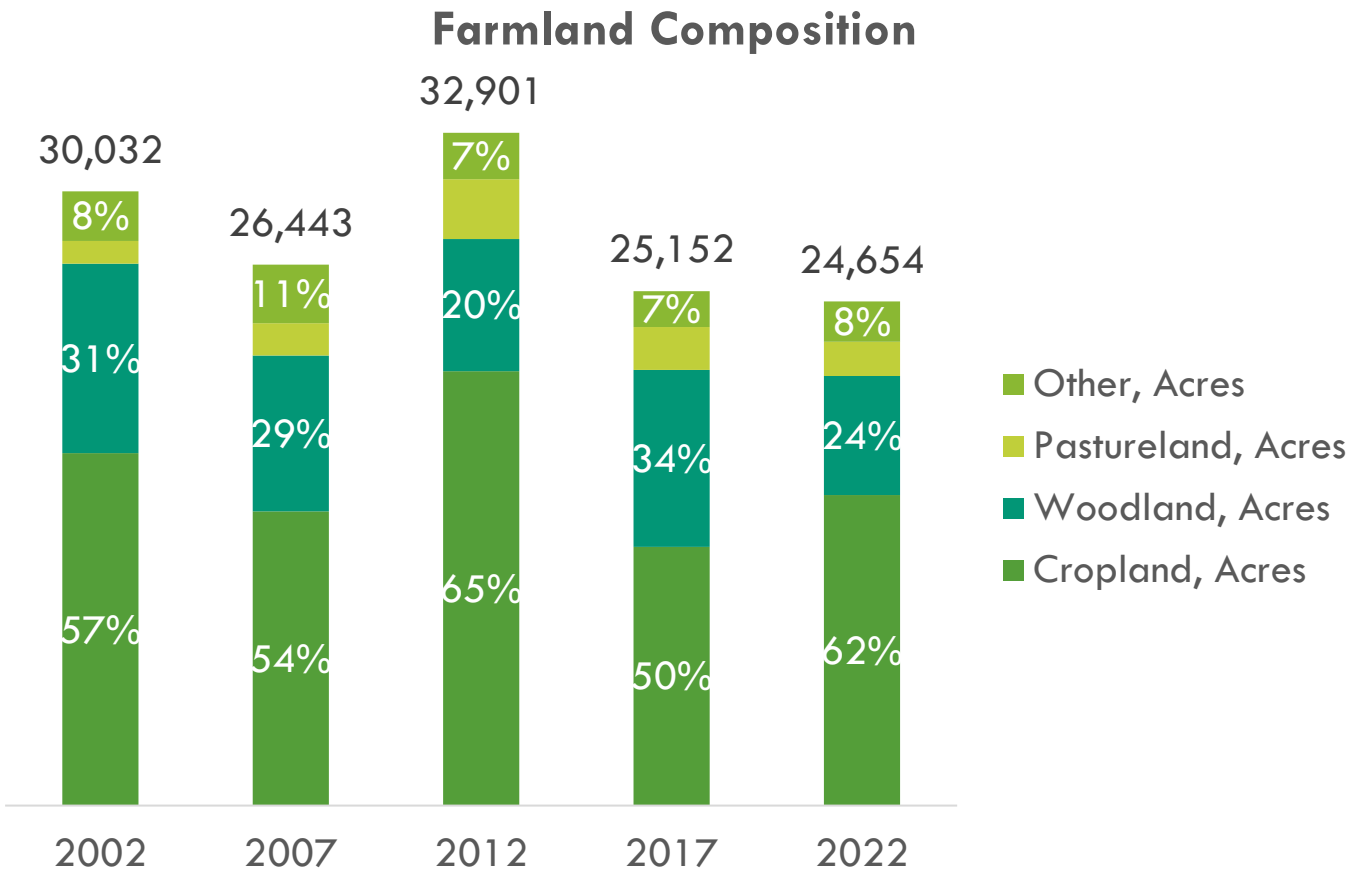
FARMS AND FARMLAND

- About 18% of the county's land is farmland
- **2% increase** in farms from 2017
- **2% decrease** in farmland from 2017
- Number of farms has rebounded from levels in 2012
- Average farm size is down post 2012
- Median average farm size is also lower post 2012



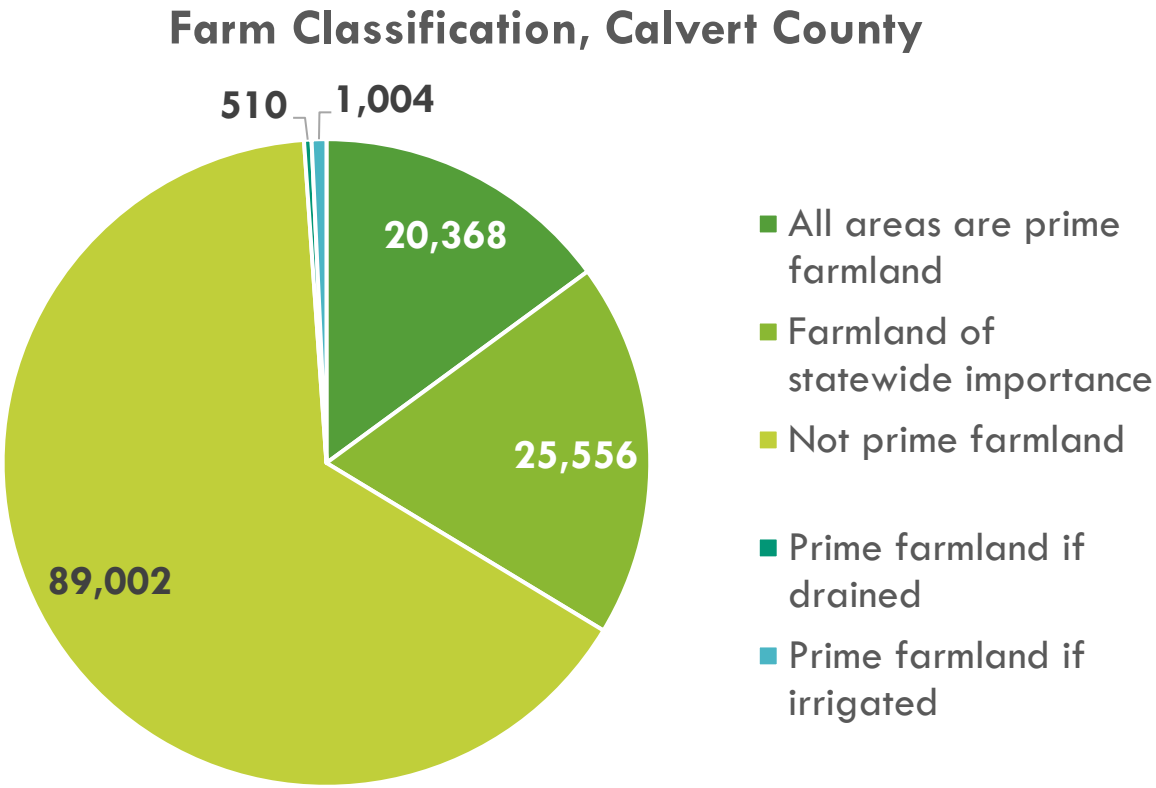
FARMLAND COMPOSITION

- Total farmland has decreased since 2012
- Cropland increased 20% since 2017
- Pastureland decreased 20% since 2017
- Woodland decreased 33% since 2017
- Other agricultural land increased 12% since 2017



FARM PRESERVATION

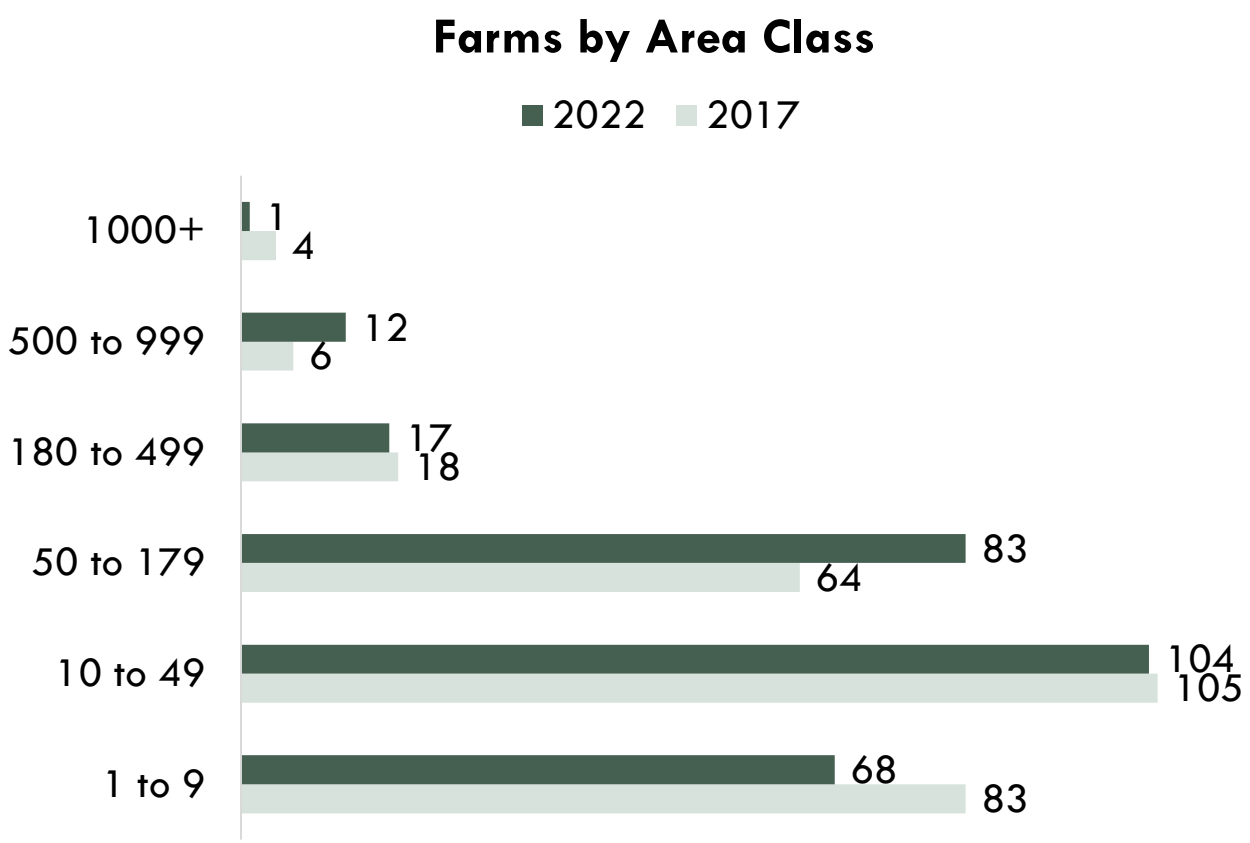
- 20,368 acres of prime farmland
- Continued challenge with high cost of land in the region
- Value of agricultural land was **$11,544/acre** in 2022; **53% increase** since 2012; 13% increase from 2017 rate of $10,257/acre



FARM SIZE

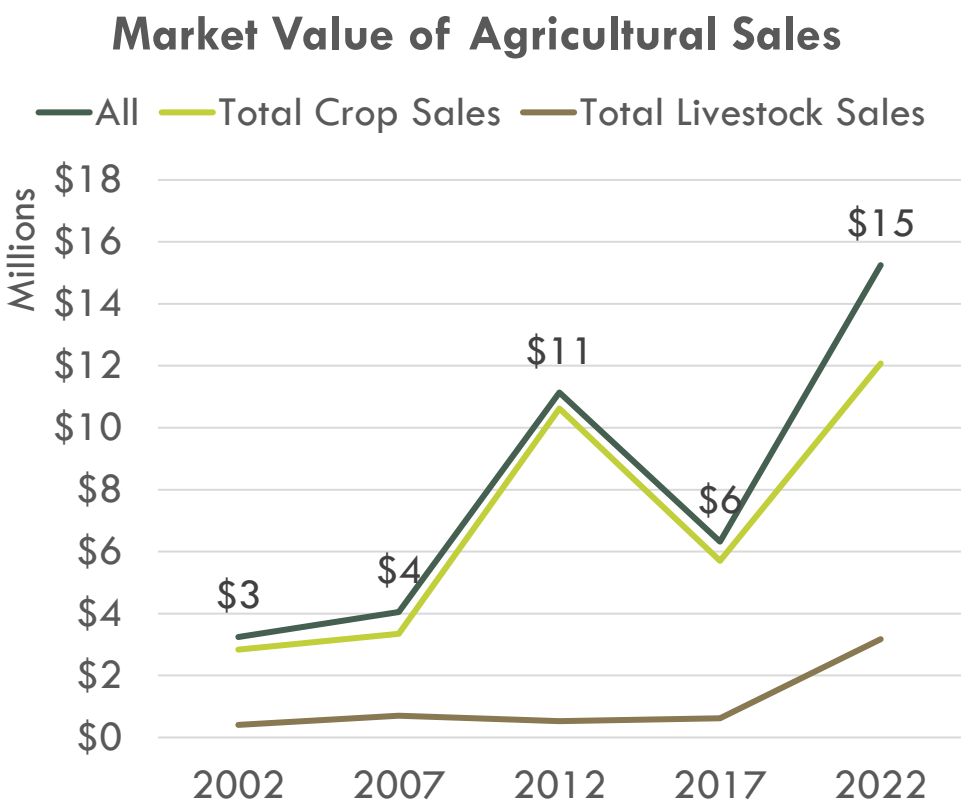
- There is a slight shift towards larger farms
- **100% increase** in farms with 500 to 999 acres
- **30% increase** in the number of farms with 50 to 499 acres

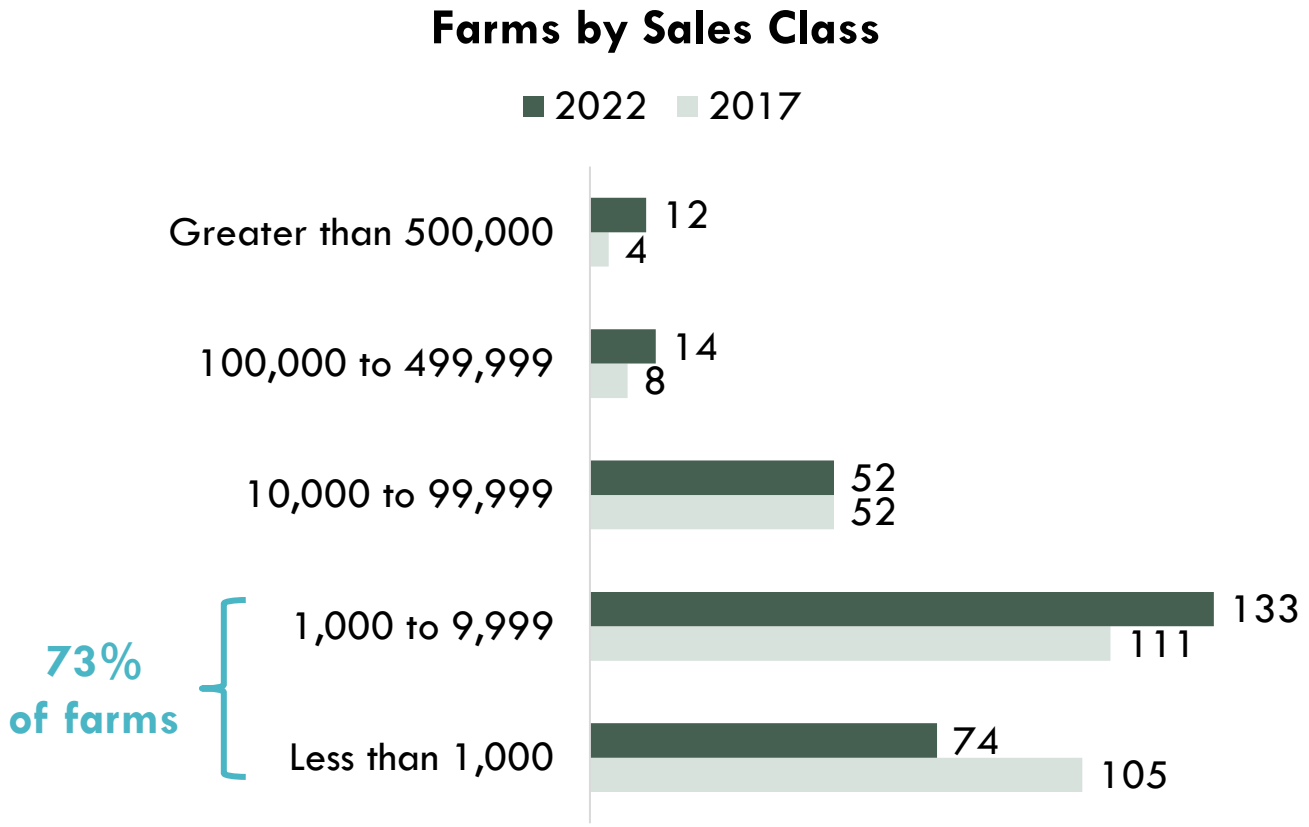
	2017	2022	% Change
Avg. Acreage	89.8	86.5	-3.7%
Median Avg. Acreage	28.0	30.0	7.1%



FARM SALES

Majority of Ag Sales are from Crops; recent increase in poultry sales





FARMS BY INDUSTRY

Diversified →

Hay →

Industry	2022	% Change from 2017
Animal aquaculture and Other animal production	62	12.7%
Other crop farming	53	-26.4%
Oilseed and grain farming	52	48.6%
Beef cattle ranching and farming	35	-23.9%
Fruit and tree nut farming	26	116.7%
Poultry and egg production	25	177.8%
Vegetable and melon farming	15	-40.0%
Greenhouse, nursery, and floriculture production	11	0.0%
Sheep and goat farming	4	-69.2%
Dairy cattle and milk production	2	n/a
Hog and pig farming	0	-100%
Cattle feedlots	0	n/a

COMMODITY SALES

Top 10 Commodities by Sales, 2022

Commodity	Sales ($1,000s)	% Change in Sales from 2017
Corn	4,844	210.3%
Soybeans	3,460	n/a
Poultry & Eggs	2,700	9542.9%
Wheat	1,362	120.4%
Vegetables	876	2.5%
Fruits, tree nuts, and berries	403	-7.1%
Sorghum	258	11.2%
Flowering Plants	66	n/a
Honey	64	1500.0%
Hogs	32	-15.8%

PRODUCTION HIGHLIGHTS

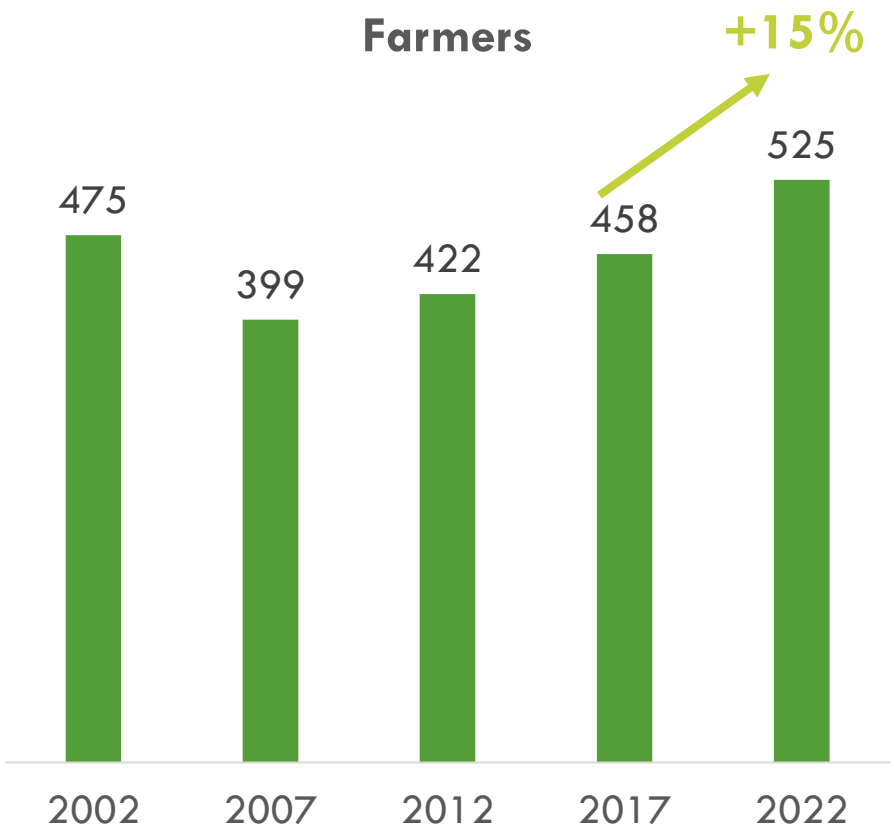
Crops and Livestock

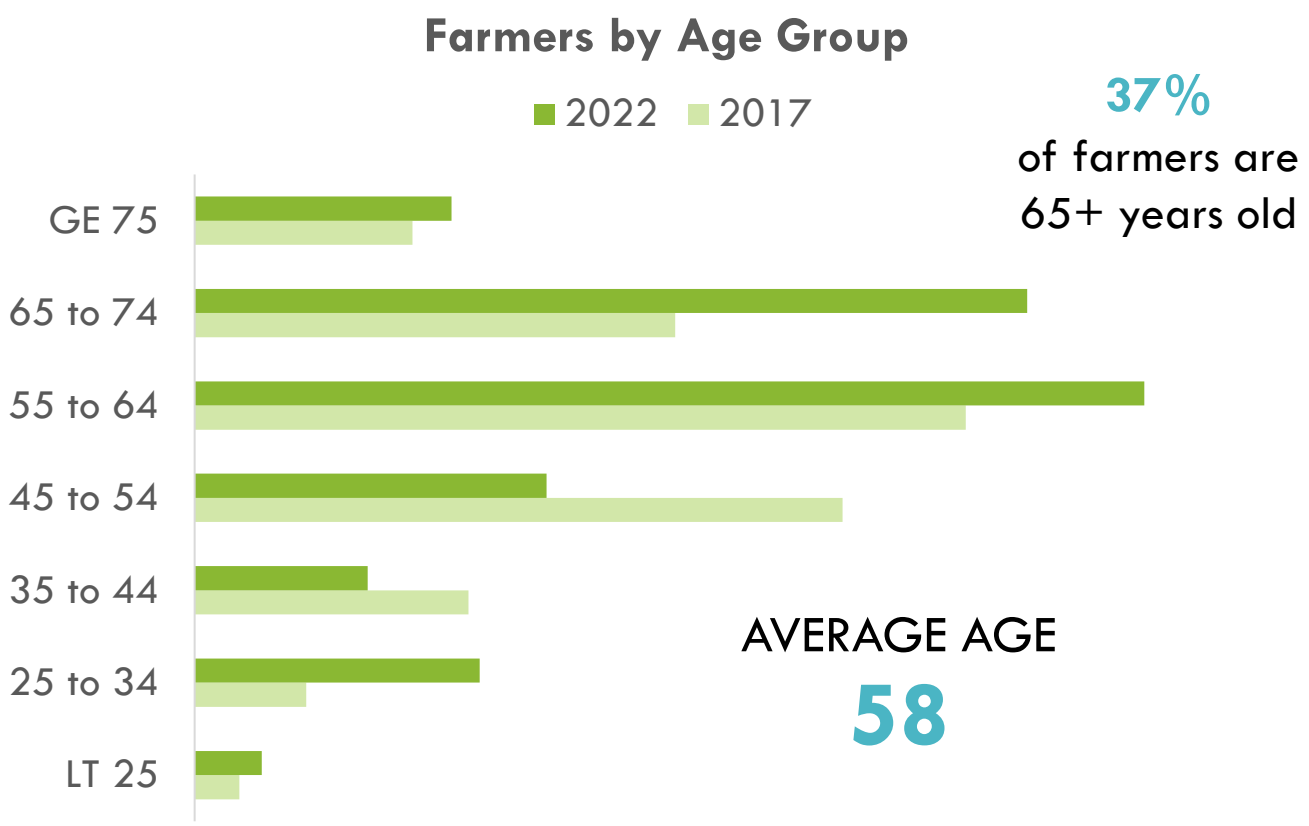
Crop (acres)	2022	% Change from 2017
Soybean	5,730	75.6%
Corn	5,087	64.7%
Wheat	2,568	39.7%
Forage	1,801	-24.2%
Sorghum	449	-51.1%
Vegetable	186	-62.2%
Barley	83	84.4%
Tobacco	(D)	n/a

Livestock (head)	2022	% Change from 2017
Broilers	170,237	25308.5%
Layers	2,347	50.8%
All Cattle	813	-33.2%
Sheep and lambs	294	52.3%
Ducks	167	-54.4%
Goats	146	-75.5%
Hogs	101	-9.8%
Turkeys	89	107.0%

FARM TRANSITION AND FARM LABOR

FARMER DEMOGRAPHICS



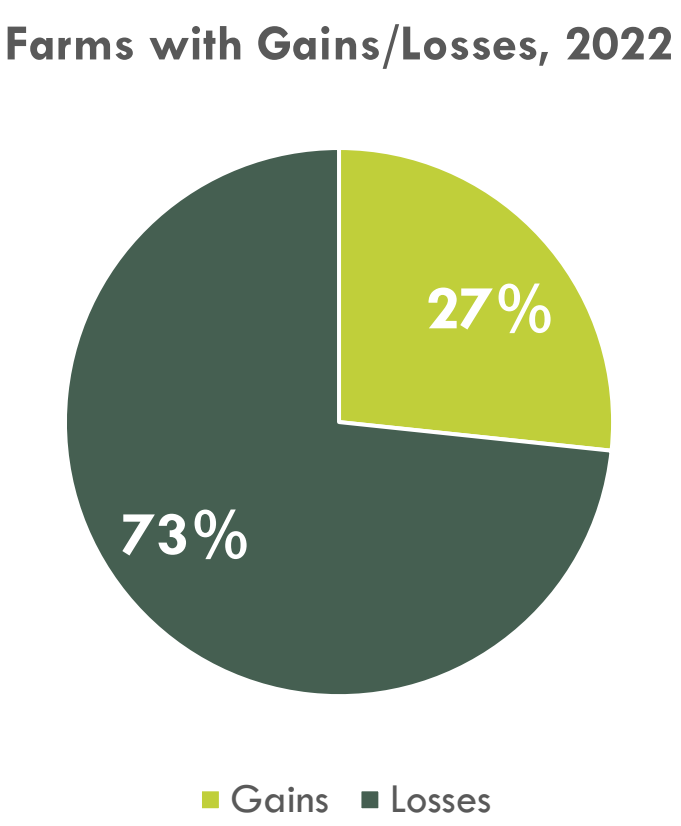


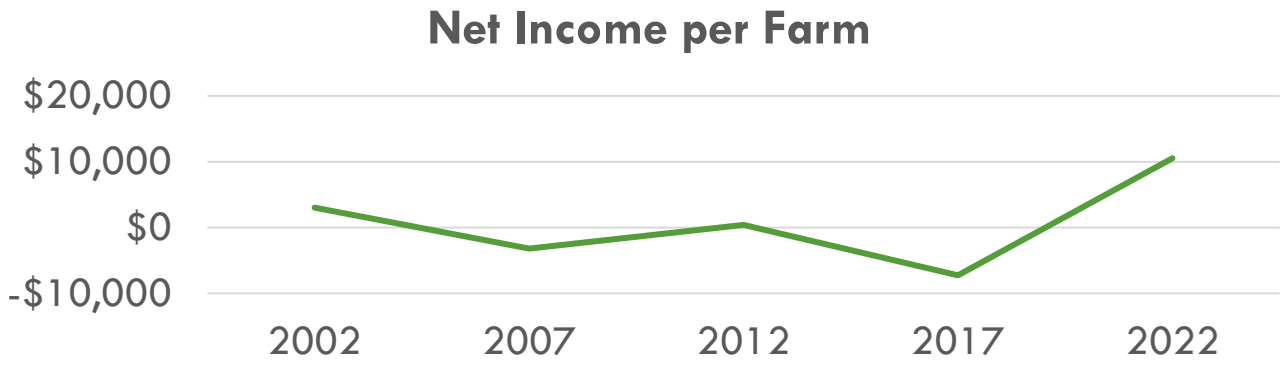
37%
of farmers are
65+ years old

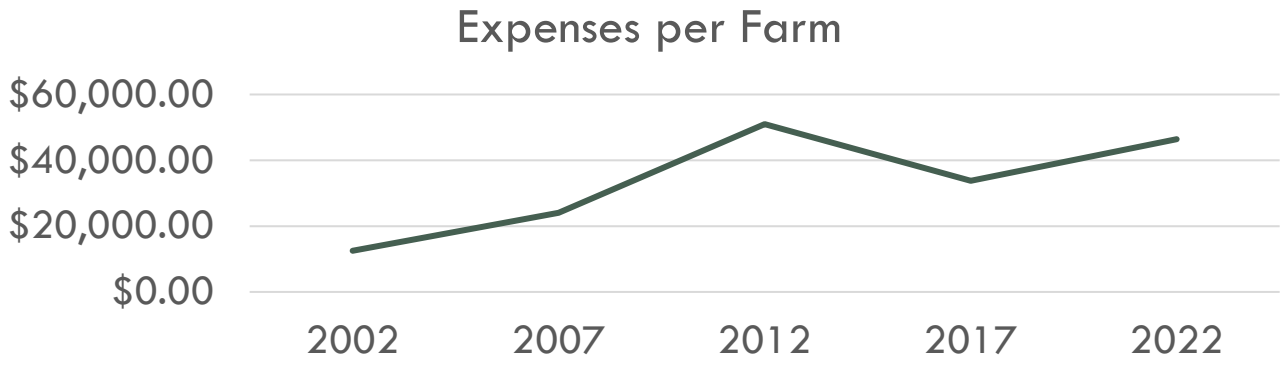
AVERAGE AGE
58

FARM PROFITABILITY

Average Net Income has improved, but many farms are still reporting a loss

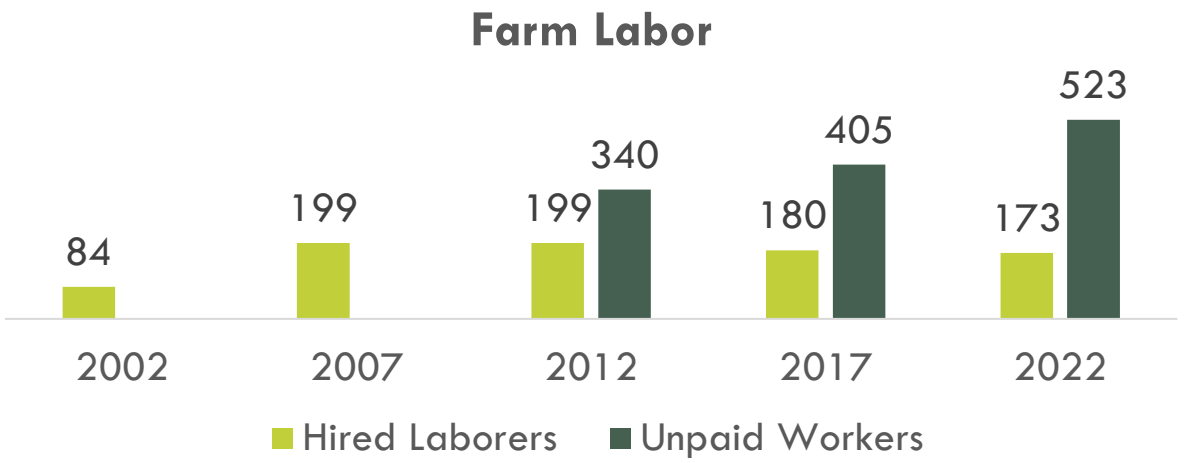






FARM LABOR

- **23% increase** in labor expenses between 2017 and 2022
- Labor as share of expenses is 8-9%
- Hired labor has declined slightly in recent years
- Continued high levels of unpaid laborers



	2007	2012	2017	2022	% Change from 2017
Labor Expenses ($1,000)	$402	$599	$1,059	$894	23%
Total Farm Expenses ($1,000)	$4,015	$6,576	$13,717	$9,458	40%
Share of Total Farm Expenses	9%	8%	9%	8%	-12%

KEY AGRICULTURAL SECTORS

GRAINS, SOYBEANS, AND OTHER CROPS

- Grains and oilseed sales **have almost tripled** since 2017: $3.7 million to about $10 million
- Potential niche opportunities to explore: industrial hemp
- 14% of the county's soils are suited or moderately suited for industrial hemp

Crop Acreage	2007	2012	2017	2022	% Change from 2017
Soybeans	2,419	4,675	3,263	5,730	75.6%
Corn	4,685	7,622	3,088	5,087	64.7%
Wheat	1,894	6,474	1,838	2,568	39.7%
Forage	2,730	2,172	2,376	1,801	-24.2%
Sorghum	--	(D)	919	449	-51.1%
Barley	143	1,048	45	83	84.4%
Tobacco	39	(D)	(D)	(D)	n/a
Total	**11,910**	**21,991**	**11,529**	**15,718**	**36%**

HORTICULTURE & INDOOR PRODUCTION

- Horticultural sales are **4%** of all crop sales in the county
- In 2017, the horticultural sector was represented primarily by floriculture production
- Lots of undisclosed data for horticulture production

PRODUCE

- About **93 acres** of vegetables and melons
- **$876,000** worth of vegetables sold
- Decline in vegetable acres since 2017

- About **98 acres** of fruits, tree nuts, and berries
- Almost **$403,000** worth of fruit sales

Crop Acreage	2002	2007	2012	2017	2022	% Change from 2017
Fruits	54	176	64	17	98	n/a
Orchard	54	88	57	(D)	81	-100%
Non-Citrus	--	88	(D)	(D)	(D)	n/a
Tree Nut	--		(D)	(D)	(D)	n/a
Berries	--	(D)	7	17	17	0.0%
Vegetables & Melons	262	400	290	246	93	-62.2%

PRODUCE

Top Vegetables & Fruits by Acres

Acres	2017	2022	% Change
Tomatoes	16	26	62.5%
Pumpkins	32	13	-59.4%
Squash	3	8	166.7%
Sweet Potatoes	13	4	-69.2%
Kale	1	1	0.0%

Acres	2017	2022	% Change
Grapes	24	60	150.0%
Watermelon	18	19	5.6%
Blueberries	(D)	16	inf%
Apples	(D)	7	inf%
Cantaloupe	10	6	-40.0%

VINEYARDS AND WINERIES

- Calvert County is ranked 8th in the state for grape acres
- 60 acres of grapes in 2022; 24 acres in 2017
- 18 grape farms in 2022
- 13 grape farms in 2017

Top 10 MD Counties	Grape Acres
FREDERICK	343
ST MARYS	165
QUEEN ANNES	145
BALTIMORE	118
HARFORD	105
WASHINGTON	94
ANNE ARUNDEL	90
CALVERT	**60**
PRINCE GEORGES	60
CARROLL	58

AQUACULTURE

- Southern MD had about 27 aquaculture operations in 2022
- Calvert County has 3 aquaculture operations
- Sales are undisclosed for Calvert County

	2007	2012	2017	2022
Aquaculture Operations	**2**	**1**	**3**	**3**
Mollusks	2	1	3	3
Ornamental Fish	--	--	--	--
Food Fish	--	--	--	--
Sport Fish	--	--	--	--
Aquaculture, Other	--	--	--	--

Total not intended to sum up. An operation can be involved in more than one commodity

CATTLE AND CALVES

- Cattle sales are undisclosed in 2022
- Decline in number of cattle farms since 2002
- Decline in number of farms with cattle sales since 2007

	2007	2012	2017	2022	% Change
Cattle & Calves	969	1,072	1,217	813	-33.2%
Cows	575	556	640	493	-23.0%
Dairy	(D)	6	(D)	(D)	n/a
Beef	(D)	550	(D)	(D)	n/a
Other Cattle	394	516	577	320	-44.5%

Cattle & Calves	2007	2012	2017	2022	% Change
Farms with Sales	44	51	46	34	-26.1%
Inventory Sold	508	341	373	252	-32.4%
Value of Sales	375,000	282,000	430,000	(D)	n/a

DAIRY

- No reported dairy milk sales
- Very few operations; all small scale

	2007	2012	2017	2022	% Change since 2017
Dairy Farms	2	3	2	2	0.0%
Cow Inventory	(D)	6	(D)	(D)	n/a
Cows per Farm	n/a	2	n/a	n/a	n/a

POULTRY

- **$2.7 million** in sales in 2022
- Broiler chickens are driving growth
- Strong growth in the number of broilers sold; operations are growing in production

	2007	2012	2017	2022	% Change
Broilers	(D)	3	670	170,237	25308.5%
Layers	1,142	1,600	1,556	2,347	50.8%
Ducks	71	(D)	366	167	-54.4%
Turkeys		17	43	89	107.0%

	2007	2012	2017	2022	% Change
Farms w/ Broiler Sales	4	2	8	12	50.0%
Broilers Sold	304	(D)	883	510,540	57718.8%
Farms w/ Duck Sales	2	--	--	5	n/a
Ducks Sold	(D)	--	--	28	n/a
Farms w/ Turkey Sales	3	2	1	4	300.0%
Turkeys Sold	75	(D)	(D)	99	n/a
Poultry & Eggs Sales ($)	45,000	67,000	28,000	2,700,000	9542.9%

HOGS

- **$32,000** in sales in 2022
- Vast majority hog operations are small scale (1 to 24 head)
- 94% sell fewer than 25 hogs
- Hog and pig sales have declined 16% from levels in 2017
- Declining red meat prices will lower industry revenue, but lower feed prices should help profits.
- Increase in poultry prices expected to improve demand

	2007	2012	2017	2022	% Change
Farms	7	11	19	18	-5.3%
Inventory	35	43	112	101	-9.8%
Farms with Sales	10	6	16	17	6.2%
Inventory Sold	47	28	215	138	-35.8%
Value of Sales ($)	6,000	(D)	38,000	32,000	-15.8%

SHEEP AND GOATS

- Estimated sales of sheep and goat products was **$29,000** in 2022; mostly sheep sales
- Sales **decreased 15%** since 2017
- Increase in sheep inventory, but decrease in goat inventory since 2017

	2007	2012	2017	2022	% Change from 2017
Sheep Farms	10	8	16	17	6.2%
Sheep Inventory	164	62	193	294	52.3%
Sheep Farms with Sales	6	5	6	8	33.3%
Sheep Sold	97	39	48	74	54.2%

	2007	2012	2017	2022	% Change from 2017
Goat Farms	30	16	40	20	-50.0%
Goat Inventory	364	166	595	146	-75.5%
Goat Farms with Sales	8	8	15	7	-53.3%
Goats Sold	86	37	138	51	-63.0%

AGRITOURISM AND ADDING VALUE

- Increase in more agritourism operations
- Sales activity is low though

	2002	2007	2012	2017	2022	% Change From 2017
Farms	5	2	3	7	10	42.9%
Revenue ($)	164,000	(D)	(D)	(D)	11,000	n/a

AGRITOURISM AND ADDING VALUE

- Need to ground-truth direct-to-consumer activity given the changes in USDA reporting
- Both Direct-to-Consumer (DTC) and Wholesale numbers include value-added sales
- Farms sold **$381,000** worth of value-added products; a 24% decline since 2017
- DTC sales have increased 2% since 2017
- Wholesale sales have stayed the same

DTC (Retail)	2017	2022	% Change
Farms	29	54	86%
Sales ($1,000)	1,101	1,118	2%

Wholesale	2017	2022	% Change
Farms	21	21	0%
Sales	53,000	53,000	0%

Value-Added	2017	2022	% Change
Farms	14	9	-36%
Sales	503,000	381,000	-24%

DEMOGRAPHIC FACTORS

POPULATION AND INCOME

95,167 Population	**2.78** Avg. Household Size	**34,005** Total Households	**48.8** Diversity Index
$109,595 Avg. Disposable Income	**$126,088** Median HH Income	**$58,318** Per Capita Income	**173** Wealth Index

Source: ESRI Business Analyst, 2024

PSYCHOGRAPHICS

Statement	Expected Number of Adults	Percent of Adults	MPI
Am Interested in How to Help Env	12,016	16.3%	96
Buying American Is Important	21,642	29.4%	101
Buy Based on Quality Not Price	10,081	13.7%	94
Buy on Credit Rather Than Wait	9,275	12.6%	101
Only Use Coupons Brands Usually Buy	7,476	10.1%	100
Will Pay More for Env Safe Prods	7,918	10.7%	95
Buy Based on Price Not Brands	18,452	25.0%	94

Source: ESRI Business Analyst, 2024

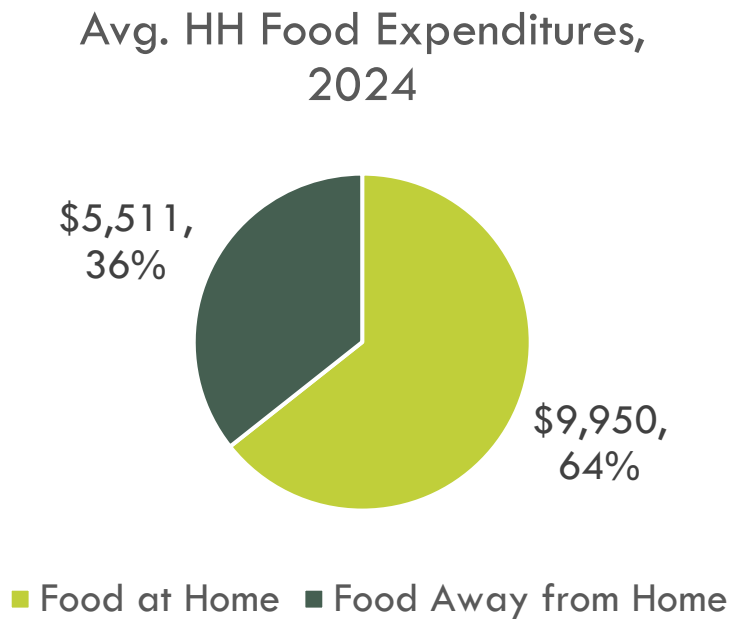
FOOD PURCHASING & CONSUMPTION TRENDS

2024 FOOD TRENDS

- **Emphasis on health-conscious choices, affordability, and nutritional quality**
- **Put the "Plant" back in "Plant-Based"**: mushrooms, walnuts, tempeh and legumes in place of complex meat alternatives
- **Buckwheat**: both a cover crop and super food that contains protein, carbs, and fiber; can be seen in soba noodles, plant-based milk alternatives, crackers, and granola
- **Clean & Conserve**: consumer interest in water stewardship/conservation, regenerative agriculture, soil health initiatives
- **Empowering Experiences**: consumers desire personalized experiences that are exciting, engaging, enjoyable, and memorable; implications for on-premise dining and food tourism
- **Glocal**: fusion of global and local culinary elements as well as cross-cultural fusion

FOOD CONSUMPTION

- About 11.1% of the household budget is spent on food
- Higher propensity towards turkey consumption; slightly greater propensity towards organic food



Source: ESRI Business Analyst, 2024

Grocery Market Potential	Expected Number of Adults	Percent of Adults	MPI
HH Used Bread/6 Mo	32,311	95.0%	101
HH Used Chicken (Fresh or Frozen)/6 Mo	27,137	79.8%	104
HH Used Turkey (Fresh or Frozen)/6 Mo	7,999	23.5%	114
HH Used Fish or Seafood (Fresh or Frozen)/6 Mo	20,533	60.4%	103
HH Used Fresh Fruit or Vegetables/6 Mo	30,826	90.7%	102
HH Used Fresh Milk/6 Mo	28,483	83.8%	102
HH Used Organic Food/6 Mo	9,076	26.7%	105

Appendix C – Charles County Data

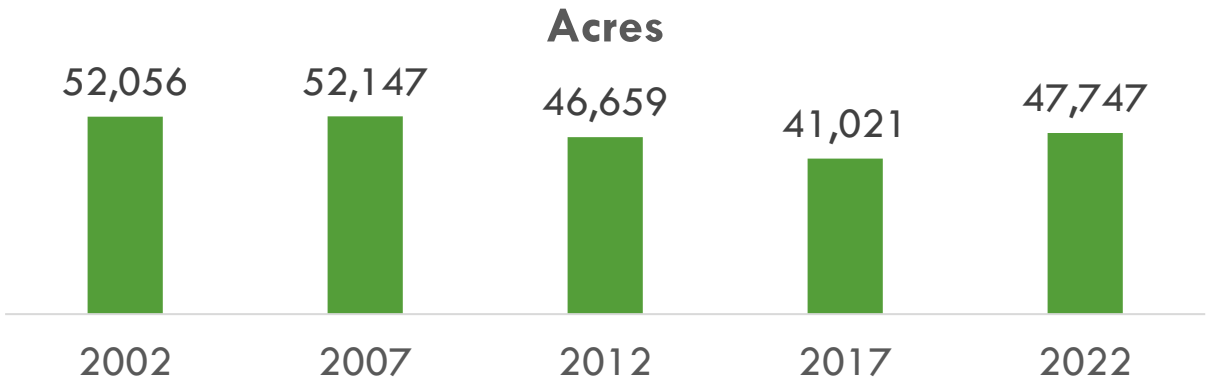
AGRICULTURAL SNAPSHOT CHARLES COUNTY, MD

September 17, 2024
Prepared by ACDS, LLC

FARM TRENDS

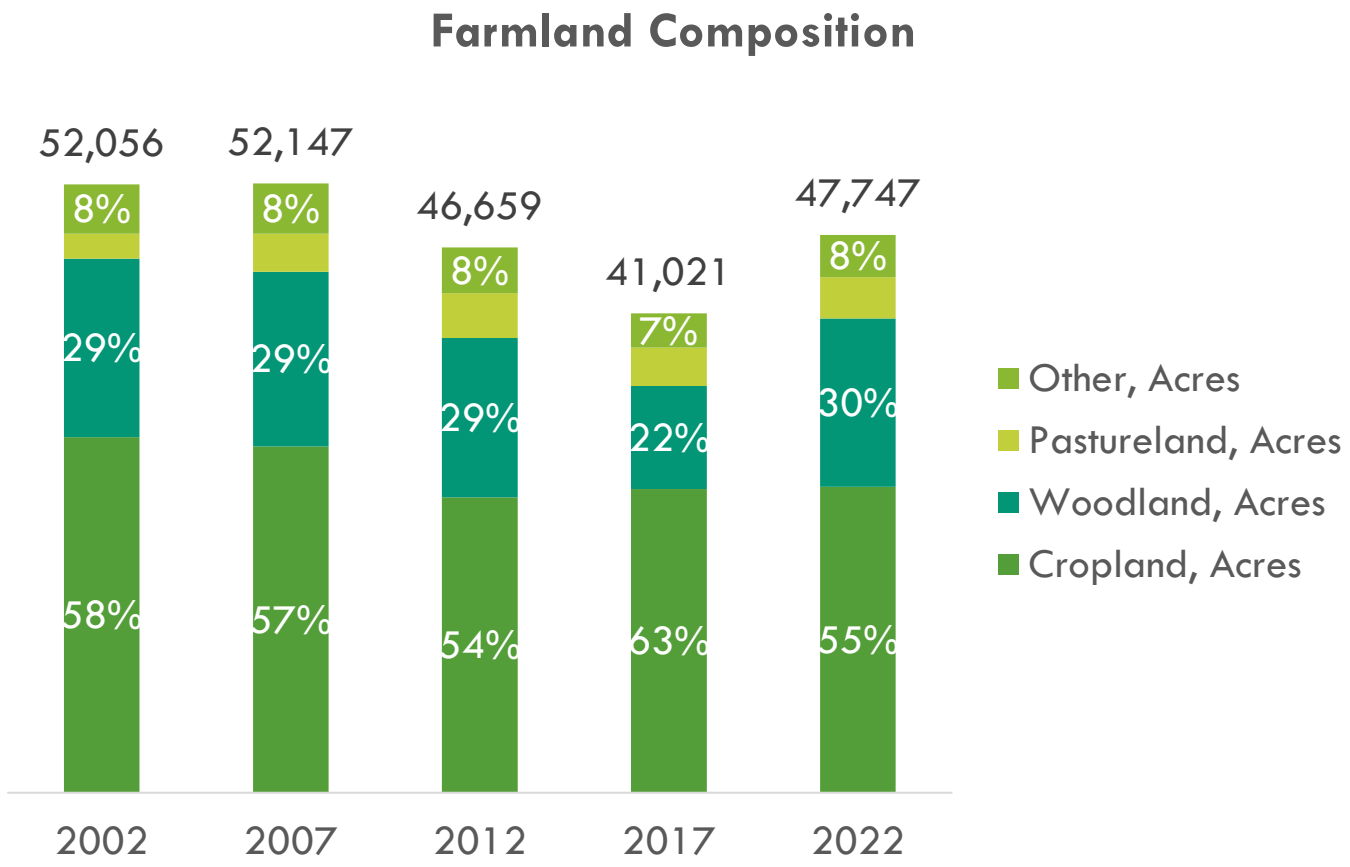
FARMS AND FARMLAND

- About 16% of the county's land is farmland
- **3.6% decrease** in farms from 2017
- **16.4% increase** in acres of farmland from 2017
- Number of farms has been trending downwards since 2007
- Average farm size has rebounded
- Median average farm size has also rebounded from levels in 2017



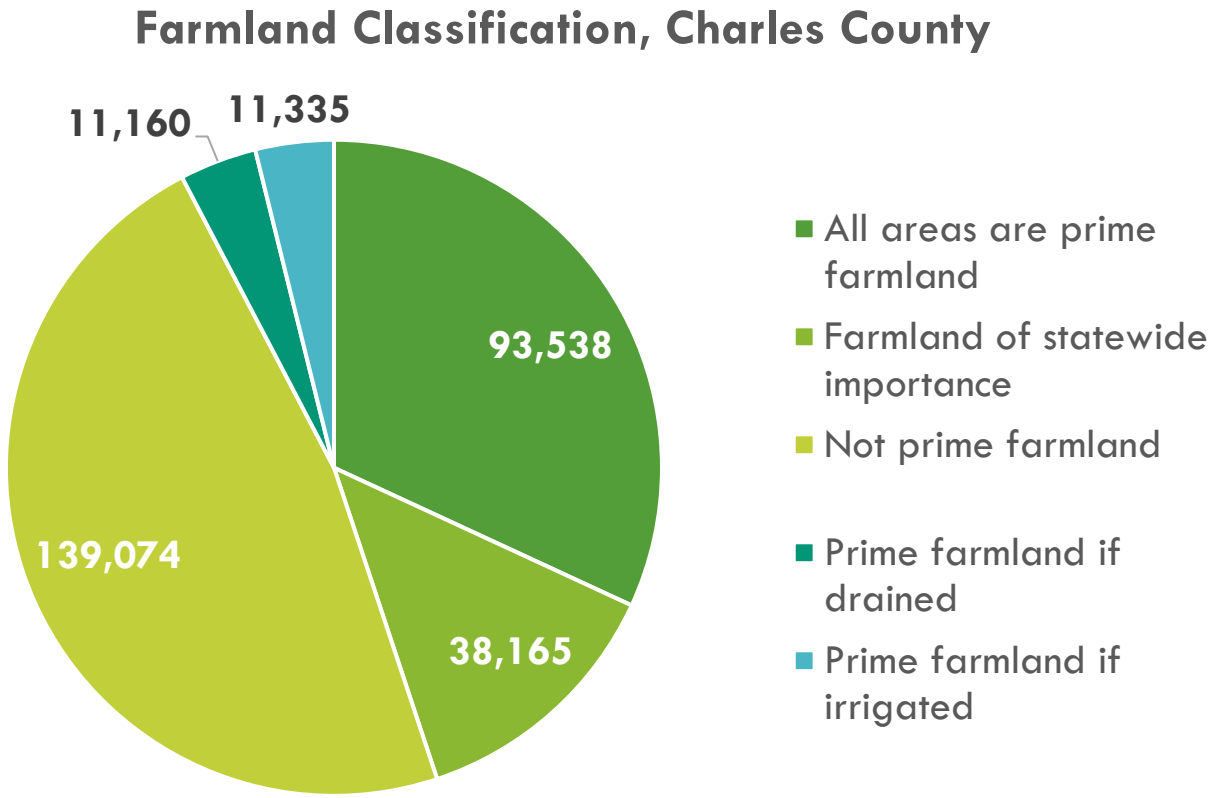
FARMLAND COMPOSITION

- Total farmland has been rebounded since 2017; most of that has been in woodland
- Cropland increased 1% since 2017
- Pastureland increased 7% since 2017
- Woodland increased 63% since 2017
- Other agricultural land increased 25% since 2017



FARM PRESERVATION

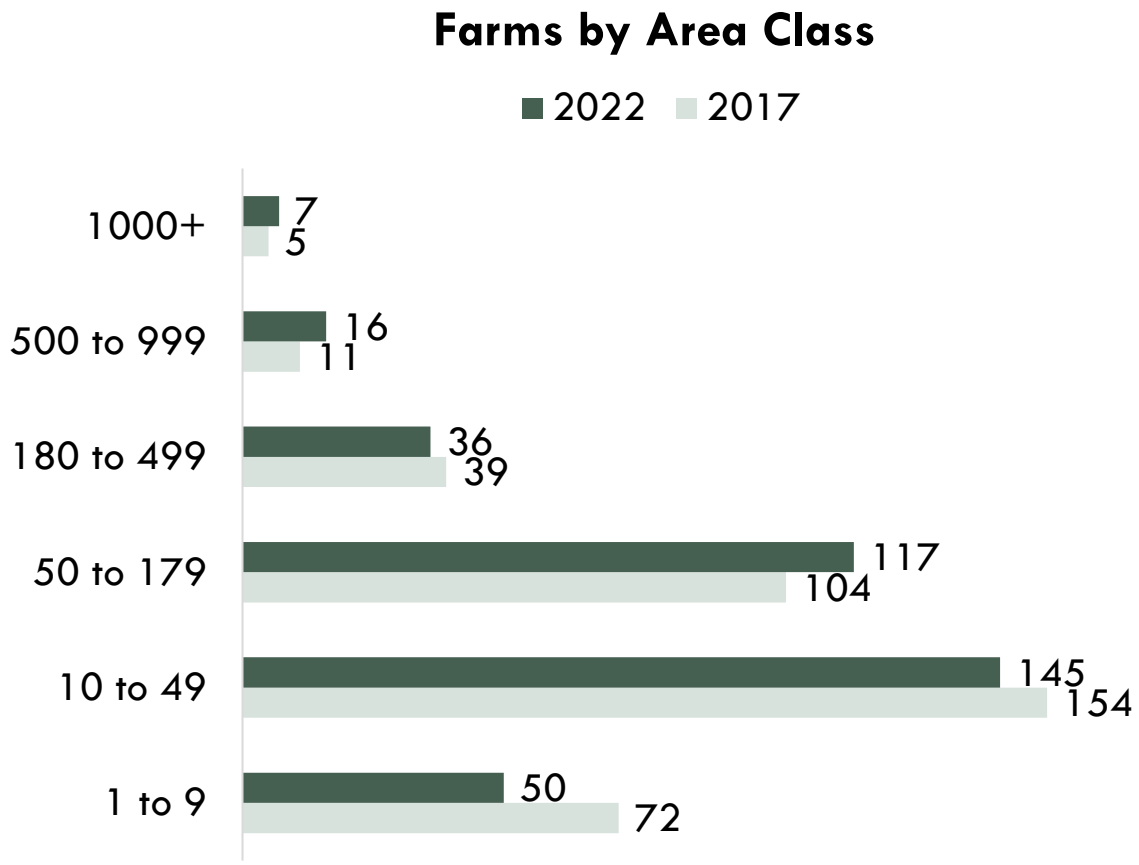
- 93,538 acres of prime farmland
- Continued challenge with high cost of land in the region
- Value of agricultural land was **$7,951/acre** in 2022; **23% increase** since 2012; decrease from 2017 rate of $9,458/acre



FARM SIZE

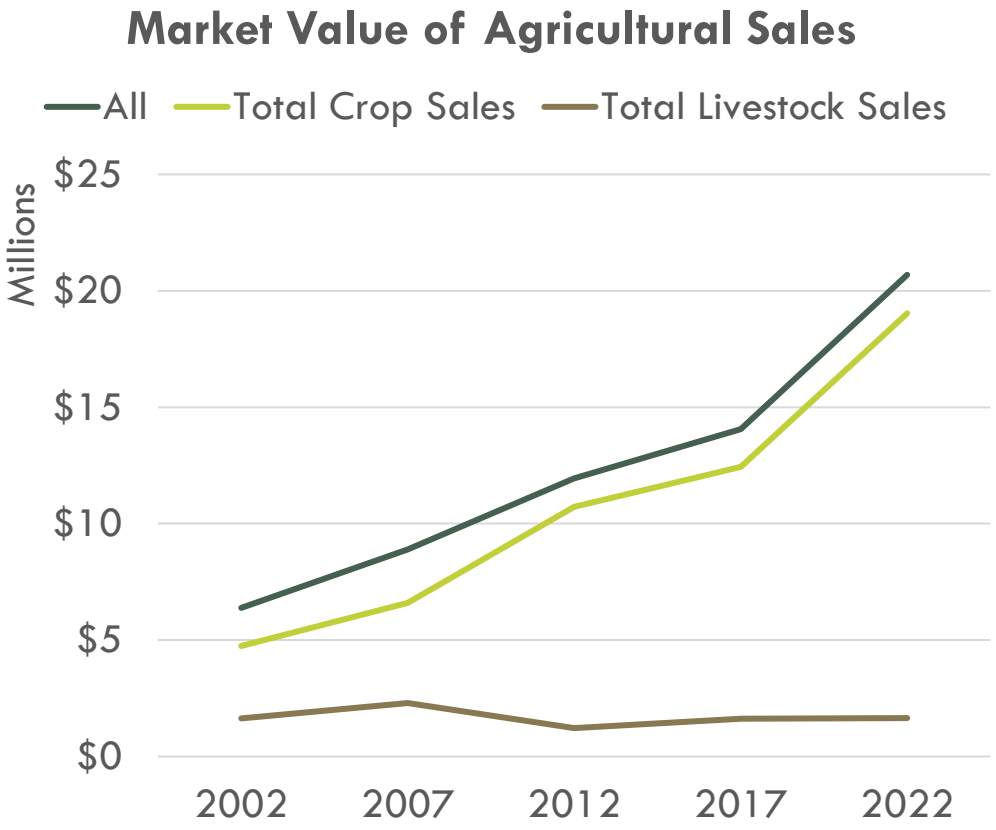
- Average farm acreage has increased 21% from 2017 to 2022.
- Context: average farm size was about 124 acres per farm between 2002 and 2012
- **45% increase** in farms with 500 to 999 acres
- **7% increase** in the number of farms with 50 to 499 acres
- **14% decrease** in farms fewer than 50 acres

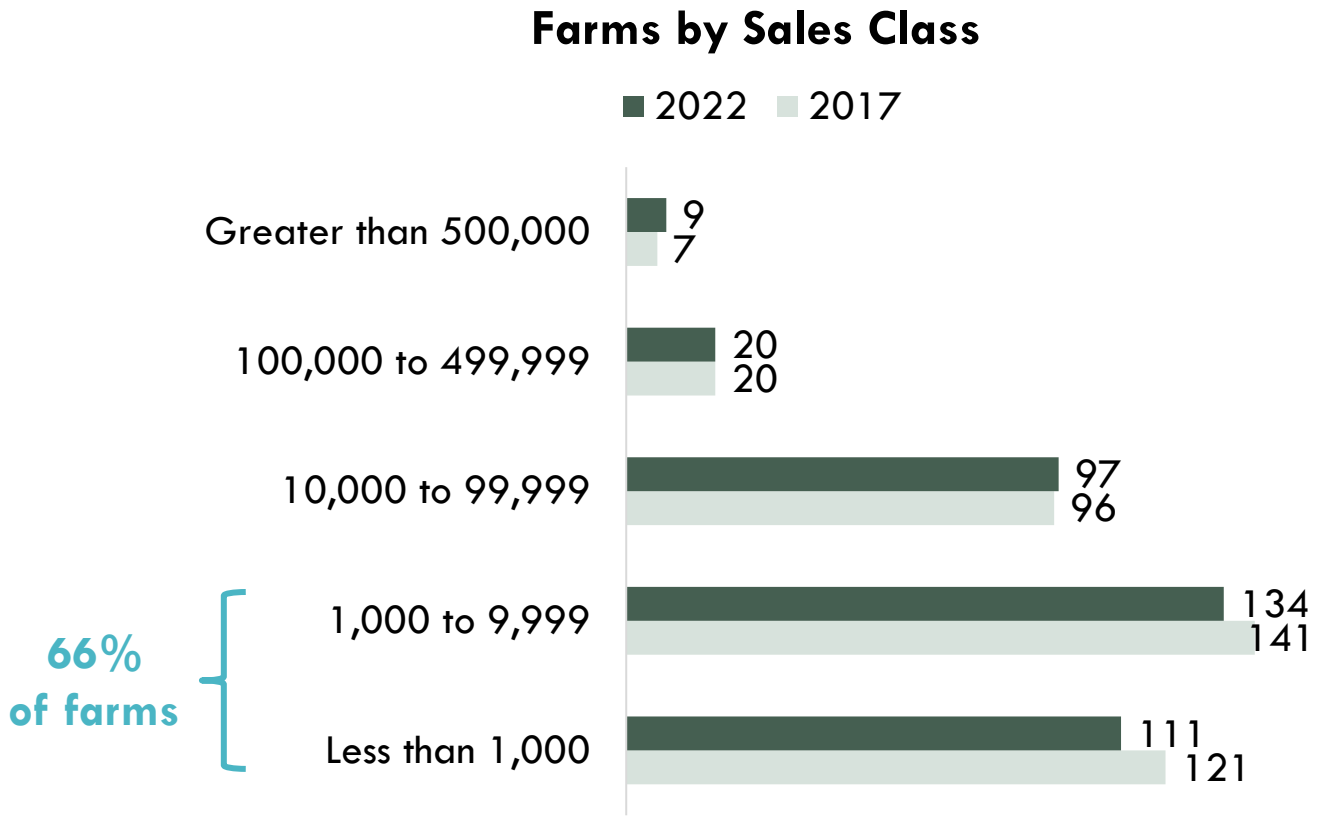
	2017	2022	% Change
Avg. Acreage	106.5	128.7	20.8%
Median Avg. Acreage	30.0	42.0	40.0%



FARM SALES

Majority of Ag Sales are from Crops





FARMS BY INDUSTRY

Hay →
Diversified →

Industry	2022	% Change from 2017
Other crop farming	101	7.4%
Animal aquaculture and Other animal production	66	4.8%
Oilseed and grain farming	61	0.0%
Beef cattle ranching and farming	45	-4.3%
Fruit and tree nut farming	29	222.2%
Poultry and egg production	26	550.0%
Vegetable and melon farming	21	-57.1%
Greenhouse, nursery, and floriculture production	11	-26.7%
Sheep and goat farming	9	-71.9%
Cattle feedlots	1	n/a
Dairy cattle and milk production	1	-88.9%
Hog and pig farming	--	-100%

COMMODITY SALES

Top 10 Commodities by Sales, 2022

Commodity	Sales (Million $)	% Change in Sales from 2017
Soybeans	6.90	84.2%
Corn	4.40	92.9%
Vegetables	2.27	10.1%
Other crops and hay	0.93	10.7%
Cattle & Calves	0.56	21.4%
Berries	0.37	64.2%
Poultry & Eggs	0.34	60.7%
Bedding Plants	0.10	-10.4%
Sheep, goats, wool, mohair, and milk	0.05	n/a
Honey	0.03	237.5%

PRODUCTION HIGHLIGHTS

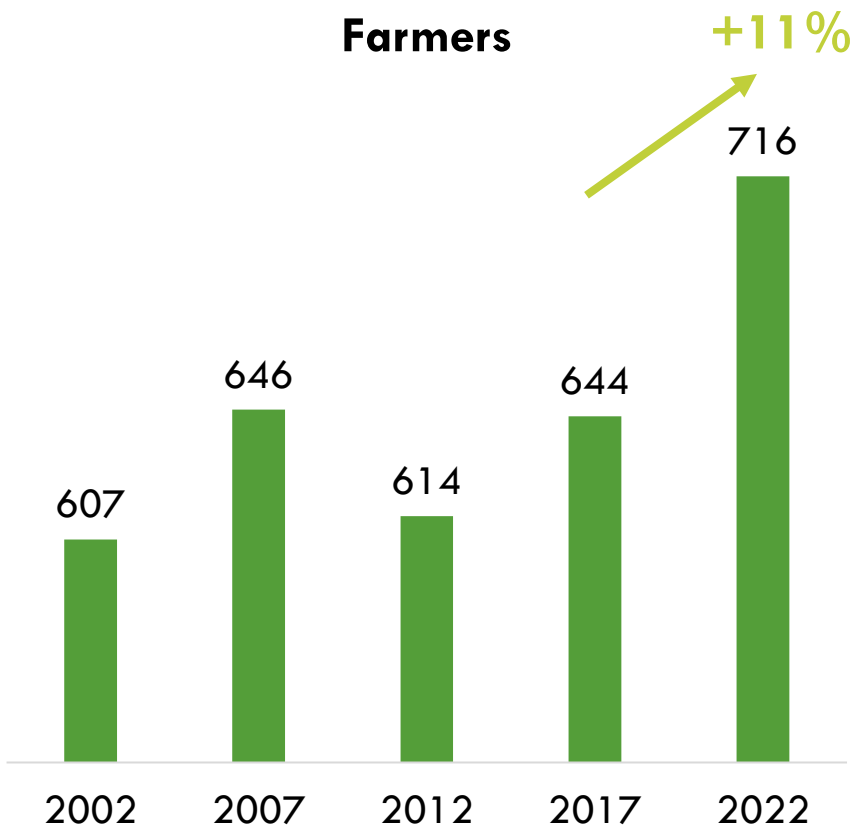
Crops and Livestock

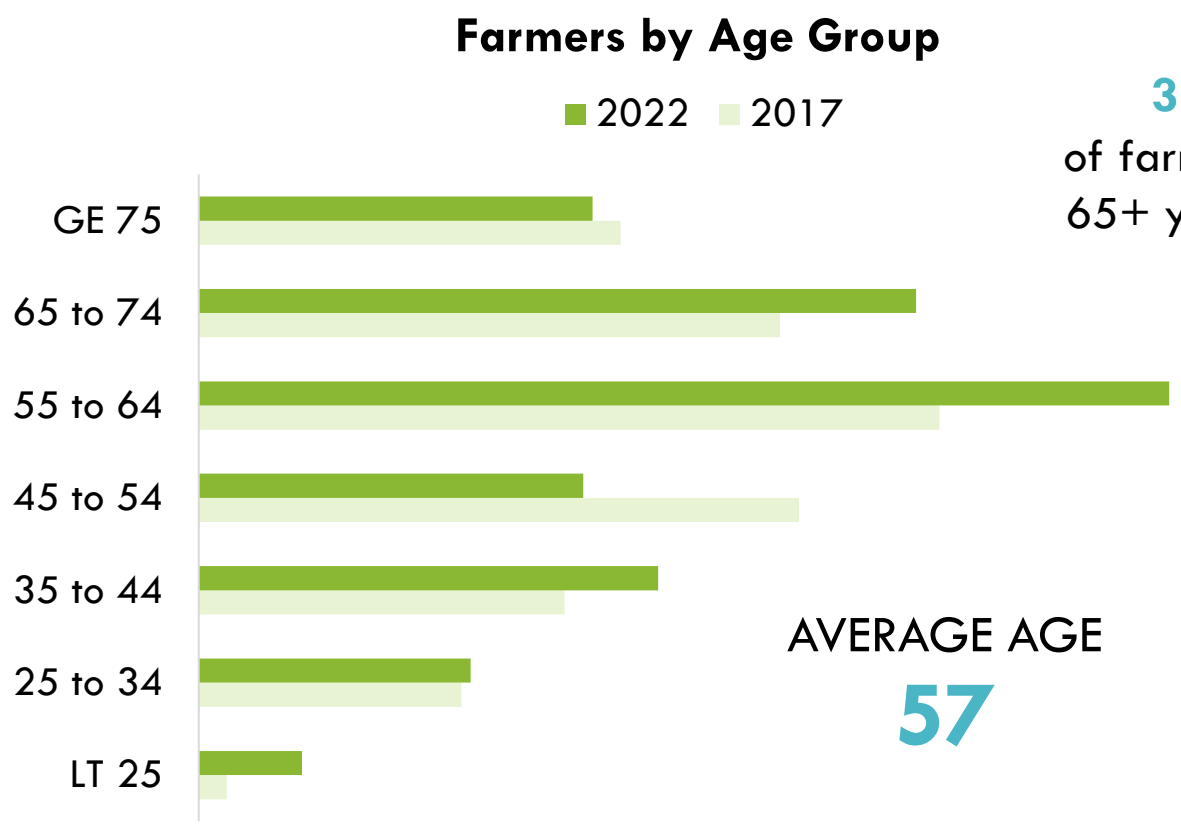
Crop (acres)	2022	% Change from 2017
Soybean	10,170	15.0%
Forage	6,771	72.2%
Corn	3,808	-22.9%
Wheat	3,727	-28.4%
Vegetable	502	-41.8%
Corn Silage	(D)	n/a
Sorghum	(D)	n/a
Barley	--	-100%

Livestock (head)	2022	% Change from 2017
Layers	3,430	-75.4%
All Cattle	1,234	-31.0%
Sheep and lambs	408	24.0%
Hogs	333	109.4%
Goats	278	-46.2%
Ducks	192	346.5%
Turkeys	146	n/a
Broilers	(D)	n/a

FARM TRANSITION AND FARM LABOR

FARMER DEMOGRAPHICS



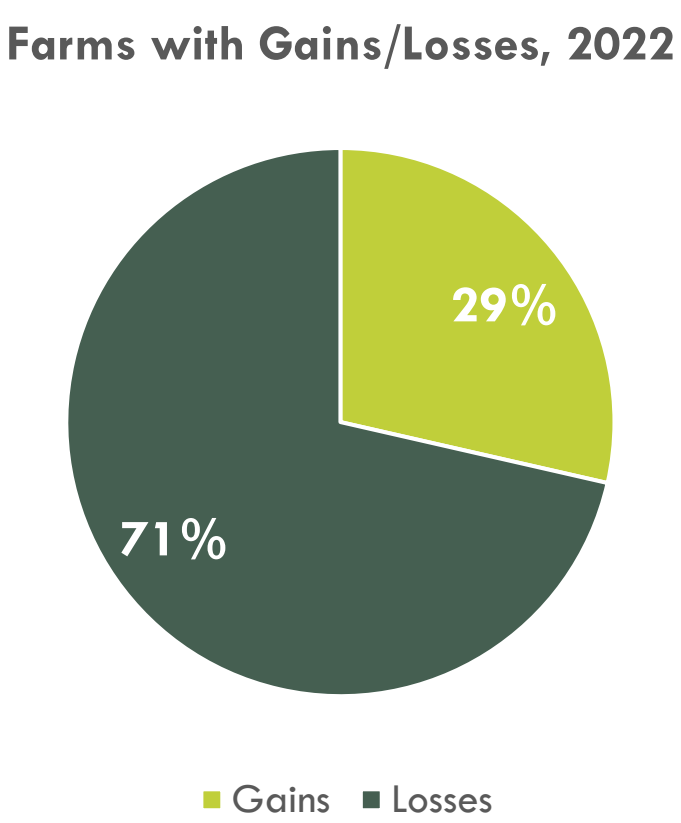


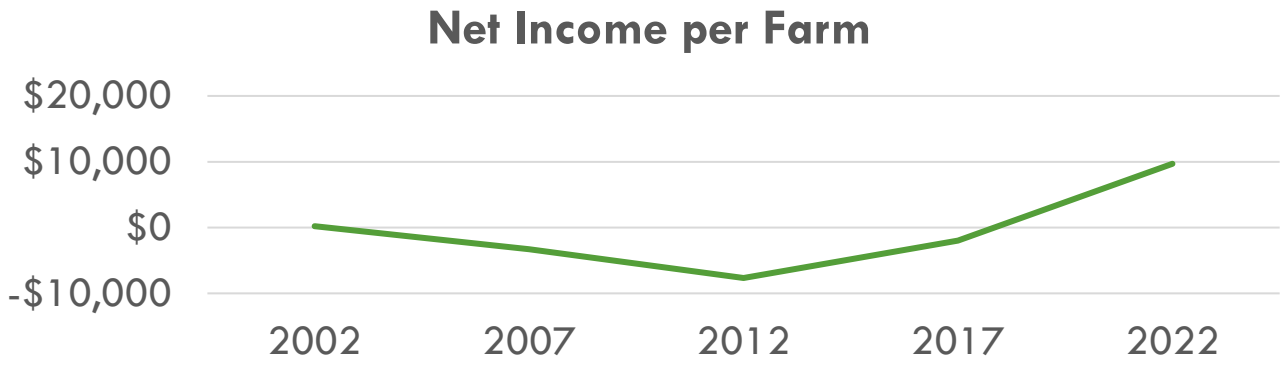
33%
of farmers are
65+ years old

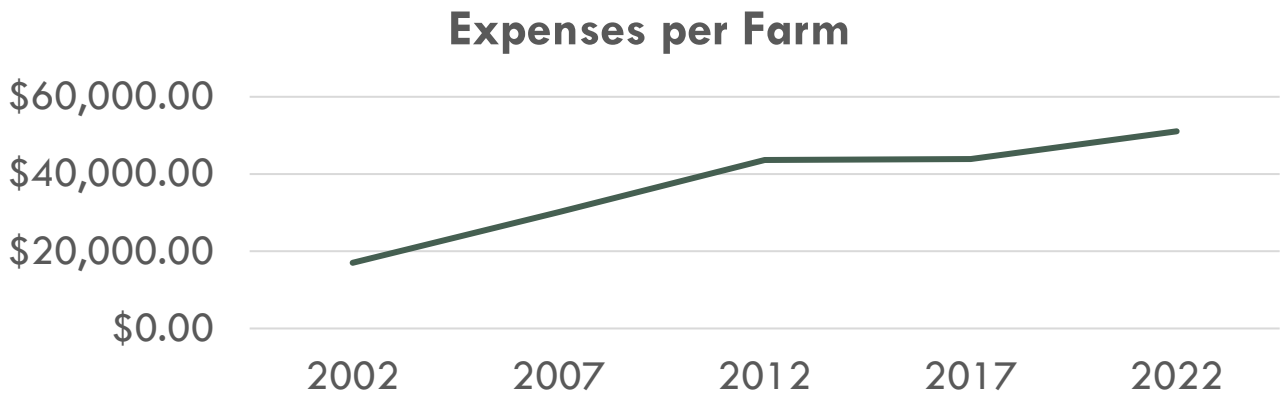
AVERAGE AGE
57

FARM PROFITABILITY

Average Net Income has improved, but many farms are still reporting a loss

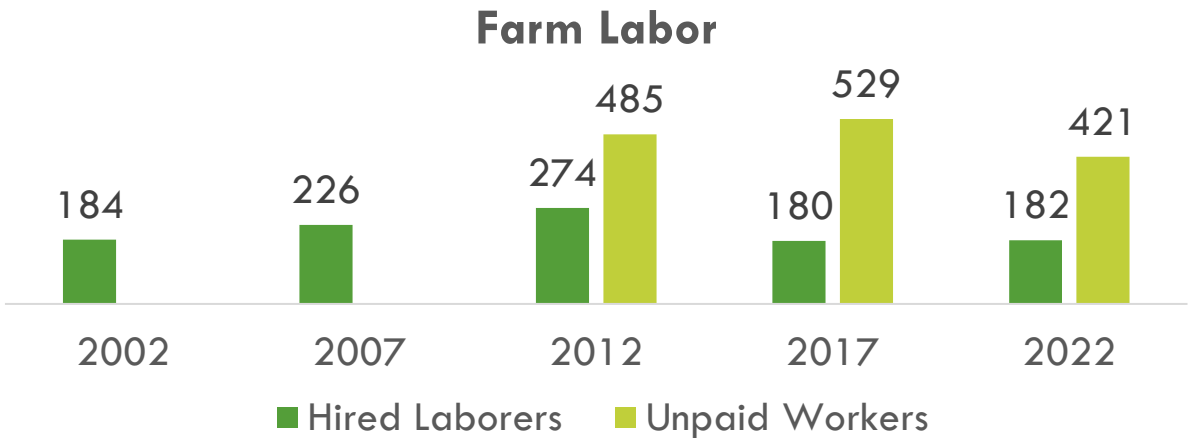






FARM LABOR

- **14% increase** in hired farm labor expenses between 2017 and 2022
- Labor as share of expenses is 14%
- Hired labor is down from a high of 274 in 2012. It is around 180 workers.
- Continued high levels of unpaid laborers



	2007	2012	2017	2022	% Change from 2017
Labor Expenses ($1,000)	$621	$1,140	$2,079	$2,351	14%
Total Farm Expenses ($1,000)	$7,110	$12,599	$16,661	$16,899	12%
Share of Total Farm Expenses	9%	12%	14%	14%	2%

KEY AGRICULTURAL SECTORS

GRAINS, SOYBEANS, AND OTHER CROPS

- Grains and oilseed sales increased from $8.3 million in 2017 to $13.5 million; a 63% increase
- Grain and oilseed acreage has remained stable around 24,000 to 25,000 acres
- Potential niche opportunities to explore: industrial hemp
- 13% of the region's soils are moderately suited for industrial hemp

Crop Acreage	2007	2012	2017	2022	% Change from 2017
Soybeans	7,826	5,563	8,842	10,170	15.0%
Corn	4,832	4,208	3,932	6,771	72.2%
Forage	7,098	5,357	4,936	3,808	-22.9%
Wheat	3,400	4,333	5,203	3,727	-28.4%
Corn Silage	179	87	18	(D)	n/a
Sorghum	(D)	4,542	1,243	(D)	n/a
Barley	502	(D)	376	--	-100.0%
Oat	13	37	(D)	--	-100.0%
Tobacco	49	30	(D)	--	-100.0%
Total	**23,899**	**24,157**	**24,550**	**24,476**	**0%**

HORTICULTURE & INDOOR PRODUCTION

- Horticultural sales are **undisclosed**
- Only reported sales are for floriculture: $125,846 in 2022
  - Most of this is from bedding plants

Sales ($)	2012	2017	2022
Vegetables, Greenhouse	(D)	$18,936	(D)
Tomatoes	(D)	$18,936	(D)
Other Vegetables	--	--	(D)
Fruits, Greenhouse	--	--	(D)

PRODUCE

- About **251 acres** of vegetables and melons
- **$2.3 million** worth of vegetables sold
- Lowest amount of vegetable acres since 2002
- About **140 acres** of fruits, tree nuts, and berries
- **$371,000** worth of berry sales
- Increase in fruit acres over the years, but decrease of 8% from 2017

Crop Acreage	2002	2007	2012	2017	2022	% Change from 2017
Fruits	40	34	45	152	140	-8%
Orchard	40	25	18	52	97	87%
Non-Citrus	--	(D)	17	46	(D)	-100%
Tree Nut	--	(D)	(D)	6	(D)	-100%
Berries	--	9	10	48	43	-10%
Vegetables & Melons	335	397	378	431	251	-42%

PRODUCE

Top Vegetables & Fruits by Acres

Acres	2017	2022	% Change
Sweet Corn	146	41	-72%
Pumpkins	30	17	-43%
Bell Peppers	34	16	-53%
Chile Peppers	(D)	13	n/a
Eggplants	19	11	-42%
Tomatoes	54	11	-80%
Kale	6	9	50%
Broccoli	(D)	8	n/a
Potatoes	11	7	-36%
Cabbage	(D)	5	n/a

Acres	2017	2022	% Change
Grapes	26	52	100%
Blueberries	31	31	0%
Apples	4	17	325%
Watermelon	11	16	46%
Cantaloupe	15	12	-20%
Pears	2	4	100%
Peaches	3	4	33%
Sweet Cherries	2	3	50%
Plums & Prunes	2	3	50%
Blackberries	7	3	-57%

AQUACULTURE

- Charles County had 2 aquaculture operations in 2022
- Sales is undisclosed

	2007	2012	2017	2022
Aquaculture Operations	1	1	2	2
Mollusks	--	--	--	1
Ornamental Fish	--	--	1	1
Food Fish	2	1	1	1
Sport Fish	--	--	1	1
Aquaculture, Other	--	--	1	1

Total not intended to sum up. An operation can be involved in more than one commodity

CATTLE AND CALVES

- Cattle sales contributed **$561,000** in sales in 2022
- **21% increase** in cattle sales ($) since 2017
- **31% decrease** in cattle inventory since 2017
- Decline in number of cattle farms
- Decline in number of farms with cattle sales since 2007

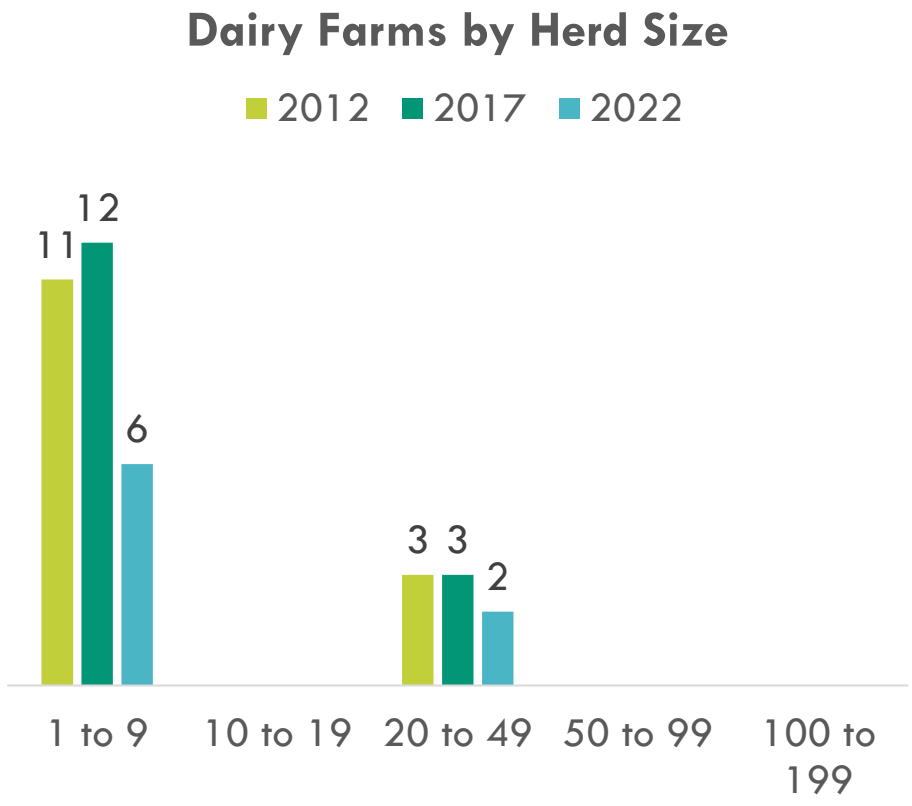
	2007	2012	2017	2022	% Change
Cattle & Calves	2,538	2,004	1,788	1,234	-31.0%
Cows	1,665	1,124	1,087	792	-27.1%
Dairy	290	104	124	60	-51.6%
Beef	1,375	1,020	963	732	-24.0%
Other Cattle	873	880	701	442	-36.9%

Cattle & Calves	2007	2012	2017	2022	% Change
Farms with Sales	110	78	66	40	-39.4%
Inventory Sold	1,223	744	758	607	-19.9%
Value of Sales	672,000	508,000	462,000	561,000	21.4%

DAIRY

- Milk sales are undisclosed
- Decrease in number of dairy farms since 2017
- Decrease in dairy cows since 2007
- Most of the dairy operations have small herds

	2007	2012	2017	2022	% Change since 2017
Dairy Farms	21	14	15	8	-46.7%
Cow Inventory	290	104	124	60	-51.6%
Cows per Farm	14	7	8	8	0.0%



POULTRY

- **$344,000** in sales in 2022; 61% increase
- Significant increase in number of operations raising ducks
- Sharp decline in the number of farms raising layers

	2007	2012	2017	2022	% Change
Layers	1,730	2,902	13,916	3,430	-75.4%
Ducks	78	80	43	192	346.5%
Turkeys	526	275	(D)	146	n/a
Broilers	3,259	1,932	6,108	(D)	n/a

	2007	2012	2017	2022	% Change
Farms w/ Broiler Sales	5	10	3	4	33.3%
Broilers Sold	1,120	(D)	980	(D)	n/a
Farms w/ Duck Sales	--	--	3	1	-66.7%
Ducks Sold	--	--	10	(D)	n/a
Farms w/ Turkey Sales	7	7	2	2	0.0%
Turkeys Sold	528	267	(D)	(D)	n/a
Poultry & Eggs Sales ($)	52,000	(D)	214,000	344,000	60.7%

HOGS

- **$22,000** in sales in 2022
- Most hog operations are small scale
- 81% sell fewer than 25 hogs
- Hog and pig sales have declined significantly from 2017
- Declining red meat prices will lower industry revenue, but lower feed prices should help profits.
- Increase in poultry prices expected to improve demand

	2007	2012	2017	2022	% Change
Farms	15	17	19	25	31.6%
Inventory	415	219	159	333	109.4%
Farms with Sales	14	14	21	16	-23.8%
Inventory Sold	829	843	1,507	164	-89.1%
Value of Sales ($)	47,000	48,000	93,000	22,000	-76.3%

SHEEP AND GOATS

- Estimated sales of sheep and goat products was at least **$51,000** in 2022; mostly sheep sales
- Last known sales amount was $100,000 in 2012
- Decrease in number of sheep sold

	2007	2012	2017	2022	% Change from 2017
Sheep Farms	25	25	42	27	-35.7%
Sheep Inventory	413	426	329	408	24.0%
Sheep Farms with Sales	20	15	21	12	-42.9%
Sheep Sold	215	369	213	138	-35.2%

	2007	2012	2017	2022	% Change from 2017
Goat Farms	38	44	50	34	-32.0%
Goat Inventory	407	384	517	278	-46.2%
Goat Farms with Sales	21	27	29	12	-58.6%
Goats Sold	146	151	251	47	-81.3%

AGRITOURISM AND ADDING VALUE

- Agritourism in the region has seen significant growth over the last decade; activity in Charles County seems to be tapering off

	2002	2007	2012	2017	2022	% Change From 2017
Farms	10	7	13	11	8	-27.3%
Revenue ($)	41,000	80,000	196,000	(D)	138,000	n/a

AGRITOURISM AND ADDING VALUE

- Need to ground-truth direct-to-consumer activity given the changes in USDA reporting
- Both Direct-to-Consumer (DTC) and Wholesale numbers include value-added sales
- Farms sold $190,000 worth of value-added products
- DTC sales have increased 55% since 2017; fewer farms are involved, but are generating more revenue
- Operations involved in wholesale has increased

DTC (Retail)	2017	2022	% Change
Farms	46	25	-45.7%
Sales	362,000	561,000	55.0%

Wholesale	2017	2022	% Change
Farms	14	21	50.0%
Sales	326,000	(D)	n/a

Value-Added	2017	2022	% Change
Farms	8	12	50.0%
Sales ($1,000)	(D)	190,000	n/a

AGRITOURISM AND ADDING VALUE

- Very few organic operations
- Only 1 organic farm was reported in 2022
- Sales are undisclosed

Organic Production	2007	2012	2017	2022	% Change
Farms	--	4	2	1	-50.0%
Sales	--	(D)	(D)	(D)	n/a

DEMOGRAPHIC FACTORS

POPULATION AND INCOME

174,339 Population	**2.77** Avg. Household Size	**62,360** Total Households	**67.9** Diversity Index
$99,752 Avg. Disposable Income	**$113,865** Median HH Income	**$51,608** Per Capita Income	**139** Wealth Index

Source: ESRI Business Analyst, 2024

PSYCHOGRAPHICS

Statement	Expected Number of Adults	Percent of Adults	MPI
Am Interested in How to Help Env	22,665	16.8%	98
Buying American Is Important	38,109	28.2%	97
Buy Based on Quality Not Price	19,532	14.5%	100
Buy on Credit Rather Than Wait	17,225	12.8%	103
Only Use Coupons Brands Usually Buy	13,372	9.9%	97
Will Pay More for Env Safe Prods	14,758	10.9%	97
Buy Based on Price Not Brands	35,084	26.0%	98

Source: ESRI Business Analyst, 2024

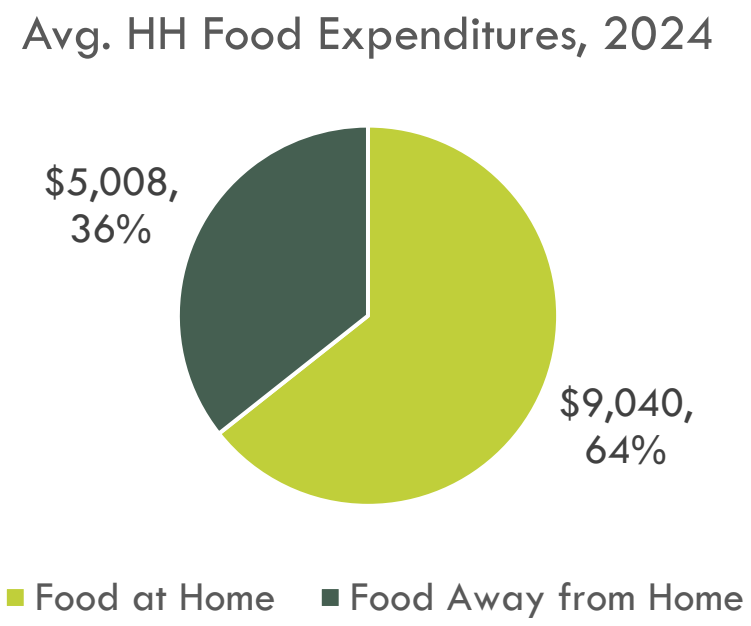
FOOD PURCHASING & CONSUMPTION TRENDS

2024 FOOD TRENDS

- **Emphasis on health-conscious choices, affordability, and nutritional quality**
- **Put the "Plant" back in "Plant-Based"**: mushrooms, walnuts, tempeh and legumes in place of complex meat alternatives
- **Buckwheat**: both a cover crop and super food that contains protein, carbs, and fiber; can be seen in soba noodles, plant-based milk alternatives, crackers, and granola
- **Clean & Conserve**: consumer interest in water stewardship/conservation, regenerative agriculture, soil health initiatives
- **Empowering Experiences**: consumers desire personalized experiences that are exciting, engaging, enjoyable, and memorable; implications for on-premise dining and food tourism
- **Glocal**: fusion of global and local culinary elements as well as cross-cultural fusion

FOOD CONSUMPTION

- About 11.3% of the household budget is spent on food
- Higher propensity towards turkey consumption; slight propensity towards organic food



Source: ESRI Business Analyst, 2024

Grocery Market Potential	Expected Number of Adults	Percent of Adults	MPI
HH Used Bread/6 Mo	59,015	94.6%	100
HH Used Chicken (Fresh or Frozen)/6 Mo	49,013	78.6%	102
HH Used Turkey (Fresh or Frozen)/6 Mo	13,791	22.1%	107
HH Used Fish or Seafood (Fresh or Frozen)/6 Mo	37,361	59.9%	102
HH Used Fresh Fruit or Vegetables/6 Mo	55,779	89.4%	101
HH Used Fresh Milk/6 Mo	51,630	82.8%	101
HH Used Organic Food/6 Mo	16,455	26.4%	104

Appendix D – St. Mary's County Data

AGRICULTURAL SNAPSHOT ST. MARY'S COUNTY, MD

September 17, 2024
Prepared by ACDS, LLC

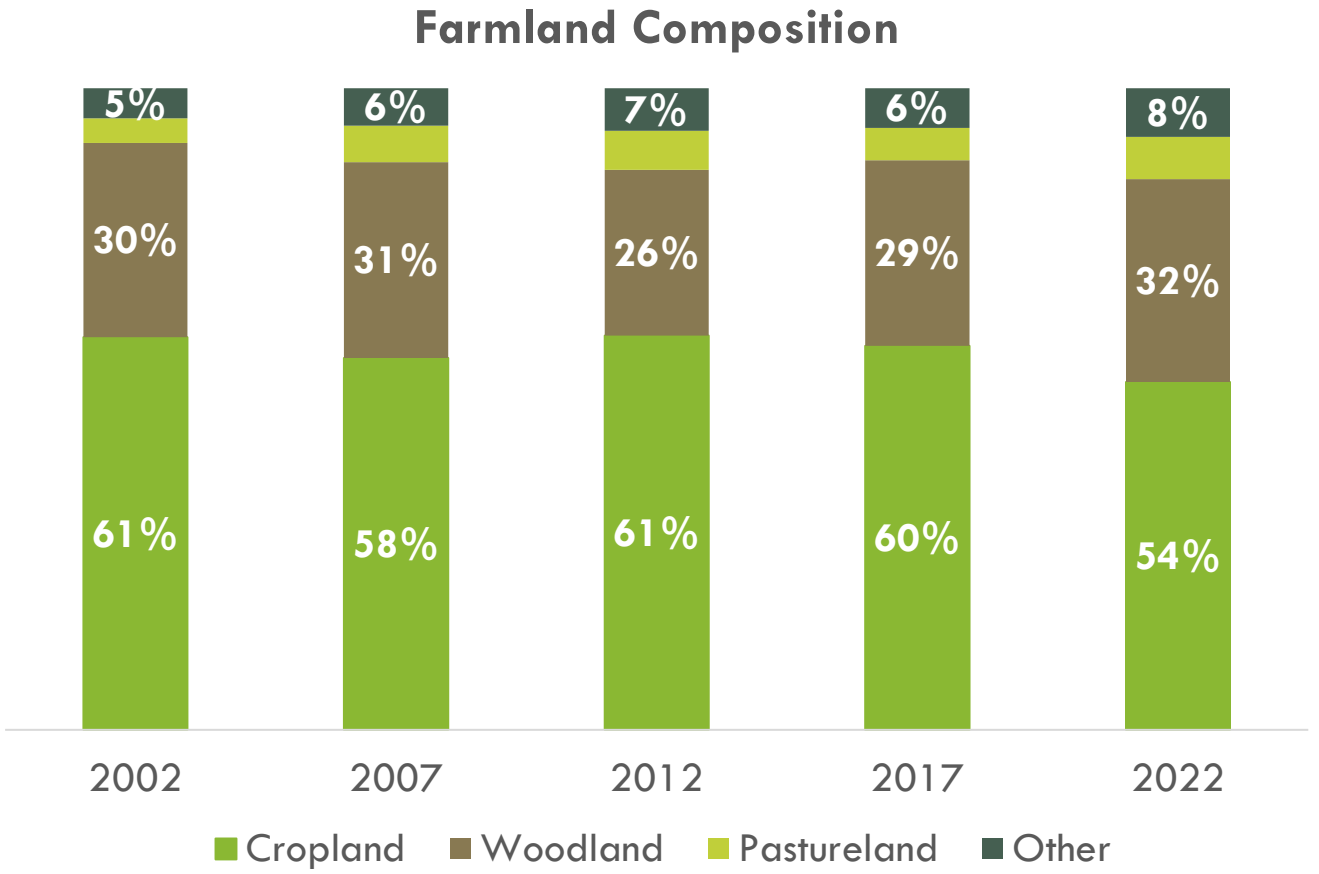
FARM TRENDS

FARMS AND FARMLAND

- About 27% of the county's land is farmland
- **7% increase** in farms from 2017
- **4% increase** in farmland from 2017
- Number of farms has been trending upwards since over the long-term
- Average farm size has been declining slowly since 2002
- Median average farm size is also lower post 2012

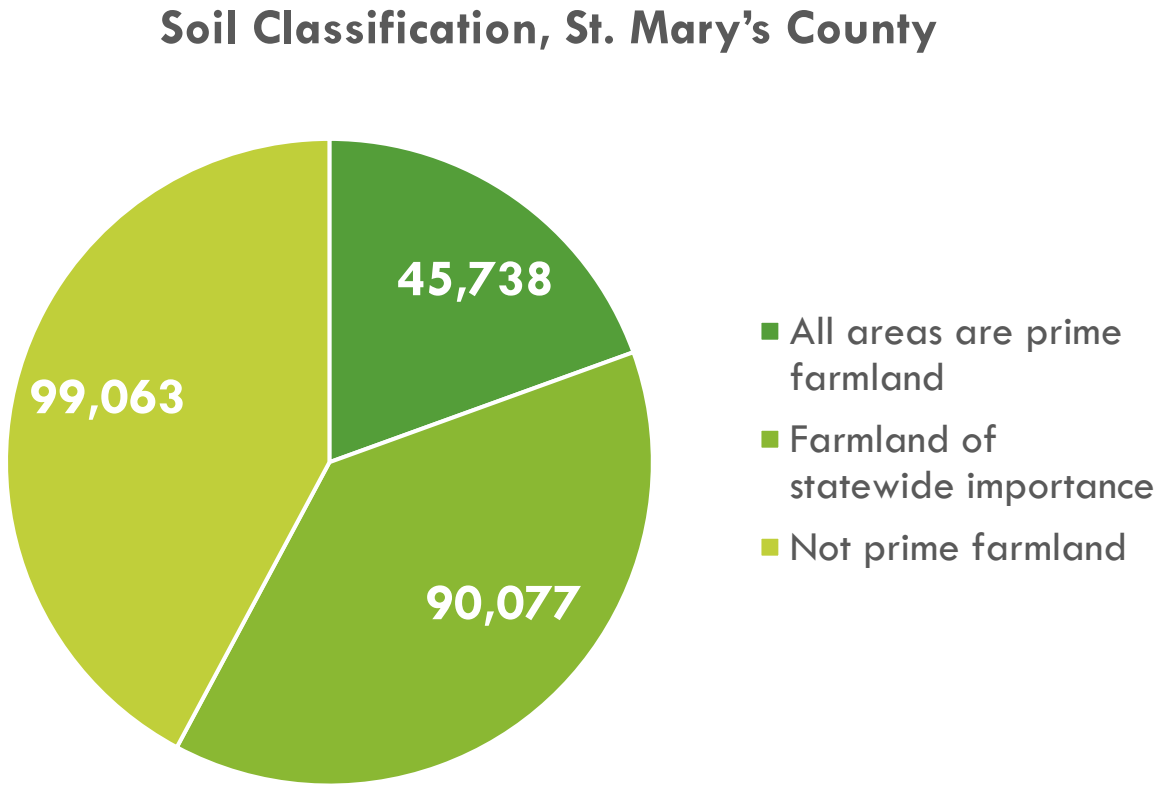
FARMLAND COMPOSITION

- Cropland **decreased** 6% since 2017
- Pastureland increased 36% since 2017
- Woodland increased 14% since 2017
  - Almost 1/3 of the agricultural land is woodland
- Other agricultural land increased 28% since 2017



~~FARM PRESERVATION~~ SOILS AND CONSERVATION

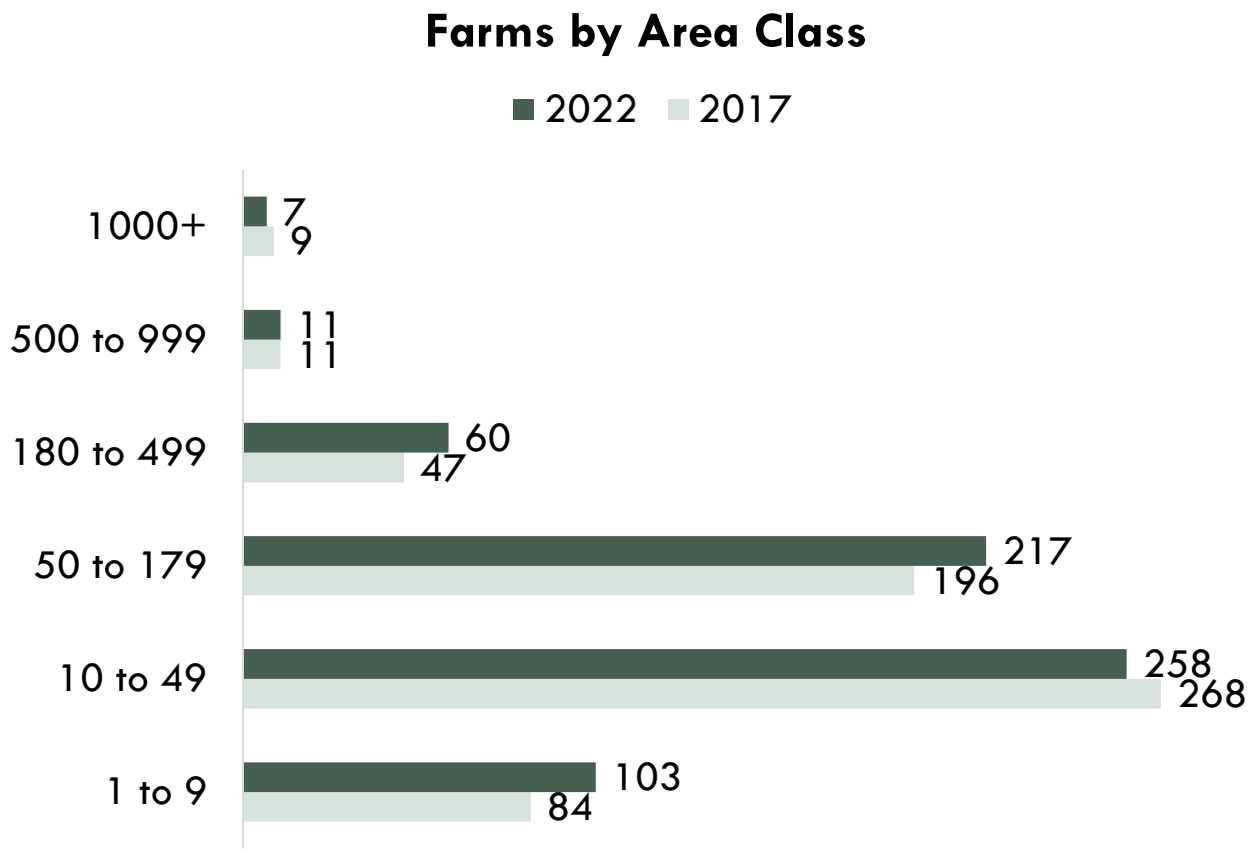
- 45,738 acres of prime farmland
- Continued challenge with high cost of land in the region
- Value of agricultural land was **$8,652/acre** in 2022; **31% increase** since 2012; 13% decrease from 2017 rate of $9,949/acre



FARM SIZE

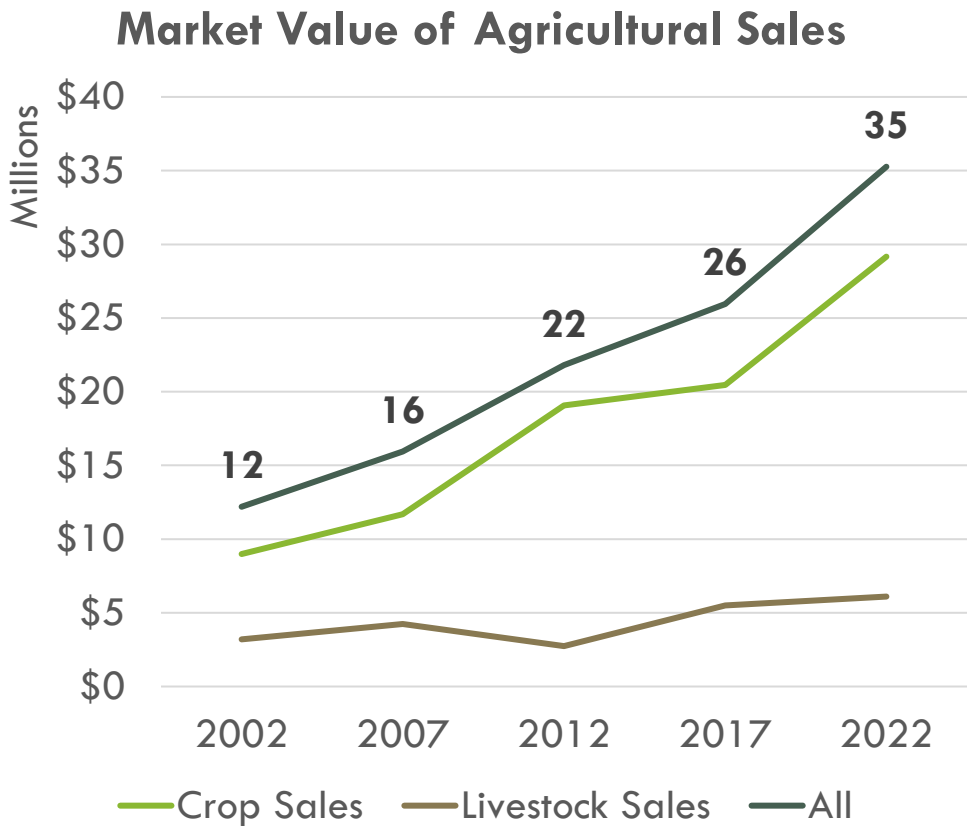
- There is a shift towards smaller farms
- Average farm size steadily declined with each census starting in 2002; it was 118 acres per farm in 2022
- **23% increase** in farms with less than 10 acres
- **14% increase** in the number of farms with 50 to 499 acres

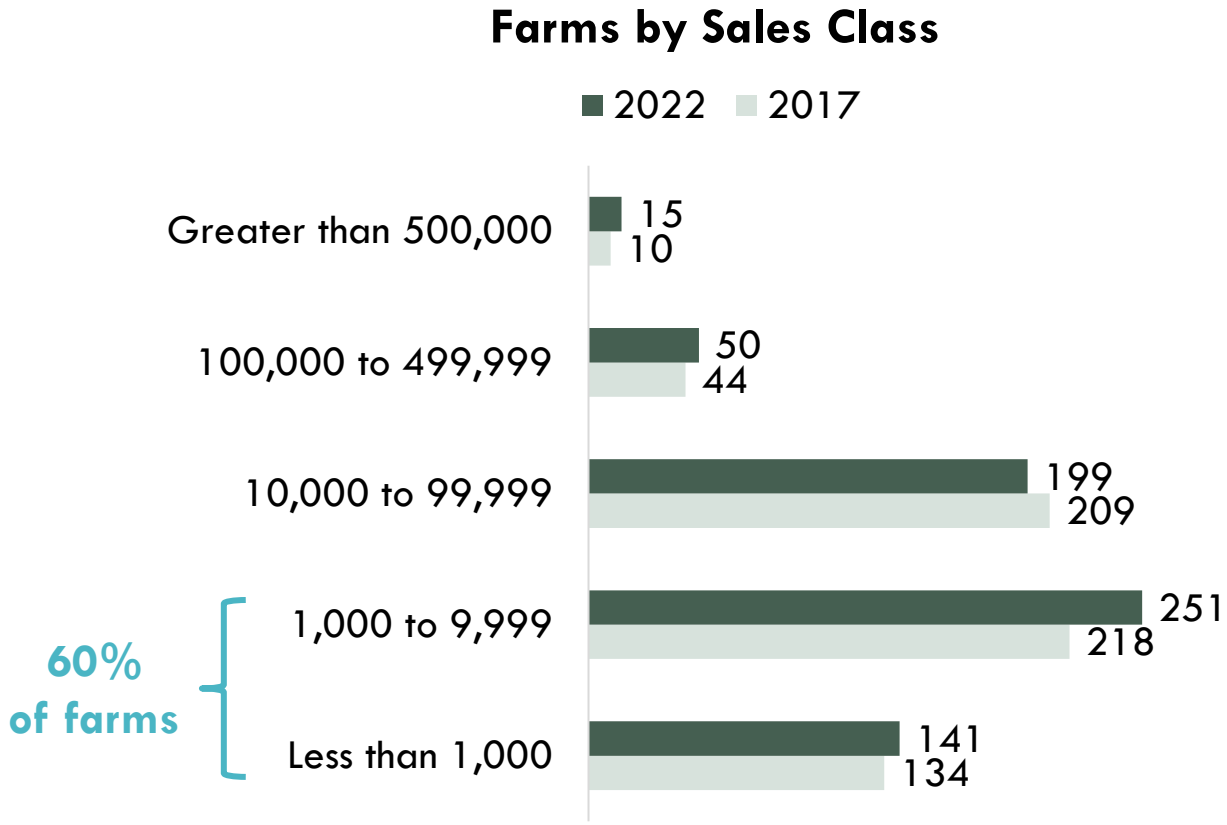
	2017	2022	% Change
Avg. Acreage	100	98	-2%
Median Avg. Acreage	36	40	11%



FARM SALES

Majority of Ag Sales are from Crops





FARMS BY INDUSTRY

Hay →

Diversified →

Industry	2022	% Change from 2017
Oilseed and grain farming	146	7%
Other crop farming	124	-11%
Animal aquaculture and Other animal production	94	12%
Beef cattle ranching and farming	87	67%
Vegetable and melon farming	55	-20%
Poultry and egg production	52	247%
Greenhouse, nursery, and floriculture production	38	6%
Fruit and tree nut farming	25	0%
Sheep and goat farming	22	-48%
Dairy cattle and milk production	10	25%
Hog and pig farming	3	-57%
Cattle feedlots	--	-100%

COMMODITY SALES

Top 10 Commodities by Sales, 2022

Commodity	Sales (Million $)	% Change in Sales from 2017
Soybeans	9.9	62%
Corn	7.7	54%
Vegetables	4.5	55%
Aquaculture	2.2	-31%
Milk from cows	1.7	215%
Wheat	1.7	21%
Bedding Plants	1.2	-23%
Cattle & Calves	1.1	21%
Fruits, tree nuts, and berries	1.0	205%
Other crops and hay	0.8	-23%

Aquaculture fell in ranking from $3.2 M in 2017 to about $2.2 M in 2022.

PRODUCTION HIGHLIGHTS

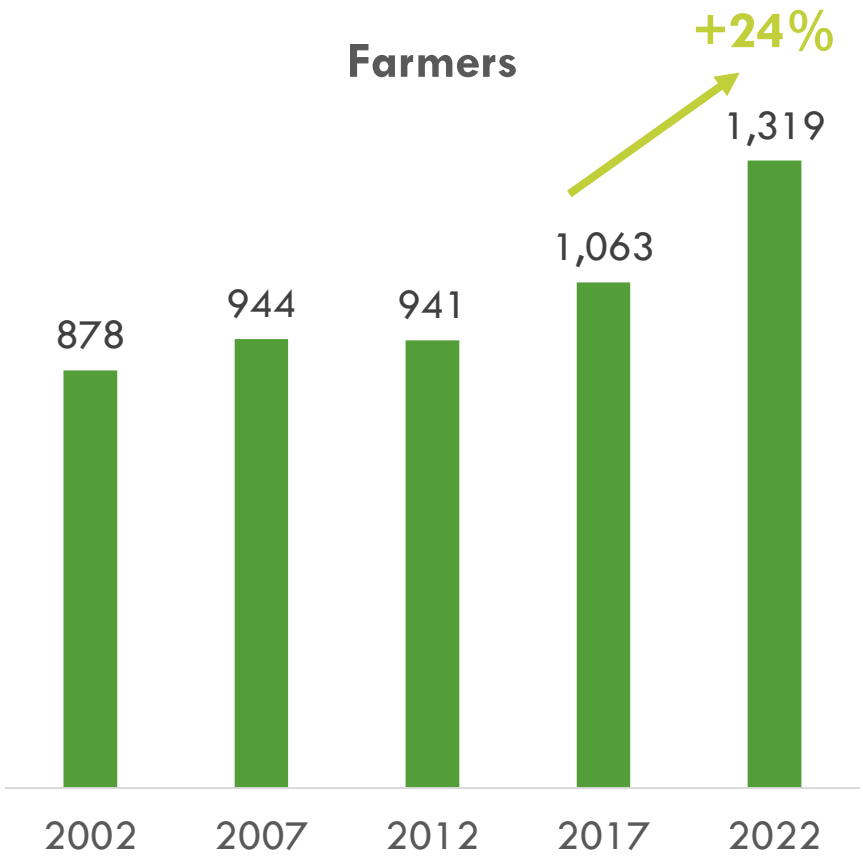
Crops and Livestock

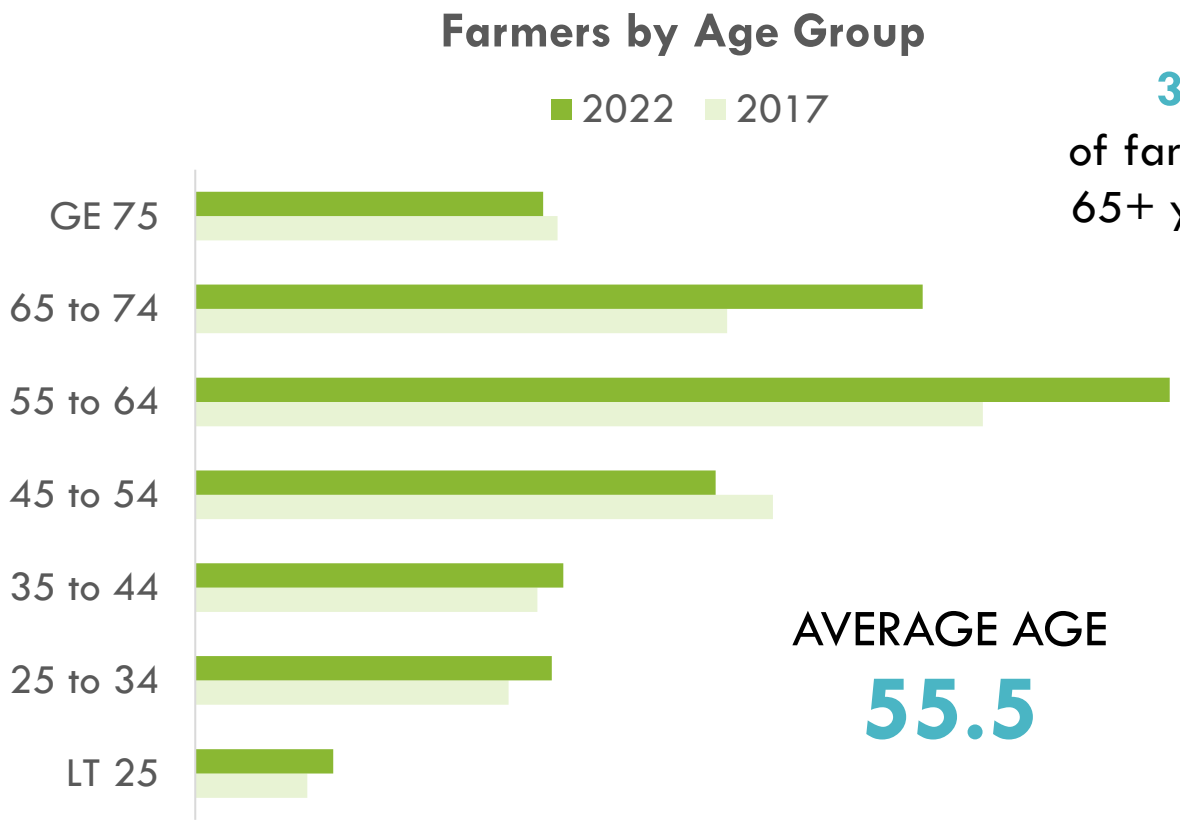
Crop (acres)	2022	% Change from 2017
Soybean	16,238	8%
Corn	7,707	-23%
Forage	4,848	21%
Wheat	3,195	-41%
Vegetable	1,106	-19%
Barley	530	18%
Oat	282	89%
Tobacco	156	-34%

Livestock (head)	2022	% Change from 2017
Layers	6,229	-11%
All Cattle	3,276	26%
Hogs	1,151	15%
Turkeys	843	32%
Goats	788	-15%
Sheep and lambs	434	-25%
Ducks	205	-31%
Broilers	(D)	-100%

FARM TRANSITION AND FARM LABOR

FARMER DEMOGRAPHICS



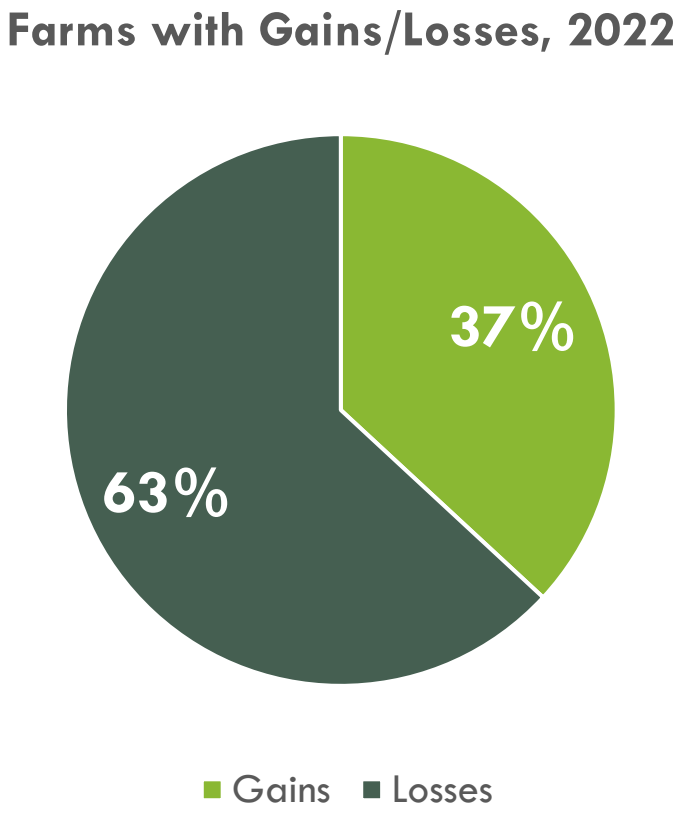


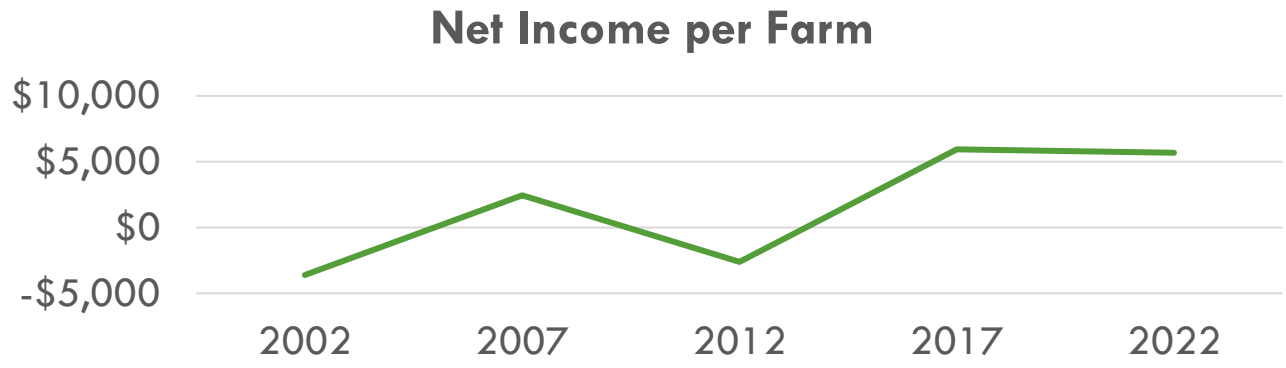
31%
of farmers are
65+ years old

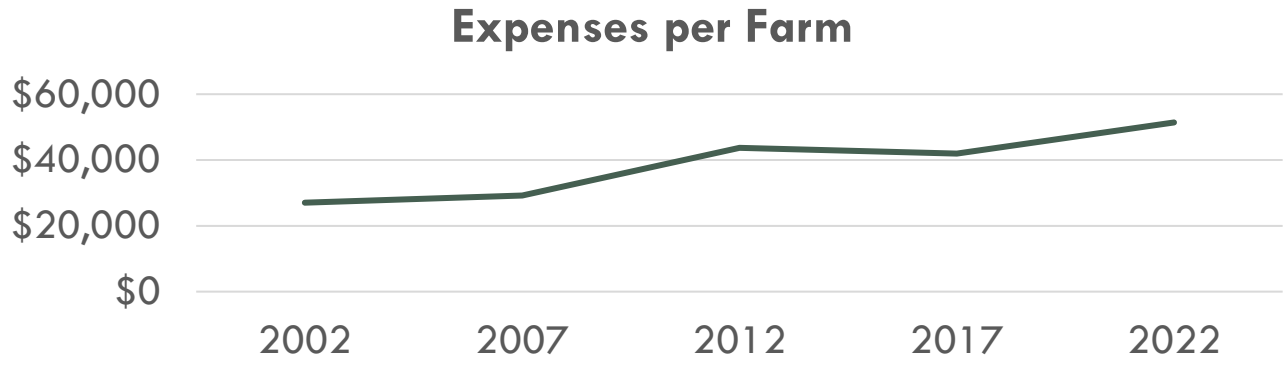
AVERAGE AGE
55.5

FARM PROFITABILITY

Average Net Income has improved, but many farms are still reporting a loss

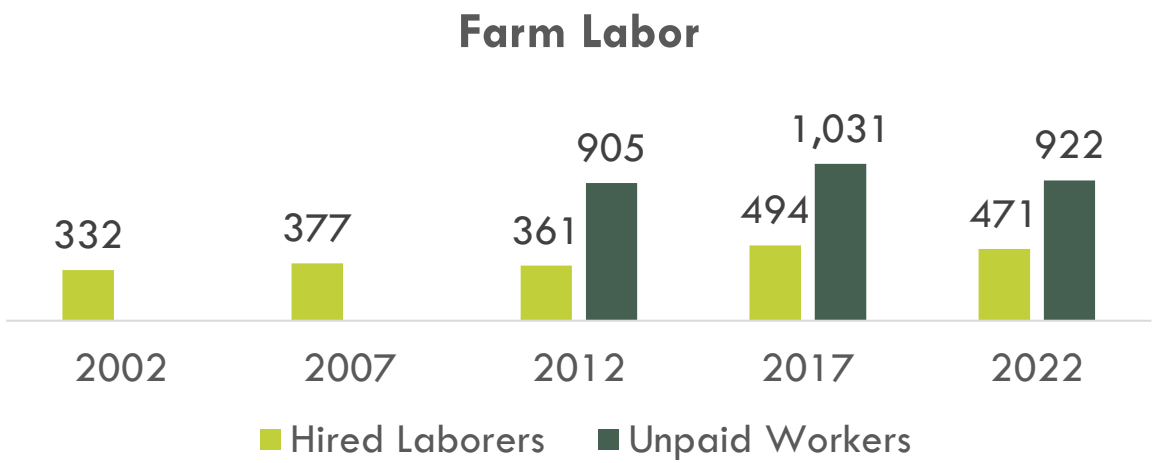






FARM LABOR

- **28% increase** in labor expenses between 2017 and 2022
- Labor as share of expenses is 14%
- Hired labor is around 470-500 between 2017 and 2022. Higher than estimates between 2002 and 2012.
- Continued high levels of unpaid laborers



	2007	2012	2017	2022	% Change from 2017
Labor Expenses ($1,000)	$1,400	$1,443	$2,475	$3,602	28%
Total Farm Expenses ($1,000)	$15,517	$18,154	$27,604	$25,826	31%
Share of Total Farm Expenses	8%	9%	14%	14%	-2%

KEY AGRICULTURAL SECTORS

GRAINS, SOYBEANS, AND OTHER CROPS

- Grains and oilseed sales **have increased 54%** since 2017: $12.8 million to $19.5 million
- Grain and oilseed acreage has fluctuated between 30k and 40k ac. over the years; mostly around 35k acres
- Potential niche opportunities to explore: industrial hemp
- 14% of the region's soils are suited or moderately suited for industrial hemp

Crop Acreage	2007	2012	2017	2022	% Change from 2017
Soybeans	13,479	16,291	15,056	16,238	8%
Corn	10,351	10,303	9,973	7,707	-23%
Forage	5,579	4,929	4,024	4,848	21%
Wheat	4,431	6,028	5,447	3,195	-41%
Barley	1,010	2,204	451	530	18%
Oat	249	161	149	282	89%
Tobacco	292	173	235	156	-34%
Corn Silage	504	249	127	59	-54%
Sorghum	(D)	78	300	19	-94%
Total	**35,895**	**40,416**	**35,762**	**33,034**	**-8%**

HORTICULTURE & INDOOR PRODUCTION

- Horticultural sales are **9%** of all crop sales in the county
- The horticultural sector was represented primarily by floriculture production
- Greenhouse tomato sales has increased 6% since 2017
- 69,410 SF of greenhouse tomatoes in 2022; **19% increase** from levels in 2017

Sales ($)	2012	2017	2022
Vegetables, Greenhouse	(D)	(D)	$236,525
Tomatoes	(D)	$207,196	$220,246
Other Vegetables	(D)	(D)	$16,279
Fruits, Greenhouse	(D)	--	(D)

HORTICULTURE & INDOOR PRODUCTION

Sales, 2022 ($)	Maryland	St. Mary's
Horticulture Total	312,443,000	2,695,000
Floriculture	90,016,048	2,346,459
Greenhouse Vegetables & Fruits	2,058,302	473,050
Cut Christmas Trees & Short-Term Woody Crops	2,972,000	19,000
Aquatic Plants	998,100	--
Bulbs & Corms & Rhizomes & Tubers, Dry	40,280	--
Mushrooms & Mushroom Spawn	(D)	--
Nursery	105,050,748	(D)
Propagative Material	5,826,133	--
Sod	--	--

PRODUCE

- About **553 acres** of vegetables and melons
- **$4.5 million** worth of vegetables sold
- Decline in vegetable acres since 2017 and 2012

- Minimum of 200 **acres** of fruits, tree nuts, and berries
- About **$1.0 million** worth of fruit sales
- Increase in fruit acres over the years

Crop Acreage	2002	2007	2012	2017	2022	% Change from 2017
Fruits	79	174	136	113	200	77%
Orchard	79	75	119	77	182	136%
Non-Citrus	--	72	(D)	(D)	(D)	n/a
Tree Nut	--	2	(D)	(D)	(D)	n/a
Berries	--	25	17	36	18	-50%
Vegetables & Melons	539	696	705	683	553	-19%

PRODUCE

Top Vegetables & Fruits by Acres

Acres	2017	2022	% Change
Sweet Corn	134	131	-2%
Bell Peppers	17	88	418%
Tomatoes	53	42	-21%
Pumpkins	60	21	-65%
Kale	25	20	-20%
Cucumbers	16	18	13%
Squash	36	18	-50%
Potatoes	17	12	-29%
Cabbage	9	11	22%
Sweet Potatoes	20	8	-60%

Acres	2017	2022	% Change
Grapes	43	165	284%
Cantaloup	79	57	-28%
Watermelon	112	54	-52%
Apples	27	11	-59%
Honeydew	(D)	5	n/a
Blueberries	5	3	-40%
Strawberries	7	3	-57%
Figs	(D)	1	n/a
Pears	(D)	1	n/a
Aronia Berries	12	(D)	-100%

VINEYARDS AND WINERIES

- St. Mary's is ranked #2 in 2022; previously ranked 7th in 2017
- Almost a 4x increase in grape acres
  - 165 acres in 2022
  - 43 acres in 2017
- 2x increase in grape operations
  - 26 grape farms in 2022
  - 13 grape farms in 2017

Top 10 MD Counties	Grape Acres
FREDERICK	343
ST MARYS	**165**
QUEEN ANNES	145
BALTIMORE	118
HARFORD	105
WASHINGTON	94
ANNE ARUNDEL	90
CALVERT	60
PRINCE GEORGES	60
CARROLL	58

AQUACULTURE

- Maryland reported 85 aquaculture operations in 2022 with total sales of $15.1 million
- St. Mary's County had about 22 aquaculture operations in 2022
- St. Mary's County reported total sales of about $2.2 million; was $3.2 million in 2017

	2007	2012	2017	2022
Aquaculture Operations	**5**	**3**	**12**	**22**
Mollusks	6	3	12	22
Ornamental Fish	--	--	--	--
Food Fish	--	--	--	--
Sport Fish	--	--	--	--
Aquaculture, Other	--	--	--	--

Total not intended to sum up. An operation can be involved in more than one commodity

CATTLE AND CALVES

- Cattle sales contributed **$1.6 million** in sales in 2022
- **21% increase** in cattle sales ($) since 2017
- **26% increase** in cattle inventory since 2017
- **19% decline** in number of farms with cattle sales since 2017; continued decline since 2002

	2007	2012	2017	2022	% Change
Cattle & Calves	4,636	3,706	2,607	3,276	26%
Cows	2,256	1,860	1,649	1,791	9%
Dairy	503	304	234	337	44%
Beef	1,753	1,556	1,415	1,454	3%
Other Cattle	2,380	1,846	958	1,485	55%

Cattle & Calves	2007	2012	2017	2022	% Change
Farms with Sales	134	125	116	94	-19%
Inventory Sold	3,033	1,343	1,175	1,093	-7%
Value of Sales ($1,000)	2,343	1,246	905	1,092	21%

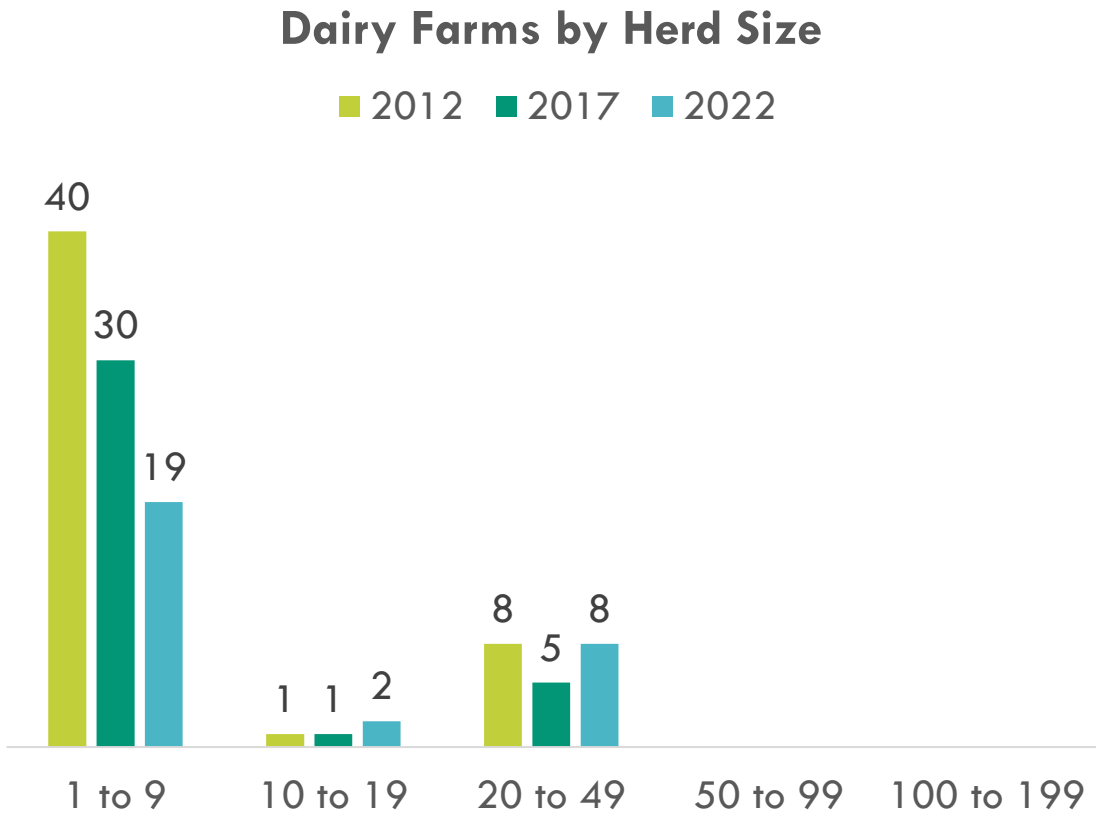
DAIRY

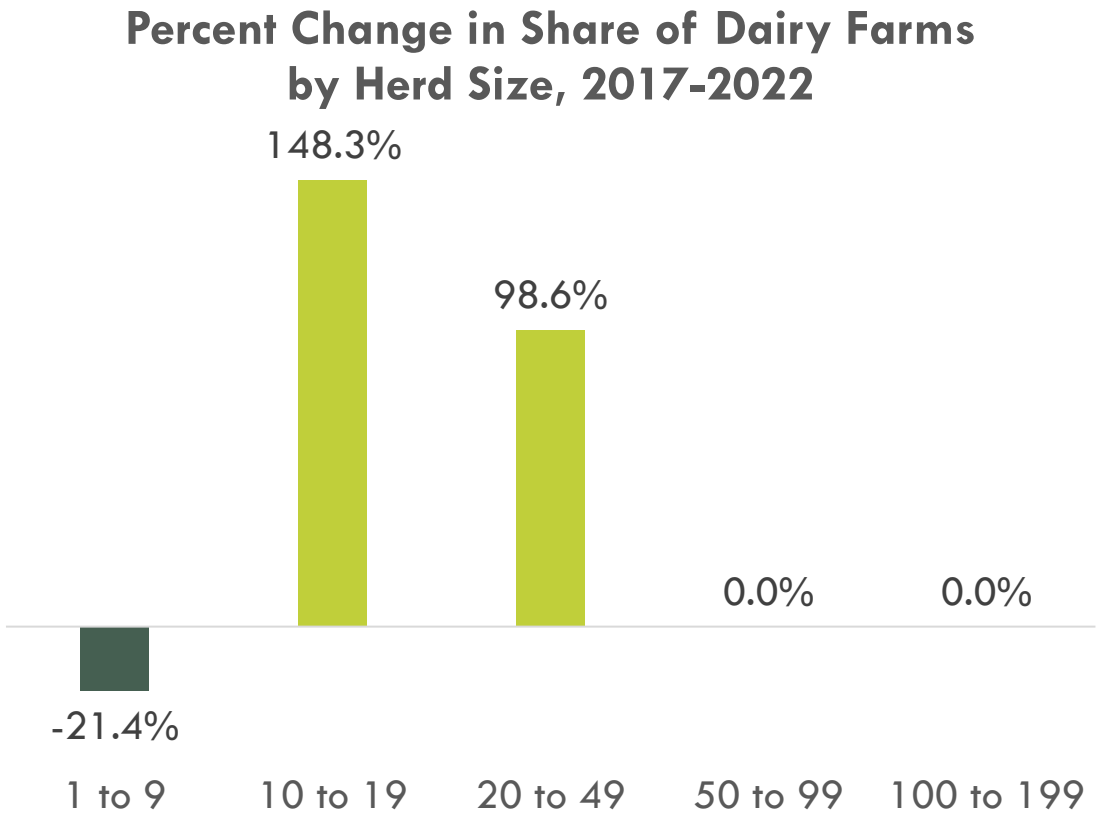
- **$1.7 million** in milk sales in 2022; 3x increase since 2017
- Most of the milk is sold in Federal Milk Market Order 1
- Decrease in number of dairy farms since 2017
- Decrease in dairy cows since 2007, but increase between 2017 and 2022
- Average herd size has fluctuated over the years
- Most of the dairy operations have small herds

	2007	2012	2017	2022	% Change since 2017
Dairy Farms	41	49	36	29	-19%
Cow Inventory	503	304	234	337	44%
Cows per Farm	12	6	6	12	100%

DAIRY

Dairy operations are small-scale





POULTRY

- **$593,000** in sales in 2022; more than 2x increase
- Increase in turkey inventory, but decrease in turkeys sold since 2017
- Undisclosed data for broiler operations

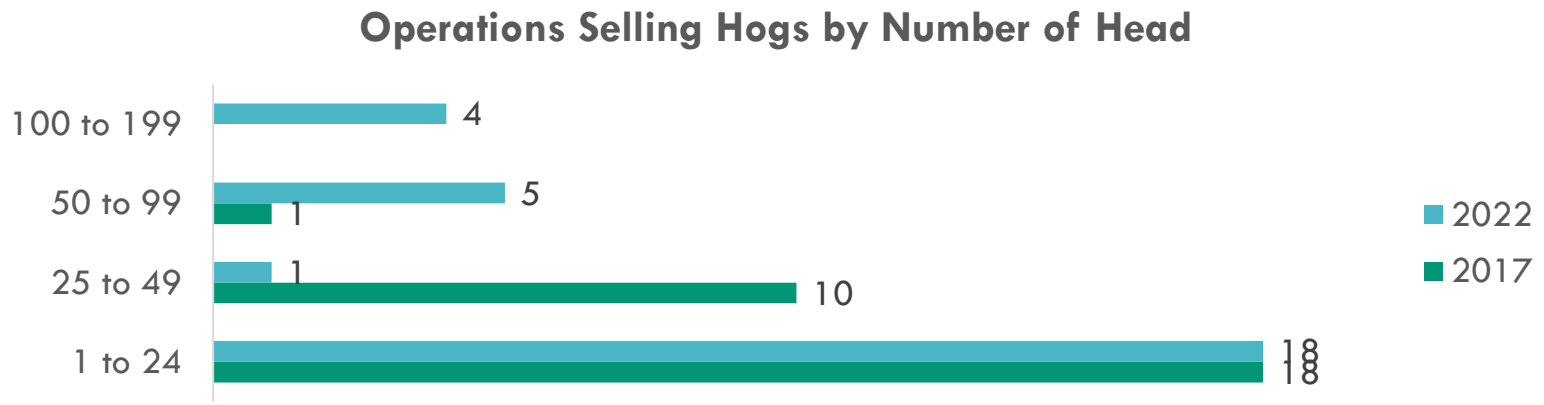
	2007	2012	2017	2022	% Change
Layers	6,226	5,882	7,013	6,229	-11.2%
Turkeys	248	934	637	843	32.3%
Ducks	193	(D)	297	205	-31.0%
Broilers	7,524	(D)	14,173	(D)	n/a

	2007	2012	2017	2022	% Change
Farms w/ Broiler Sales	16	18	28	17	-39%
Broilers Sold	1,294	18,012	19,970	(D)	n/a
Farms w/ Duck Sales	6	--	7	6	-14%
Ducks Sold	16	--	273	(D)	n/a
Farms w/ Turkey Sales	7	13	9	10	11%
Turkeys Sold	286	1,106	1,151	844	-27%
Poultry & Eggs Sales ($)	113,000	221,000	238,000	593,000	149%

HOGS

- **$304,000** in sales in 2022
- Most hog operations are small scale
- 64% sell fewer than 25 hogs
- Hog and pig sales have increased 18% from levels in 2017
- Declining red meat prices will lower industry revenue, but lower feed prices should help profits.
- Increase in poultry prices expected to improve demand

	2007	2012	2017	2022	% Change
Farms	47	45	50	61	22%
Inventory	1,514	854	997	1,151	15%
Farms with Sales	37	35	33	32	-3%
Inventory Sold	1,745	1,229	2,036	2,537	25%
Value of Sales ($)	183,000	156,000	258,000	304,000	18%



SHEEP AND GOATS

- Estimated sales of sheep and goat products was at least **$105,000** in 2022; mostly goat and goat product sales
- Sales remains relatively stable
- Declining inventory of sheep in recent years; fluctuations in goat inventory
- Most of the goats sold in 2017 were for goat meat/mohair/other products (non-milk)

	2007	2012	2017	2022	% Change from 2017
Sheep Farms	41	52	37	36	-3%
Sheep Inventory	409	856	581	434	-25%
Sheep Farms with Sales	20	23	21	14	-33%
Sheep Sold	225	473	351	130	-63%

	2007	2012	2017	2022	% Change from 2017
Goat Farms	66	51	75	74	-1%
Goat Inventory	892	607	929	788	-15%
Goat Farms with Sales	36	23	36	41	14%
Goats Sold	367	175	426	280	-34%

AGRITOURISM AND ADDING VALUE

- Agritourism in the region has been growing over the last decade
- Significant growth over the years; sudden decline around 2017
- A decline in number of operations since 2017
- **83% increase** in agritourism revenue since 2017; lower than the high of $398,000 in 2012

	2002	2007	2012	2017	2022	% Change From 2017
Farms	2	11	14	26	12	-54%
Revenue ($)	(D)	139,000	398,000	195,000	356,000	83%

AGRITOURISM AND ADDING VALUE

Value-Added Sales Experiencing Declines

- Need to ground-truth direct-to-consumer activity given the changes in USDA reporting
- Both Direct-to-Consumer (DTC) and Wholesale numbers include value-added sales
- Farms sold **$350,000** worth of value-added products; a 55% decline since 2017
- DTC sales have declined 35% since 2017
- Wholesale sales have declined slightly (-2%) since 2017

DTC (Retail)	2017	2022	% Change
Farms	102	85	-16.7%
Sales ($1,000)	2,059	1,331	-35.4%

Wholesale	2017	2022	% Change
Farms	28	33	17.9%
Sales ($1,000)	1,953	1,917	-1.8%

Value-Added	2017	2022	% Change
Farms	25	29	16.0%
Sales ($1,000)	770	350	-54.5%

AGRITOURISM AND ADDING VALUE

- Not many organic operations
- Sales are undisclosed due to low number of operations

Organic Production	2007	2012	2017	2022	% Change
Farms	--	2	2	1	-50.0%
Sales ($1,000)	--	(D)	(D)	(D)	n/a

DEMOGRAPHIC FACTORS

POPULATION AND INCOME

116,714 Population	**2.63** Avg. Household Size	**43,428** Total Households	**53** Diversity Index
$96,354 Avg. Disposable Income	**$109,936** Median HH Income	**$52,265** Per Capita Income	**135** Wealth Index

Source: ESRI Business Analyst, 2024

PSYCHOGRAPHICS

Statement	Expected Number of Adults	Percent of Adults	MPI
Am Interested in How to Help Env	14,952	16.7%	98
Buying American Is Important	25,972	29.0%	100
Buy Based on Quality Not Price	12,815	14.3%	99
Buy on Credit Rather Than Wait	11,157	12.4%	100
Only Use Coupons Brands Usually Buy	8,943	10.0%	98
Will Pay More for Env Safe Prods	9,861	11.0%	98
Buy Based on Price Not Brands	23,311	26.0%	98

Source: ESRI Business Analyst, 2024

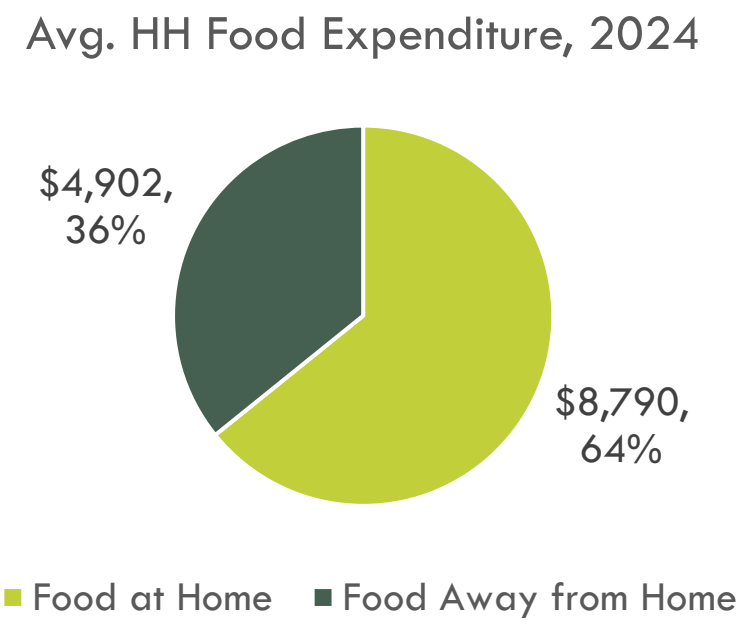
FOOD PURCHASING & CONSUMPTION TRENDS

2024 FOOD TRENDS

- **Emphasis on health-conscious choices, affordability, and nutritional quality**
- **Put the "Plant" back in "Plant-Based"**: mushrooms, walnuts, tempeh and legumes in place of complex meat alternatives
- **Buckwheat**: both a cover crop and super food that contains protein, carbs, and fiber; can be seen in soba noodles, plant-based milk alternatives, crackers, and granola
- **Clean & Conserve**: consumer interest in water stewardship/conservation, regenerative agriculture, soil health initiatives
- **Empowering Experiences**: consumers desire personalized experiences that are exciting, engaging, enjoyable, and memorable; implications for on-premise dining and food tourism
- **Glocal**: fusion of global and local culinary elements as well as cross-cultural fusion

FOOD CONSUMPTION

- About 11.3% of the household budget is spent on food
- Higher propensity towards turkey consumption



Source: ESRI Business Analyst, 2024

Grocery Market Potential	Expected Number of Adults	Percent of Adults	MPI
HH Used Bread/6 Mo	41,081	94.6%	100
HH Used Chicken (Fresh or Frozen)/6 Mo	34,313	79.0%	103
HH Used Turkey (Fresh or Frozen)/6 Mo	9,562	22.0%	106
HH Used Fish or Seafood (Fresh or Frozen)/6 Mo	25,771	59.3%	101
HH Used Fresh Fruit or Vegetables/6 Mo	38,899	89.6%	101
HH Used Fresh Milk/6 Mo	35,997	82.9%	101
HH Used Organic Food/6 Mo	11,257	25.9%	102

Appendix E – IMPLAN Contribution Analysis Description

Distinction in Input-Output Modeling

Contribution analysis and margin analysis are distinct methodologies used in IMPLAN to assess economic impacts, but they serve different purposes and focus on separate aspects of economic influence. **Contribution analysis** measures the economic impact generated by a specific industry, event, or project within a region by isolating and analyzing that entity's direct contributions to the economy. It examines factors such as output, employment, labor income, and value added, which are directly attributable to the presence or operation of the targeted entity. Contribution analysis is often used when the goal is to understand how a certain sector or business contributes uniquely to the local economy, assuming the rest of the economic structure remains constant.

On the other hand, **margin analysis** in IMPLAN assesses the distribution of final sales prices across different parts of the supply chain—retail, wholesale, transport, and production margins. Margin analysis is particularly useful when analyzing the economic impact of goods and services, as it allows analysts to break down a product's total cost into portions of value added at each stage of distribution. This approach helps to identify where economic value is being created within the supply chain, which is valuable for understanding the role of various intermediaries (such as wholesalers or retailers) in an economy. Unlike contribution analysis, margin analysis doesn't directly measure employment or income impacts but focuses on value creation within the supply chain.

Key distinctions between the two analyses lie in their scope and objectives. Contribution analysis looks at the total economic influence of an industry or project, often focusing on how it affects jobs, income, and economic output in a given region. Margin analysis, however, zooms in on the value allocation of goods and services and evaluates how different stages in the supply chain contribute to the final product price. This makes contribution analysis more suited for assessing sector-wide impacts, while margin analysis is used for detailed insights into pricing and distribution chains.

Finally, **practical applications** vary for each approach. Contribution analysis might be used to estimate the economic importance of a hospital or factory in a rural area, shedding light on direct and indirect jobs and income generated. Margin analysis, however, could be employed to study the value chain for a product like agricultural goods, providing insights into how value is distributed among farm producers, transporters, wholesalers, and retailers. Both analyses are valuable tools in IMPLAN, but they cater to different informational needs and economic assessments.

MPLAN (Impact Analysis for Planning) utilizes a variety of **comprehensive data sources** to provide detailed economic impact analysis. The primary data sources include U.S. government agencies such as the Bureau of Economic Analysis (BEA), which supplies information on national income and product accounts (NIPAs), and the Bureau of Labor Statistics (BLS), which provides employment and wage data. IMPLAN also integrates data from the U.S. Census Bureau's Economic Census and Annual Survey of Manufacturers for sector-specific production and output statistics. In addition, IMPLAN incorporates state and local economic data, agricultural statistics from the U.S. Department of Agriculture (USDA), and data on trade flows from the U.S. International Trade Commission (USITC). This integration of diverse data sources allows IMPLAN to create regionalized

economic models that are highly detailed and customizable, enabling users to analyze industry-specific impacts and local economic dynamics with precision.

Appendix F – Occupation and Employment Data

Code	Industry Display	Impact Employment (1 • Direct)	Impact Employment (2 • Indirect)	Impact Employment (3 • Induced)	Total Impact Employment
1	14 • Animal production, except cattle	765.94	0	0	765.94
2	10-Allothercropfarming	387.15	0	0	387.15
3	2· Grain farming	323.31	0	0	323.31
4	6-Greenhouse, nursery, and floricult	281.96	0	0	281.96
5	3· Vegetable andmelon farming	122.01	0	0	12201
6	11• Beef cattle ranching and farming,	103.9	0	0	103.9
7	1 • Oilseed farming	97.B9	0	0	97.89
8	4 • Fruit farming	30.33	0	0	30.33
9	13 • Poultry andeggproduction	23.66	0	0	23.66
10	7 • Tobacco farming	12.24	0	0	12.24
11	12• Dairy cattle and milk production	9.75	0	0	9.75
12	5-Tree nutfarming	0.16	0	0	0.16
13	19• support activities for agriculture	0	27.51	0	27.52
14	447 • Otherreal estate	0	25.51	1.53	27.04
15	400• Wholesale• Other nondurable g	0	5.59	0.27	5.86
16	476-Servicestobuildings	0	2.89	0.4	3.29
17	417• Truck transportation	0	2.63	0.33	2.96
18	477• Landscape and horticultural ser	0	1.65	0.26	1.91
19	60- Maintenance and repair construe	0	1.47	0.09	1.56
20	509- Full-service restaurants	0	1.43	2.87	4.29
21	421 • Couriers and messengers	0	1.41	0.67	2.08
22	401·Wholesale• Wholesale electror	0	0.86	0.2	1.07
23	408• Retail- Gasoline stores	0	0.81	0.36	1.17
24	472• Employment services	0	0.76	0.52	1.28
25	453· Commercial and industrial mac	0	0.75	0.03	0.77
26	441• Monetary authorities and depo,	0	0.66	0.47	1.13
27	445- Insurance agencies, brokerages	0	0.58	0.22	0.8
28	414-Alrtransportation	0	0.56	0.08	0.63
29	420• Scenic and sightseeingtranspor	0	0.54	0.21	0.75
30	512- Automotive repairand maintem	0	0.52	1.14	1.65
31	457 •Architectural.engineering,and	0	0.5	0.07	0.57
32	422- Warehousing and storage	0	0.5	0.34	0.84
33	462· Management consulting service	0	0.44	0.33	0.78
34	418-Transit and ground passenger tr<	0	0.44	0.64	1.08
35	510· Limited-service restaurants	0	0.41	3.45	3.86
36	395-Wholesale. Machinery, equipm	0	0.41	0.02	0.43
37	456 • Accounting, tax preparation, bo	0	0.38	0.1	0.48
38	475. Investigation and security servi<	0	0.37	0.12	0.49
39	455- Legal services	0	0.36	0.2	0.56
40	460· Computer systems design servic	0	0.35	0.14	0.49
41	511 • All other food and drinking place	0	0.34	1.15	1.49
42	440- Securities andcommodity cont,	0	0.33	0.49	0.82
43	526• Postal service	0	0.32	0.19	0.51
44	398-Wholesale. Grocery and relate,	0	0.31	0.25	0.56
45	469· Management of companies and	0	0.3	0.2	0.49
46	479-Waste management and remedi	0	0.29	0.11	0.4
47	444 - Insurance carriers, except direc	0	0.28	0.14	0.42
48	405• Retail• Buildingmaterialandga	0	0.27	0.38	0.65
49	396· Wholesale• Other durable good	0	0.26	0.17	0.43
50	47 - Electric power transmission and	0	0.24	0.09	0.33
51	465 • AdVertising, public relations, an	0	0.24	0.06	0.3
52	478- Other support services	0	0.2	0.07	0.27
53	470- Office administrative services	0	0.2	0.09	0.29
54	468-Marketingresearchandallothe	0	0.18	0.05	0.23
55	498· RacingandTrackOperation	0	0.17	0.05	0.23
56	467 • Veterinaryservices	0	0.17	0.21	0.38
57	499- Independent artists, writers, an	0	0.16	0.05	0.21
58	450• Automotive equipment rentalar	0	0.16	0.08	0.24
59	473• Business support services	0	0.15	0.05	0.21
60	534 • Other localgovernment enterpr	0	0.15	0.04	0.18
61	439- Nondepositorycredit intermedi	0	0.14	0.33	0.47
62	411 • Retail• General merchandise st	0	0.14	1.59	1.73
63	415• Rail transportation	0	0.13	0.01	0.14
64	515• Commercial and industrial mac	0	0.13	0.05	0.18
65	442· Other financial investment acth	0	0.13	0.92	1.05
66	406• Retail• Food and beverage store	0	0.12	2.03	2.15
67	516· Personal and household goods r	0	0.11	0.11	0.22
68	451• General and consumer goods re	0	0.11	0.11	0.22
69	497• Commercial Sports Except Raci	0	0.11	0.35	0.45
70	393· Wholesale• Professional and ca	0	0.1	0.18	0.28
71	459• Custom computer programmini	0	0.1	0.03	0.13
72	513• Carwashes	0	0.09	0.56	0.65
73	413· Retail• Nonstore retailers	0	0.09	1.65	1.73
74	463· Environmental and other techni	0	0.09	0.07	0.16
75	392-Wholesale- Motor vehicle and r	0	0.08	0.06	0.14
76	433· Wired telecommunicationscan	0	0.08	0.09	0.16

	Industry Display	Impact Employment (1 ◦ Direct)	Impact Employment (2 ◦ Indirect)	Impact Employment (3 ◦ Induced)	Total Impact Employment
77	519 ◦ Dry◦cleaningand laundry servic	0	**0.08**	0.2	0.28
78	514◦ Electronic and precision equipn	0	**0.08**	**0.04**	**0.11**
79	520◦ 0ther personal services	0	0.07	0.67	**0.74**
80	48· Naturalgas distribution	0	0.07	0.01	0.07
81	40· Electric powergeneration-Fossi	0	0.06	0.02	**0.08**
82	461◦ Other computer related service	0	0.06	0.02	0.08
33	394 ◦Wholesale◦ Household appliarn		0.05	0.03	0.08
84	64- Other animal food manufacturinf	0	0.05		0.05
85	399 ◦Wholesale◦ Petroleum and petr	0	0.05	0.01	**0.06**
86	528 ◦ Other federalgovernment enter	0	0.05	0.05	0.09
87	504 ◦ Other amusement and recreatic	0	**0.04**	**0.34**	0.38
88	523· Business and professional assoc	0	**0.04**	**0.08**	0.13
89	152◦ Printing	0	**0.04**	0.02	0.07
90	471◦ Facilities support services	0	**0.04**	0.03	0.07
91	402 ◦Retail◦ Motor vehicle andparts	0	**0.04**	0.6	0.63
92	458 ◦ Specialized design services	0	0.03	0.02	0.05
93	436· Data processing. hosting. and TE	0	0.03	0.07	0.1
94	416-Watertransportation	0	0.03	0.01	**0.04**
95	412 ◦Retail◦ Miscellaneous store ret	0	0.03	1.19	1.22
96	49· Water. sewage and other system:	0	0.03		0.03
97	496· Performing arts companies	0	0.02	0.14	0.16
98	474◦ Travel arrangement and reserva	0	0.02	**0.04**	0.07
99	532· Localgovernment passengertra	0	0.02	**0.04**	**0.06**
100	482 ◦ Other educational services	0	0.02	0.52	**0.54**
101	505 ◦ Fitness and recreational sports	0	0.02	0.33	0.35
102	438 ◦ Internet publishingandbfoadca	0	0.02	0.03	0.05
103	434 ◦ Wirelesstelecommunications c	0	0.02	0.02	**0.04**
104	41◦ Electric power generation◦ Nucl1	0	0.02		0.02
105	154◦ Petroleum refineries	0	0.02		0.02
106	397 ◦Wholesale◦ Drugs and druggist	0	0.02	0.06	**0.08**
107	20· Oil andgas extraction	0	0.02		0.02
108	204· Ready-mix concrete manufactu	0	0.02		0.02
109	431◦ Radio and television broadcasti	0	0.01	0.01	0.03
110	28-Stoneminingandquarrying	0	0.01	0	**0.01**
111	454 ◦ lessors of nonfinancial intan b	0	0.01	0	0.02
112	410· Retail◦ Sportinagoods, hobby,n	0	0.01	**0.54**	0.55
113	424 ◦ Periodical publishers	0	0.01	0.02	**0.04**
114	428 ◦ Software publishers	0	0.01	0.08	**0.09**
115	429 ◦ Motion picture and video Indust	0	0.01	0.07	**0.08**
116	500· Promotersofperformingartsan	0	**0.01**	0.06	0.07
117	435 ◦ Satellite, telecommunicationsr	0	0.01	0.01	0.02
118	403· Retail◦ Furniture andhome furn	0	0.01	**0.4**	**0.41**
119	42◦ Electric power generation◦ Solar	0	0.01		0.01
120	481◦ Junior colleges, colleges, univer	0	0.01	0.17	0.18
121	446· Funds, trusts, and other financi1	0	**0.01**	0.36	0.37
122	404·Retail◦ Electronic sand applian	0	**0.01**	0.33	0.33
123	139◦ Other millwork.includingnoorir		0.01		0.01
124	423◦ Newspaper publishers	0	0.01	0.01	0.01
125	385 ◦ Sign manufacturing	0	0.01	0.01	0.01
1.26	464 ◦ Scientific research and develop	0	0.01	0.05	0.05
127	17◦ Commercial fishing	0	0.01	0.02	0.02
128	466· Photographic services	0	0.01	0.01	0.02
129	61◦ Maintenance and repair construe	0		0.29	0.3
130	46· Electric power generation-Allot	0		0	0.01
131	432◦ Cable and other subscription pr	0		0.01	0.01
132	430· Sound recordingindustries			0	0.01
146	407 ◦ Retail◦ Health and personal car	0		0.8	0.8
157	425· Bookpublishers	0		0.01	0.01
159	409 ◦Retail◦ Clothing and clothing ac	0		0.83	0.84
160	437 ◦ Newssyndlcates, libraries, arct	0		0.01	0.01
168	443 ◦ Direct life insurance carriers	0		0.01	0.01
172	503· Gambling industries (except ca:	0		0.22	0.22
177	489-0therambulatoryhealthcareSI	0		0.13	**0.14**
180	502-Amusement parksand arcades	0		0.02	0.02
188	487 ◦ Medical and diagnostic laborate	0		0.18	0.18
200	522 ◦ Grantmaking, giving, and social	0		0.18	0.18
236	452 ◦ Videotape and disc rental	0		0.06	0.06
267	501◦ Museums, historical sites, zoos,	0		0.02	0.02
286	484-0fflcesofdentists	0		0.72	0.72
313	506· Bowlingcenters	0		0.03	0.03
361	483-0fflcesofphysicians	0		2.52	2.52
362	490◦ Hospitals	0		2.08	2.08
363	517◦ Personal care services	0		1.2	1.2
364	493 ◦ Individual and family services	0		0.99	0.99
365	480 ◦ Elementary and secondary scho			0.84	0.84
366	491◦ Nursing and community care tac	0		0.82	0.82
367	521· Religious organizations	0		*O.n*	*O.n*
368	494-Childdaycareservices	0		0.65	0.65
369	488 ◦ Home health care services	0		0.65	0.65
370	448 ◦ Tenant-occupied housing	0		0.63	0.63
371	485· Officesof other health practitio	0		0.63	0.63
372	486· Outpatient care centers	0		0.61	0.61
373	492· Residential intellectualdisabili	0		0.47	0.47
374	525◦ Private households	0		0.45	0.45
375	495· Convnunityfood, housing. ando			0.4	**0.4**
376	524 ◦ labor and civic organizations	0		0.26	0.26
3n	518 ◦ Death care services			0.19	0.19
					2,298.05

Dim Occupation OccCode	Dim Occupation Occupation	Fact Results Impacts Wage and Salary Employment	Fact ResultsImpacts Wage and Salary Income	Fact Results Impacts Supplements to Wages and Salaries	Fact Results Impacts Employee Compensation	Fact Results Impacts Hours Worked
11-1000	Top Executives	7.24	$727,089.60	$165,594.76	$892,684.36	15,603.86
11-2000	AdVertising. Marketing,Promotions, Public Relations, and Sal<	1.82	$204,657.60	**$46,198.92**	$250,856.52	3,909.75
11-3000	Operations Specialties Managers	1.76	$185,274.30	$38,445.20	$223,719.49	3,616.n
11-4000	Other Management Occupations	11.39	$595,119.26	140,084.45	$735,203.71	24,237.19
13-1000	Business Operations Specialists	3.02	$214,983.50	$42,017.38	$257,000.88	5,715.08
13-2000	Financial Specialists	2.51	$183,108.09	$36,790.39	$219,898.48	**4,806.64**
15-1200	Computer Occupations	1.26	$143,207.01	$24,871.40	$168,078.41	**2,488.99**
15-2000	Mathematical Science Occupations	0.05	$6,805.72	$1,197.40	$8,003.12	106.71
17·1000	Architects, Surveyors, and Cartoe,aphers	0.05	$5,306.37	$843.65	$6,150.02	**104.19**
17-2000	Engineers	0.26	$35,440.27	$6,818.70	$42,258.96	**549.34**
17-3000	Drafters,Engjneeringlechnicians, and MappingTechnicians	0.11	$9,235.51	$1,858.26	$11,093.78	228.13
19-1000	Life Scientists	1.82	**$86,496.66**	$21,016.26	$107,512.92	3,405.47
19-2000	Physical Scientists	0.05	$5,303.84	$921.78	$6,225.62	95.29
19.3000	Social Scientists and Related Workers	0.04	$4,361.27	$854.03	$5,215.30	75.53
19-4000	Life. Physical, and Social ScienceTechnicians	1.09	$36.489.57	**SB,827.78**	$45,317.35	1,959.02
19.5000	Occupational Health and Safety Specialists andTechnicians	0.03	$2,903.83	$642.37	$3,546.20	**66.43**
21-1000	Counselors, Social Workers, and Other Community andSocia	0.56	$30,266.66	$6,331.43	$36,598.09	984.13
21-2000	ReligjousWorkers	**0.18**	$13,973.15	2,199.79	$16,172.94	375.62
23-1000	Lawyers, Judges, and Related Workers	0.19	$27,793.98	**$4,949.96**	$32,743.94	**404.48**
23-2000	Legal Support Workers	0.13	$6,946.92	$1,224.82	$8,171.74	243.9
25-1000	Postsecondary Teachers	0.08	$5,173.46	$1,174.01	$6,347.47	115.93
25-2000	Preschool, Elementary, Middle, Secondary, and Special Educ1	0.55	$25,444.79	$5,448.87	$30,893.66	930.37
25-3000	Other Teachers andInstructors	0.27	$13,122.42	$2,734.05	$15,856.47	373.5
25-4000	Librarians, Curators, and Archivists	0.01	$639.56	126.56	$766.12	21.19
25-9000	Other Educational Instruction and Library Occupations	0.23	$8,342.50	$1,767.76	$10,110.26	328.01
27-1000	Art and Design Workers	1.29	$35,014.33	$7,208.42	$42,222.75	1,886.93
27-2000	Entertainers andPerformers, Sports and Related Workers	0.19	$11,801.23	$2,046.09	$13,847.32	241.69
27-3000	Media and Communication Workers	0.16	$12.321.98	$2,101.97	$14,423.95	285.72
27-4000	Media and Communication Equipment Workers	0.08	$4,971-53	$816.47	$5,788.00	145.19
29-1000	Healthcare Diagnosing or TreatingPractitioners	2.46	$320,855.43	$67,639.74	$388,495.18	4,552.72
29-2000	HealthTechnologists and Technicians	1.24	$71,305.89	$14,788.48	$86,094.37	2,215.80
29.9000	Other Healthcare Practitioners and Technical Occupations	0.02	$1,369.64	$276.84	$1,646.49	**41.72**
31-1100	Home Health andPersonal Care Aides; andNursingAssistant:	1.59	$54,631.02	$11,597.31	$66,228.33	2,502.54
31-2000	Occupational Therapy and Physical Therapist AssistantsandJ	0.09	$4,342.03	$923.90	$5,265.93	140.73
31-9000	Other Healthcare Support Occupations	3.84	$133,275.18	$31,218.65	$164,493.83	6,314.82
33-1000	Supervisors of Protective Service Workers	0.03	$2,064.08	$435.79	$2,499.86	67.4
33-2000	FirefightingandPrevention Workers	0.03	$1,144.01	$261.86	$1,405.86	70.07
33.3000	Law Enforcement Workers	0.03	$1,420.38	$348.75	$1,769.13	55.86
33.9000	Other Protective Service Workers	0.91	$29,715.74	$6,306.03	$36,021.n	1,472.32
35-1000	Supervisors of Food Preparation and Serving Workers	0.72	$33,241.87	$5,182.43	$38,424.30	1,250.81
35-2000	Cooks andFood Preparation Workers	2.11	$55,339.23	$8,905.68	$64,244.92	2,948.63
35-3000	Food and Beverage Serving Workers	4.89	$104,027.24	$16,093.99	$120,121.23	5,601.79
35-9000	Other Food Preparation and ServingRelated Workers	0.93	$17,504.10	2,726.15	$20,230.25	938.02
37-1000	Supervisors of Building and Grounds Cleaning and Maintenan,	1.15	$34,590.50	$7,810.58	$42,401.08	2,260.00
37-2000	Building Cleaning and Pest Control Workers	3.87	$99,712.91	$19,961.06	$119,673.97	6,040.79
37.3000	Grounds Maintenance Workers	7.74	$156,681.55	$36,128.40	$19 2,809.95	11,900.08
39-1000	Supervisors of Personal Care and Service Workers	0.11	$6,117.83	$1,305.56	$7,423.40	191.51
39-2000	Animal Care and Service Workers	1.74	$35,no.oa	$8,492.62	$44,262.69	2,534.24

Dim Occupation OccCode	Dim Occupation Occupation	Fact Results Impacts Wage and Salary Employment	Fact Results Impacts Wage and Salary Income	Fact Results Impacts Supplements to Wages and Salaries	Fact Results Impacts Employee Compensation	Fact Results Impacts Hours Worked
39-3000	Entertainment Attendants and Related Workers	0.2	$5,017.41	Sl,128.84	$6,146.25	216.27
39-4000	Funeral Service Workers	0.03	$1,188.17	$187.79	$1,375.96	39.44
39-5000	Personal Appearance Workers	0.35	$11,468.94	Sl,832.80	$13,301.74	507.58
39-6000	Baggage Porters, Bellhops, and Concierges	0.04	$1,503.84	$267.53	$1,771.37	64.93
39-7000	Tour andTravel Guides	0.01	$415.91	$78.63	$494.54	13.14
39-9000	Other Personal Care and Service Workers	0.7	$16,491.91	3,075.11	$19,567.02	826.27
41-1000	Supervisors of Sales Workers	1.76	$84,856.10	$17,319.59	$102,175.69	3,456.43
41-2000	Retail Sales Workers	12.84	$233,082.03	$47,923.56	$281,005.59	16,921.55
41-3000	Sales Representatives, Services	1.37	**$88,104.14**	$16,908.38	$105,012.52	2,696.24
41-4000	Sales Representatives, Wholesale and Manufacturing	6.74	$337,624.61	74,016.39	$411,641.01	13,203.24
41-9000	Other Sales and Related Workers	0.64	$38,298.34	$6,576.18	$44,874.53	1,117.56
43-1000	Supervisors of Office and Administrative Support Workers	2.02	$102,353.49	$22,606.43	$124,959.91	3,826.94
43-2000	Communications Equipment Operators	0.02	$847.27	174.43	$1,021.70	**34.54**
43.3000	Financial Clerks	9.43	$272,074.87	$62,454.76	$334,529.63	15,620.43
43-4000	Information and Record Clerks	5.63	$190,617.46	$40,575.69	$231,193.15	9,159.68
43.5000	Material Recording, Scheduling,Dispatching, and Distril>utin1	3.58	$130,053.61	$36,240.47	$166,294.09	6,483.53
43-6000	Secretaries and Administrative Assistants	6.77	$231,241.13	$52,650.89	$283,892.03	11,303.42
43-9000	Other Office andAdministrative Support Workers	9.4	$193,965.02	$43,453.66	$237,418.68	**14,291.18**
45-1000	Supervisors of Farming, Fisfling, and ForestryWorkers	23.19	$713,968.12	$176,664.44	$890,632.57	48,638.20
45-2000	Agricultural Workers	324.14	$5,911,892.18	Sl,463,981.22	$7,375,873.41	556,708.42
45-3000	Fishingand HuntingWorkers	0.87	$12,133.89	$2,988.66	$15,122.56	1,812.82
45-4000	Forest, Conservation, and Lo ngWorkers	0.13	$4,355.25	Sl,108.65	$5,463.90	208.03
47-1000	Supervisors of Construction and Extraction Workers	0.16	$12,395.05	2,543.84	$14,938.89	357.57
47-2000	Construction Trades Workers	1.04	$59,592.84	Sll,792.18	$71,385.02	2,058.08
47-3000	Helpers, Construction Trades	0.04	$1,453.22	$258.50	$1,711.72	63.65
47-4000	Other Construction and Related Workers	0.1	$6,359.53	Sl,281.21	$7,640.74	195.09
47-5000	Extraction Workers	0.03	$1,681.85	$321.00	$2,002.85	66.23
49-1000	Supervisors ollnstallation,Maintenance, and Repair Workers	0.89	$54,850.96	$12,184.81	$67,035.78	1,900.90
49-2000	Electrical and Electronic Equipment Mechanics, Installers, ar	0.22	$15,034.96	$3,272.37	$18,307.33	443.31
49-3000	Vehicle and Mol>ile Equipment Mechanics, Installers, and Rei	4.71	$186,622.63	$39,945.15	$226,567.78	9,474.50
49-9000	Other Installation, Maintenance, and Repair Occupations	7.24	$240,218.46	54,893.97	$295,112.43	13,907.56
51-1000	Supervisors of Production Workers	0.79	$36,080.79	$8,847.98	$44,928.77	1,643.04
51-2000	Asseml>lers and Fal>ricators	1.37	$31,774.15	$7,458.02	$39,232.16	**2,416.41**
51-3000	Food ProcessingWorkers	0.79	$18,802.73	$4,321.14	$23,123.87	1,427.88
51-4000	MetalWorkers and Plastic Workers	0.22	$9,455.68	$2,033.00	$11,488.68	426.56
51-5100	PrintingWorkers	0.03	$1,623.78	$301.82	$1,925.60	61.99
51-6000	Textile,Apparel, and FurnisflingsWorkers	0.17	$6,098.15	Sl,040.99	$7,139.14	285.67
51-7000	Woodworkers	0.02	$792.56	$145.38	$937.94	30.94
51-8000	Plant and System Operators	0.08	$8,337.92	3,048.05	$11,385.98	168.8
51-9000	Other Production Occupations	3.43	$91,195.77	$21,184.99	$112,380.75	6,012.27
53-1000	Supervisors ofTransportation and Material Moving Workers	1.3	$58,427.65	$13,149.14	$71,576.79	2,668.10
53-2000	Air Transportation Workers	0.36	$50,116.80	$13,239.44	$63,356.24	608.49
53.3000	Motor Vehicle Operators	15.51	$479,271.85	$113,588.23	$592,860.08	30,693.62
53-4000	RailTransportation Workers	0.06	$6,099.64	Sl,861.41	$7,961.05	134.99
53-5000	Wat er Transportation Workers	0.04	$5,703.79	Sl,378.79	$7,082.58	91.66
53-6000	Other TransportationWorkers	0.36	$12,223.40	$2,236.65	$14,460.05	563.09
53-7000	Material MovingWorkers	18.7	**$419,424.15**	S94,981.49	$514,405.63	29,764.76
99-8000	Military- Known	0	$0.00	S0.00	$0.00	0
99-9000	Military- Unknown	0	$0.00	**SO.CO**	$0.00	0

Appendix G – Collective Branding Program Notes

Case Study: County-Level Public-Private Partnerships in Branding and Marketing Farm Products

Public-private partnerships (PPPs) at the county level have become a powerful approach for branding, marketing, and merchandising local farm products across the United States. These partnerships often involve collaboration between local government agencies, private sector businesses, and agricultural producers to boost the visibility, viability, and sales volume of locally sourced goods. By combining resources, expertise, and shared goals, counties and private entities can create effective branding initiatives that promote farm products, support local economies, and increase consumer access to fresh, regionally sourced food. This case study examines the key elements, successes, and challenges of such county-based PPPs and highlights notable examples from across the country.

Public-Private Partnerships for Farm Branding and Marketing

Public-private partnerships in agriculture often focus on developing a recognizable brand that resonates with consumers and underscores the quality, sustainability, and local origins of farm products. Counties participating in these efforts recognize that branding can increase the marketability of agricultural products by creating an identity that aligns with regional values and consumer expectations.

For example, counties may collaborate with local farms and private businesses to develop labels, logos, and promotional materials that consumers can easily identify. These branding strategies are designed to foster consumer loyalty and preference for local products over non-local alternatives. Moreover, counties frequently support the distribution of these branded products through local farmers markets, grocery stores, and online platforms. The public sector often contributes funding, marketing support, and logistical coordination, while the private sector provides product expertise, business networks, and additional financial resources.

Case Examples of County-Based Branding Initiatives

A notable example of a successful county-driven branding initiative is Sonoma County's "Sonoma County Grown" program in California. This PPP aims to strengthen the local food economy by creating a county-wide brand that highlights locally grown produce, dairy, and wine. Sonoma County works with farms, wineries, and local businesses to distribute products labeled with the Sonoma County Grown logo, which assures consumers of the authenticity and quality of their purchase.

Similarly, in New York, Ulster County launched the "Ulster County Alive!" initiative to market its agricultural products. The county collaborated with local farms, artisans, and tourism boards to create a brand identity that promotes both local food products and agri-tourism. This initiative leverages both physical and digital marketing, including a website, social media campaigns, and partnerships with local retailers.

In North Carolina, the Appalachian Grown branding program, facilitated by the Appalachian Sustainable Agriculture Project (ASAP), collaborates with multiple counties and local farmers to

label products that meet region-specific standards. This partnership includes both public funding and private marketing contributions, helping small farms reach a larger audience across county and state lines while still maintaining local focus.

Benefits and Challenges of County-Based Public-Private Partnerships

The primary benefit of county-based PPPs in agriculture branding is the ability to leverage shared resources and expertise, making it easier to reach consumers and build loyalty. These partnerships can drive economic development, support local farmers, and reduce the barriers associated with marketing for smaller operations that may lack the means to promote their products independently. Additionally, they enhance consumer awareness and preference for local goods, fostering a sense of community and supporting sustainable agricultural practices.

However, these partnerships also face challenges. Funding limitations can restrict the reach and effectiveness of marketing campaigns, especially in rural areas with fewer resources. Coordination among multiple stakeholders, from government agencies to private businesses and farmers, can also be complex, requiring clear communication and shared goals. Differences in priorities and expectations between public and private partners may occasionally lead to conflicts, necessitating well-defined roles and collaborative decision-making processes. It is also unclear in all cases, if customers have a strong enough local purchasing preference to seek out local products versus products with other characteristics that they find more important.

Conclusion

County-level public-private partnerships have proven successful in promoting local farm products through branding, marketing, and merchandising initiatives. Where they are successful, they are well-funded, have continuity, and are strongly supported by government agencies, the independent retail sector, and farmers. Through effective collaboration, counties and private stakeholders create recognizable brands that attract consumers and support local economies. While these partnerships face challenges, such as funding constraints and stakeholder alignment, they also offer significant benefits that help strengthen agricultural communities. As consumer demand for local and sustainable products grows, county-based branding initiatives provide a model for leveraging public and private resources to foster economic growth and increase the visibility of locally sourced food products.

Appendix H – Labor Program Notes

Improving Labor Sources in Agriculture and Aquaculture

Labor is a critical component in agriculture and aquaculture, two sectors known for seasonal demand fluctuations and intensive labor needs. Both sectors face significant labor shortages due to the strenuous nature of the work, seasonality, and competition from other industries. This appendix explores typical and atypical labor sources in agriculture and aquaculture, with particular focus on the H-2A guest worker program, and examines the costs and challenges associated with its use, especially for small farmers. Additionally, the document reviews policies and regulations that support labor needs in these sectors, including housing, transportation, and infrastructure investments.

Typical Labor Sources in Agriculture and Aquaculture

Agricultural and aquacultural operations typically rely on local, seasonal, and migrant labor. Traditionally, these sectors employ domestic workers, but as the pool of willing domestic labor has decreased, employers increasingly depend on migrant workers. The primary labor sources are defined below:

1. Domestic Seasonal Labor: Local labor remains an important source for agriculture, but its availability has diminished due to the declining interest in farm work and competition from other industries offering higher wages and year-round employment.

2. Migrant Labor: Migrant workers from nearby countries are essential to U.S. agriculture. Many work under temporary or seasonal agreements, bringing their expertise in specific agricultural tasks. However, the availability of migrant labor can fluctuate based on immigration policies and economic conditions in their home countries.

3. Guest Worker Programs: Programs like the H-2A visa provide a legal pathway for non-U.S. citizens to work in U.S. agriculture, filling gaps in the domestic labor market for seasonal tasks. The H-2A program, discussed in more detail below, has become an increasingly important source for agricultural labor.

Atypical Labor Sources in Agriculture and Aquaculture

Beyond traditional and migrant labor, the agriculture and aquaculture sectors have sought alternative sources to meet labor demands:

1. Prison Labor: In certain regions, prison labor is used as a supplemental workforce for harvesting and processing. This labor source can be cost-effective but is often controversial due to ethical considerations.

2. Automation and Technology: With labor shortages, many farms are turning to automation for tasks such as planting, weeding, and harvesting. While expensive, technology can reduce reliance on manual labor and help meet production needs.

3. Volunteer and Intern Programs: Programs where individuals work in exchange for housing, food, or educational experiences (e.g., WWOOF[4]) are another way to fill labor gaps, especially for smaller operations focusing on sustainable practices.

The H-2A Guest Worker Program

The H-2A program allows U.S. agricultural employers to hire foreign nationals for seasonal agricultural work. Under this program, employers must demonstrate that domestic workers are unavailable and that hiring foreign labor will not adversely affect the wages and working conditions of U.S. workers.

H-2A workers are typically contracted for periods up to ten months and can return year after year. Employers are responsible for providing free housing, transportation, and specific wage rates, all of which create significant costs and logistical requirements.

While the H-2A program is a solution for labor shortages, it presents particular challenges, especially for small farms. Compliance with H-2A regulations, legal requirements, and cost burdens can make the program inaccessible to small operators who may lack the administrative capacity to manage these processes. Given the size of most Southern Maryland farms, H2A would be difficult to the employ.

Costs and Challenges of Using H-2A for Small Farmers

For small farms, the costs and administrative complexities of the H-2A program can be prohibitive. Employers must pay for recruitment, transportation, and housing costs in addition to the required wage, known as the Adverse Effect Wage Rate (AEWR), which is often higher than prevailing local wages.

1. Administrative Burden: Small farms often lack dedicated HR or legal teams to handle visa paperwork, compliance monitoring, and other bureaucratic tasks associated with H-2A employment.

2. Housing Requirements: Employers must provide free housing that meets specific standards. Building or renting housing units can be costly and requires ongoing maintenance, adding a significant overhead.

3. Transportation: Employers must cover transportation costs for H-2A workers to and from their home countries, a requirement that can strain small farms' finances.

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[4] WWOOF, which stands for **Worldwide Opportunities on Organic Farms**, is a global program that connects volunteers with organic farms, allowing them to work in exchange for food, accommodation, and hands-on experience in sustainable farming practices. Through this program, individuals, often called "WWOOFers," work on farms for a specified number of hours per day, gaining insights into organic agriculture and rural life. Unlike traditional labor arrangements, WWOOF is rooted in a cultural exchange model, fostering educational opportunities for volunteers and providing farms with an extra workforce. This setup is particularly beneficial for small and family-run farms that might otherwise struggle to meet labor needs, and it attracts individuals interested in sustainability, organic agriculture, and environmentally conscious lifestyles.

4. Legal Compliance: Navigating the complexities of visa requirements, employment regulations, and potential audits can create legal risks for small operators who may not have legal expertise or resources.

These barriers mean that while the H-2A program is beneficial for large-scale operations, smaller farms may struggle to participate, limiting their access to labor.

Supportive Policies and Regulations for Agriculture and Aquaculture

Several policies and regulations have been introduced to support agriculture and aquaculture labor needs. These include housing, transportation, and infrastructure investments designed to alleviate some of the burdens on employers:

1. USDA Rural Housing Loans and Grants: These programs help finance housing for farm workers, easing the burden of the H-2A housing requirement, particularly for small farms.

2. Transportation Assistance Programs: Programs that offer transportation grants or subsidies, making it more feasible for small farms to participate in the H-2A program. These programs can also be useful for creating local transportation programs that bridge lower employment urban areas with rural farms and aquaculture operators.

3. Infrastructure Investments: Programs supporting rural broadband, road improvements, and public transportation expansions benefit agribusinesses by improving access and reducing costs.

These policies are examples of how government support can help address labor challenges in agriculture and aquaculture, allowing small and large businesses alike to thrive.

Conclusion

The agriculture and aquaculture sectors continue to face labor challenges, with many operations dependent on seasonal and migrant labor. The H-2A program offers a vital pathway for employers to meet labor needs, but its costs and administrative requirements pose significant challenges, especially for small farms. Atypical labor sources, such as prison labor and volunteer programs, fill some gaps, but sustainable solutions require further policy support.

Supportive policies related to housing, transportation, and infrastructure have shown promise in easing the burdens associated with H-2A program compliance, helping to create a more accessible labor market for small and medium-sized agricultural businesses. By aligning policy initiatives with the realities of agricultural labor demands, government agencies can help ensure the long-term viability and sustainability of the agricultural and aquaculture industries.

Appendix I – Wisconsin Farm Business Initiative Program Description

Wisconsin Farm Business Initiative

The Wisconsin Farm Business Initiative (FBI), spearheaded by the Wisconsin Small Business Development Center (SBDC) in collaboration with the Food Finance Institute (FFI), aims to equip farm-based entrepreneurs with the necessary tools, resources, and training to establish profitable and financially resilient businesses. This comprehensive program encompasses specialized consulting, intensive boot camps, stakeholder engagement, and personalized technical assistance, all designed to foster growth and sustainability within Wisconsin's agricultural sector.

Program Components and Services

The FBI's approach includes various services tailored to the needs of farm-based businesses in Wisconsin. These services not only address the technical aspects of farming but also provide guidance on essential business operations to ensure entrepreneurs are well-prepared for long-term success.

Key components of the program include:

1. Specialized Farm-Focused Consulting

The initiative has developed a cadre of consultants trained specifically to address the unique challenges of farm-based businesses. These consultants assist farmers in navigating market dynamics, refining business models, and understanding the financial intricacies of farm operations. The program's first farm-focused consultant training was piloted in the summer of 2020, laying the groundwork for ongoing support and expanding consulting capacity within the initiative.

2. Farm Business Boot Camps

The boot camps are intensive training sessions aimed at helping farm entrepreneurs focus on key areas of their business with minimal distraction. Limited to ten businesses per session, the boot camps offer four days of concentrated training followed by targeted, one-on-one support. These sessions help farm owners solidify their business plans, understand market opportunities, and develop actionable steps for growth and improvement.

3. Stakeholder Engagement

The FBI actively engages with stakeholders through webinars and other educational platforms. By presenting the challenges and opportunities within farm-based businesses, the initiative creates an informed community that collaborates and advocates for agricultural entrepreneurship in Wisconsin. This engagement also encourages investment and partnerships that benefit farm entrepreneurs.

4. Technical Assistance and Consulting

For farms looking to scale, diversify, or expand sales channels, the initiative provides tailored support. Consultants assist with strategies for enhancing direct-to-consumer markets, connecting with wholesale buyers, and exploring avenues like on-farm events or agri-tourism. This guidance helps farmers capitalize on emerging trends and align their operations with consumer demand.

Success in Supporting Entrepreneurs

The FBI has demonstrated significant success in empowering farm-based entrepreneurs through its tailored support model. Some of the notable achievements include:

• Enhanced Business Acumen: Participants report improved understanding of business planning, financial management, and market strategies, leading to more informed decision-making and operational efficiency.

• Market Expansion: Through targeted consulting and boot camps, farmers have successfully diversified their markets, tapping into wholesale channels and direct-to-consumer sales, thereby increasing revenue streams.

• Resilience Building: The initiative's focus on financial resilience has enabled farmers to better withstand economic fluctuations, ensuring long-term sustainability.

Leveraging Existing Lending and Business Development Programs

The FBI effectively integrates existing lending and business development resources to maximize support for farm entrepreneurs. Some of the key collaborations include:

• Collaboration with Financial Institutions: By partnering with local banks and credit unions, the initiative facilitates access to capital, guiding farmers through loan application processes and helping them meet lending criteria.

• Utilization of Government Programs: The FBI assists farmers in navigating federal and state programs, such as the U.S. Department of Agriculture's Farm Service Agency loans and grants, ensuring they leverage available financial support.

• Integration with SBDC Services: As part of the Wisconsin SBDC, the initiative connects farmers with a broader network of business development services, including marketing assistance, export support, and technology commercialization resources.

Funding and Staffing

The Wisconsin Farm Business Initiative is funded through a combination of state support, federal grants, and partnerships with private organizations. The program's operational funding allows it to provide services at reduced or no cost to farm entrepreneurs, making it accessible to farmers at different stages of business development.

Staffing for the initiative includes experienced consultants specializing in agriculture, finance, and business development. These professionals bring industry-specific knowledge that addresses the unique needs of farm-based businesses. The initiative also partners with local stakeholders and subject matter experts to provide specialized guidance, expanding its support capacity.

Conclusion

The Wisconsin Farm Business Initiative (FBI) has demonstrated significant effectiveness in enhancing the profitability and resilience of farm-based businesses. Participants have reported a 90% increase in understanding the purpose and value of financial management practices, with 100% gaining the ability to prepare and analyze financial statements for informed decision-making. Additionally, over 75% of respondents believe their overall financial situation has improved due to participation in the FBI's financial courses. (Wisconsin Extension) These metrics underscore the initiative's success in equipping farmers with essential financial skills, leading to more sustainable and profitable operations.

The Wisconsin Farm Business Initiative has proven to be a vital resource in bolstering the state's agricultural economy. By offering specialized consulting, intensive training, and leveraging existing financial and business development resources, the FBI empowers farm-based entrepreneurs to build profitable and resilient businesses. This initiative not only enhances individual farm operations but also contributes to the vitality and sustainability of Wisconsin's agricultural communities.

Appendix J – HVADC Case Study

Case Study: Hudson Valley Agribusiness Development Corporation (HVADC)

The Hudson Valley Agribusiness Development Corporation (HVADC) is a non-profit organization dedicated to supporting agricultural entrepreneurship and sustainable economic development in the Hudson Valley region of New York. Since its establishment, HVADC has focused on providing resources, technical assistance, and strategic guidance to agricultural businesses, contributing to the overall vitality of the local food system and agribusiness sector. This case study explores HVADC's core objectives, impact, key initiatives, and its strategic role in bolstering the agribusiness community in Hudson Valley.

Organizational Overview

Founded in 2007, HVADC operates with a mission to foster a strong and resilient agricultural economy. Its service region spans multiple counties in New York, including Columbia, Dutchess, Greene, Orange, Putnam, and Ulster, each with its unique agribusiness landscape. HVADC's work addresses critical needs such as business planning, access to capital, market development, and workforce training, which are vital for farmers and food producers aiming to scale or sustain their operations.

The organization collaborates with government bodies, educational institutions, and private investors, ensuring that its programs are well-rounded and beneficial to a wide range of stakeholders in the Hudson Valley's agricultural ecosystem. It's funded by a combination of private and public funds.

Key Programs and Initiatives

HVADC offers various programs that provide agribusinesses with the support they need to thrive in a competitive market. Among its key initiatives are:

1. Incubator Without Walls: This flagship program offers one-on-one technical assistance, helping small-scale farmers and food businesses navigate challenges in areas such as marketing, finance, and operational efficiency.
2. Hudson Valley Bounty: A regional branding and marketing initiative that connects local producers with consumers, increasing market reach and awareness for locally-sourced products.
3. Loan and Grant Support: HVADC assists agribusinesses in securing financing, including guidance on applying for federal, state, and private grants or loans, thereby reducing barriers to accessing capital.
4. Workforce Development Programs: These programs provide training and workforce support, targeting skill gaps and helping local farms adapt to evolving agricultural practices.

Through these initiatives, HVADC has enhanced the operational capacity of hundreds of agribusinesses, contributing to job creation, revenue growth, and sustainable agricultural practices across the region.

Impact and Achievements

HVADC has had a significant impact on the Hudson Valley's agricultural sector. Since its inception, the organization has helped over 300 businesses through direct consulting, training, and financial

assistance. A notable success story includes its role in launching new agribusinesses and aiding established businesses in securing over $10 million in funding, enabling expansion, infrastructure upgrades, and increased operational resilience.

By addressing the challenges of local farmers and producers, HVADC has helped preserve farmland, promote sustainable practices, and enhance the region's food security. Its efforts have been particularly impactful for small and mid-sized farms, which form the backbone of the Hudson Valley's agricultural community but often face financial and operational barriers to growth.

Future Outlook and Strategic Goals

Looking ahead, HVADC aims to expand its influence and further solidify the Hudson Valley as a premier agricultural hub. The organization is focusing on enhancing local food processing capabilities, increasing value-added production, and promoting agri-tourism to attract new consumer bases and investment. It is also looking to vastly expand its subsidiary business the Food and Farm Finance program.

HVADC's strategic goals include fostering stronger ties with local policymakers to advocate for agriculture-friendly policies, expanding funding sources, and integrating more technology-driven solutions for farm management. By continuing its collaborative approach, HVADC seeks to build a resilient agricultural economy that benefits businesses, consumers, and the environment.

The Hudson Valley Agribusiness Development Corporation serves as a model for regional agricultural support organizations. Its comprehensive suite of services, combined with a strategic vision for sustainable economic development, has significantly enhanced the economic viability of agriculture in Hudson Valley. By providing resources, guidance, and advocacy, HVADC has created a supportive ecosystem for agribusinesses, ensuring they are equipped to meet the challenges of today's market and contribute to a thriving local food economy.

Public Sector Investment and Private Sector Encouragement

The Hudson Valley Agribusiness Development Corporation (HVADC) has strategically leveraged public sector investment to drive private sector engagement, fostering a robust agribusiness economy. Public sector funding has supported vital infrastructure and programmatic resources that private investors view as reducing risk, thereby making the region more attractive for investment. Through initiatives supported by grants and public funding, HVADC has been able to catalyze private sector interest by demonstrating the potential for profitable, sustainable agribusinesses in Hudson Valley.

For example, state and federal funds allocated to HVADC for agricultural infrastructure improvements have led to enhanced transportation networks, cold storage facilities, and processing centers. These infrastructure upgrades not only benefit local farmers but also appeal to private entities interested in investing in distribution and logistics for regional produce. The improved infrastructure mitigates distribution bottlenecks, making it easier for businesses to access regional and metropolitan markets, thereby attracting larger-scale investment.

One significant example is HVADC's role in securing a combination of state grants and federal funds for the establishment of the Hudson Valley Food Hub. This hub provides cold storage and processing facilities for local producers, allowing them to scale and distribute their products more effectively. Following this public investment, private investors saw the potential for high-quality, locally-produced foods to reach a broader market, leading to private investments from food distribution companies and retail outlets that now work with the Food Hub.

By aligning public resources with private sector needs, HVADC demonstrates a model of how well-targeted public investments can set a foundation that reduces the perceived risks for private investors, thereby incentivizing them to participate in and benefit from the regional agricultural economy.

Economic Development Outcomes

The collaborative investment approach has resulted in measurable economic development outcomes for the Hudson Valley region. With increased access to capital, technical resources, and distribution infrastructure, agribusinesses in the area have experienced higher growth rates, resulting in job creation, income generation, and enhanced local economic resilience.

One of the most significant outcomes has been the retention of agricultural jobs that may have otherwise been lost due to economic pressures. By supporting infrastructure and fostering a favorable investment climate, HVADC has helped increase employment opportunities not only in farming but across the agribusiness value chain—including logistics, food processing, marketing, and retail. The region has also seen increased property values and tax revenues as thriving agribusinesses create demand for improved facilities and residential areas.

In conclusion, HVADC's model of leveraging public sector investment to encourage private sector involvement has generated a lasting impact on the Hudson Valley's economy. This case highlights how public investment, when strategically aligned with local business needs and long-term economic goals, can foster significant private sector participation and lead to sustainable economic growth. The success of HVADC serves as an example for other regions looking to combine public resources with private sector capabilities to strengthen local economies and promote the agricultural sector's development.