Growing Berks: Agriculture's Economic Impact and a Roadmap for Its Future

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A Letter from the Berks County Board of Commissioners

The Berks County Board of Commissioners is pleased to share this plan Growing *Berks: Agriculture's Economic Impact and a Roadmap for Its Future*.

Support for Agri-business was identified as a priority in the IMAGINE Berks Strategic Economic Development Action Plan. This study is part of the implementation of that plan and provides important data and insight. It is our intent to establish Berks County as a place where agricultural production and agribusiness thrive, the community actively engages with and supports local producers, and the industry is well-understood and valued by decision-makers at all levels.

Special thanks to the Berks County Department of Agriculture, operating under the Department of Community and Economic Development for their invaluable contributions and expertise throughout this project. Their collective efforts have helped shape a comprehensive roadmap for the future of agriculture in our region.

We would also like to acknowledge and thank the many farmers, farm organizations, and agricultural support businesses who generously gave their time, shared their insights, and provided on-the-ground perspectives that enriched this report. Your dedication to agriculture in Berks County is the cornerstone of its continued success.

Thank you all for your unwavering support of agriculture and the agriculture industry in Berks County.

Commissioner Christian Y. Leinbach, Chair

Commissioner Michael S. Rivera, Vice-Chair

Commissioner Dante Santoni, Jr.

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Executive Summary

Vision

Berks County is a place where agricultural production and agri-business is thriving, the community engages with and supports local agricultural producers, and the industry is well understood and valued by municipal, county, and regional decision-makers.

Agriculture is a cornerstone of Berks County's economy, culture, and community. Recognizing its vital role, the county's Department of Agriculture has embarked on a comprehensive study and strategic planning process to address the agricultural sector's challenges and opportunities. *Growing Berks: Agriculture's Impact and Roadmap for Its Future* aims to ensure the long-term viability and prosperity of agriculture in Berks County.

Agriculture in Berks County benefits from the county's strategic location within the state of Pennsylvania. Positioned within close proximity to major urban markets like Philadelphia, New York City, and Washington, D.C., farmers have easy access to a large customer base. This proximity facilitates the direct sale of fresh produce to consumers and supports value-added agricultural enterprises like local dairies, wineries, and organic farms. The combination of productive soils, a favorable climate, and access to key markets has led to a robust agricultural economy in Berks County, with the county ranking among the top in Pennsylvania for agricultural sales, particularly in dairy and livestock production.

Economic Impact and Workforce Development - Agriculture in Berks County is a substantial economic driver, contributing over $1 billion in local output. Despite its importance, the sector faces a severe labor shortage, compounded by a lack of both hard and soft skills among the available workforce. Farmers report difficulties in retaining employees long enough to benefit from on-the-job training, impacting efficiency and growth. To combat these challenges, educational and training programs from institutions like Penn State Extension and the Berks County Workforce Development Board are critical, providing valuable resources to enhance workforce skills and support the broad agricultural industry.

Market Demand and Consumer Trends - Berks County's strategic location near major metropolitan areas creates substantial market opportunities, with the nearby market consuming $269.3 billion in foodstuff annually. However, farmers face significant challenges, including information gaps, transportation inefficiencies, and compliance with food safety standards. Developing strategies to assist food entrepreneurs and ag producers navigate these issues is essential to meet the growing market demand and build a loyal customer base for local product

Supporting a Positive Regulatory Environment - Regulations and policymaking profoundly impact agriculture in Berks County. Farmers navigate a complex regulatory environment that can be costly and time-consuming. County-level efforts led by the Berks County Department of Agriculture and Berks County Planning Commission have helped to coordinate land use, transportation, and environmental codes. Still, ongoing adaptation is necessary to support a diverse and modern agricultural industry. The creation of the county's Department of Agriculture underscores the commitment of political leadership to supporting this sector, providing valuable advocacy, education, and market information to policymakers that ensures agriculture's continued success.

Supporting New and Beginning Farmers - New and beginning farmers are critical for the continuity and future growth of agriculture in Berks County. The region has seen an increase in young and second-career farmers, particularly within the Mennonite community. However, access to land and financing remains a significant barrier. Programs that support asset transfer and transitions, succession planning, and mentorship are crucial for facilitating asset transition and ensuring new farmers' success.

Investing in Value-Added Agriculture - Investing in value-added agriculture, such as direct sales to consumers and on-farm processing, can significantly enhance farm revenue. Berks County leads the state in direct-to-consumer sales, highlighting the importance of supporting infrastructure and policies that encourage these activities. The success of the local food box project during COVID-19 demonstrated the economic benefits of such programs, underscoring the need for continued support and investment in value-added agriculture initiatives. [1] These efforts can diversify farm income and strengthen access to local foods and products.

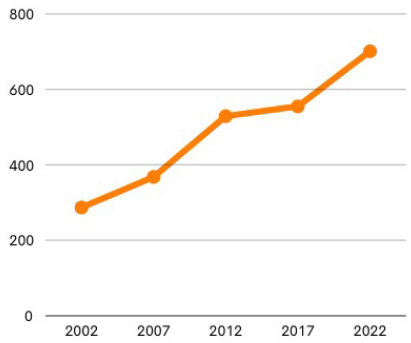
Agricultural Land Preservation -Preserving agricultural land is essential to maintaining the industry's foundation. Berks County has been a leader in land preservation, utilizing agricultural conservation easements to protect prime farmland. These efforts safeguard the food supply, protect environmental areas, and support local economies. Adapting these programs to address modern challenges, such as value-added agriculture, and evolving agricultural practices, is crucial for the sector's long-term sustainability. Ongoing support, coordination, and investment that maximizes the available financial incentives in land preservation initiatives will ensure that Berks County's agricultural heritage is protected for future generations and retains its status as a substantial economic driver in the county's economy.

The roadmap for moving Berks County agriculture through its next phase of growth highlights the importance of addressing workforce challenges, supporting market access, ensuring political support, facilitating the entry of new farmers and farm transitions, and investing in value-added agriculture. These efforts are essential to sustaining and growing the agricultural sector, and its vital role in Berks County's economy. Through strategic planning and targeted initiatives with actionable steps Berks County can continue to build and support a resilient and prosperous agricultural industry that benefits all of its residents.

[1] The USDA's Farmers to Families Food Box Program, which operated between 2020 and 2021, was part of a nationwide initiative to distribute fresh produce, dairy, and meat to families in need. Nationwide, more than 173 million boxes were delivered, with a total program expenditure of over $5 billion. Many local farmers and food pantries participated and were considered national models for success.

Berks County Agriculture Quick Facts

Farmgate Sales



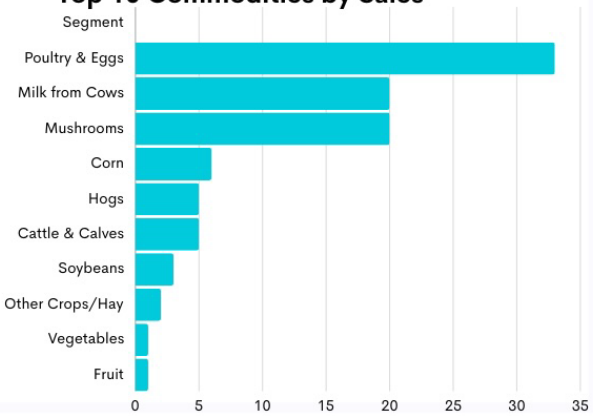
Market Size (million $)

2012
$ 529

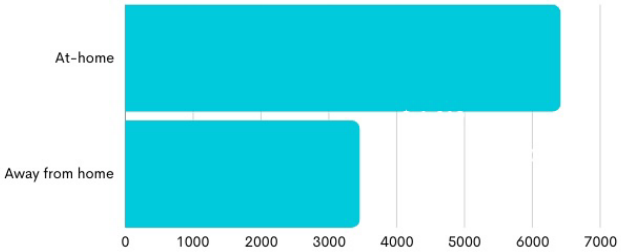
2017
$ 555

2022
$ 701

Top 10 Commodities by Sales

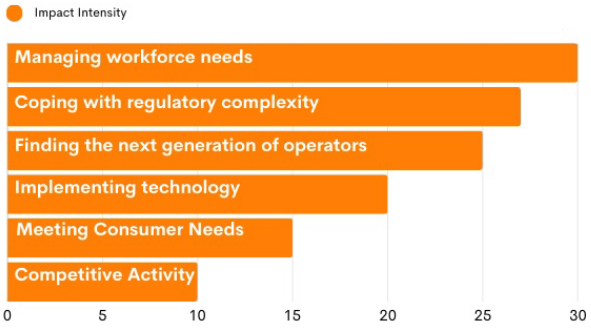


Average Per Household Food Spending



Households Spend 11.4% of their total budget on food and spend significantly more than the national average on food consumed at home.

Top Growth Opportunities



Customer Preferences

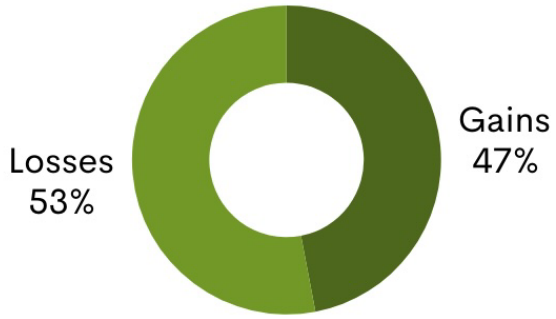
Prefer Local Products — 33.1%

Buy Based on Price — 26.5%

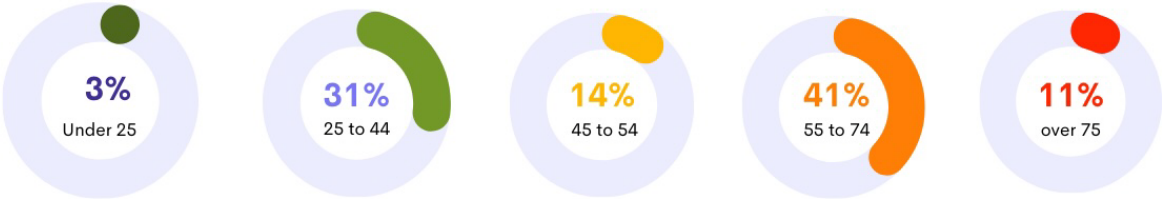
Shop with Environment in Mind — 17.7%

Shop for Quality over Price — 14.6%

Farms by 2022 Operating Profitability



Principal Farm Operator by Age Cohort



Goals for the Future

- **Promote agriculture and the agriculture industry as a vital piece of the Berks County economy.**
- **Expand local knowledge of agriculture practices and the importance of preservation.**
- **Increase focus and education on farm transitions.**
- **Foster agribusiness entrepreneurship.**
- **Encourage adoption of innovation and technology.**
- **Enhance marketing outreach to support expanding market opportunities and value-added products.**
- **Support financing options for infrastructure, market growth, and physical expansion and improvements.**
- **Leverage public-private partnerships to expand access to resources, expertise, and capabilities.**

BERKS COUNTY Department of AGRICULTURE

OUR AG ECONOMY STATS

POULTRY

Poultry production is the largest and fastest growing sector

$234 million

HORTICULTURE AND PRODUCE

Fruit, vegetable, (including mushroom) production

$150+ million

MILK/DAIRY

Dairy Farming remains a cornerstone of the Ag economy

$143 million

GRAIN AND HAY

Grain and hay utilize the largest amount of farmland

$70.6 million

AGRITOURISM

Agritourism is increasing as an alternate source of income and supports sales of new Ag products

$39 million

SWINE

Swine markets provide additional diversity to the agriculture ecosystem of Berks County

$34.6 million

CATTLE MARKET

Dairy is transistioning to beef with sales of

$33.1 million

GROWING BERKS FOCUS AREAS

- Land Use and Land Security
- Workforce and Career Pathways
- Entrepreneurship and Agri-Business Development
- Technology and the Farm
- Market Development
- Agriculture Finance

OUR GOALS

1
PROMOTE
agriculture and the agriculture industry as a vital piece of the Berks County economy.

2
EXPAND
local knowledge of agriculture practices and the importance of preservation.

3
INCREASE
business management education for farm transitions.

4
FOSTER
agribusiness entrepreneurship.

5
ENCOURAGE
adoption of innovation and technology.

6
ENHANCE
marketing outreach to support expanding market opportunities and value-added products.

7
SUPPORT
agriculture and the financing options for infrastructure, market growth, and physical expansion and improvements.

8
LEVERAGE
public-private partnerships to expand access to resources, expertise, and capabilities.

Section 1: Introduction

Berks County, Pennsylvania, is a region deeply rooted in agricultural tradition, with its fertile soil and diverse farming practices contributing significantly to the local economy and culture. Recognizing the vital role agriculture plays in the community, the Agricultural Economic Impact Study is part of the implementation of the county's IMAGINE Berks Strategic Economic Development Action Plan. The Department of Agriculture is leading this process to comprehensively address the challenges farmers face, explore growth opportunities, and ensure the long-term viability and success of agriculture in Berks County.

The study provides a detailed analysis of the economic contributions of agriculture in Berks County, highlighting its importance not only as a source of food and raw materials but also as a key driver of employment and economic stability. By examining factors such as farm income, employment rates, and the economic ripple effects of agricultural activities, the study clearly shows how deeply intertwined agriculture is with the county's overall economic health. This data-driven approach allows stakeholders to make informed decisions and prioritize initiatives with the most significant positive impact.

The strategy component of the study builds on the insights gained from the agricultural impact analysis to chart a forward-looking path for Berks County's agricultural sector. It outlines strategic priorities, such as supporting agriculture preservation, enhancing market access and connections for local farmers, and promoting successful farm transitions. The plan also emphasizes the importance of supporting next-generation farmers, recognizing that the future of agriculture depends on the next generation's ability to thrive in an evolving landscape.

As Berks County navigates the complexities of modern agriculture, this study provides a roadmap for ensuring that farming continues to be a cornerstone of the county's identity and prosperity.

Section 2: The Economic Impact of Agriculture in Berks County

Berks County has a large and complex agricultural industry that is deeply integrated into the larger economy through a robust network of upstream and downstream industries. This section summarizes the economic impact of the sector on the Berks County economy. Appendix A has additional data about agriculture, demographics, food purchasing, and industry clusters.

Overview of Economic Impacts

Agriculture heavily impacts Berks County both economically and from a land use perspective. It connects the county to a larger region of consumers and producers and contributes approximately $1 billion in economic activity to the county, making it one of Farm Progress's best places to farm. The improved rank has been dramatic: in 2012, Berks was ranked 1,305 out of all 3,143 US counties and moved up to 420 in 2017 and 319 in 2022.

Berks County Contribution Analysis

A multi-industry contribution analysis (MICA) was conducted for the agricultural production sector in Berks County, PA. A more detailed look at the data is available in Appendix B.

Economic Output Contribution

The agricultural sector supported $1 billion in the local economy. Per IMPLAN 2024 data, agriculture directly contributed $723 million in economic output and drove a total of $159.4 million in output in other industries. The contribution multiplier for the sector is 1.39. In other words, for every $1 of economic output, an additional $0.39 is generated in the local economy. There is a significant indication of a robust impact that empirical data have not captured, and that the contribution multiplier is closer to 2.0, which would result in a direct contribution of $1.45 billion.

Employment Contribution

Agriculture supported an annual average of about 4,596 full-time/part-time jobs (not Full-Time Equivalent (FTEs). The agricultural sector directly employs about 2,923 workers. This means the employment contribution multiplier is 1.57, indicating that every agricultural sector job supports a part-time job in another industry within the region. These direct employees also spend about $123.8 million in the local economy. It should be noted that sole proprietors are not included in this employment number but account for an additional 3,489 individuals who work in the industry as owners-operators.

Labor Income Contribution

The industry supported about $245 million in labor income. The following is a breakdown of where the income is generated.

- About $53 million is employee compensation.
- About $96 million is proprietor income.
- About $138 million is other property income.

Economic Indicators by Impact (2024 $)

Impact	Employment	Labor Income	Value Added[2]	Output
Direct	2,922.57	$148,694,321	$307,200,498	$722,908,698
Indirect	932.69	$55,002,715	$90,543,888	$159,414,226
Induced	740.40	$41,345,730	$73,252,090	$123,789,763
Total	**4,595.66**	**$245,042,766**	**$470,996,476**	**$1,006,112,687**

Source: IMPLAN

Berks Agriculture Region Contribution Analysis

A MICA was also conducted for the agricultural production sector in the Berks Region, which includes Berks County and its adjacent counties: Lehigh, Montgomery, Chester, Lancaster, Lebanon, and Schuylkill. The findings are summarized below, with additional detail in Appendix C.

Economic Output Contribution

The agricultural sector supported $7.1 billion in the region. Agriculture directly contributed $4.6 billion in economic output and drives a total of $1.6 billion in output in other industries. The contribution multiplier for the sector is 1.54. In other words, for every $1 of economic output, an additional $0.54 is generated in the region.

[2] 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).

Regional Employment Contribution

Agriculture supported an annual average of about 31,622 full-time/part-time jobs (not FTEs). The agricultural sector directly employs about 19,844 workers. This means the employment contribution multiplier is 1.59, indicating that every agricultural sector job supports a part-time job in another industry within the region. These employees also spend about $875.6 million in the local economy.

Regional Labor Income Contribution

The industry supported about $1.6 billion in labor income. The following is a breakdown of where the income is generated.

- About $976.9 million is employee compensation.
- About $632.6 million is proprietor income.

The other components include:

- About $1.2 billion is other property income.
- About $268.7 million is taxes on production and imports.

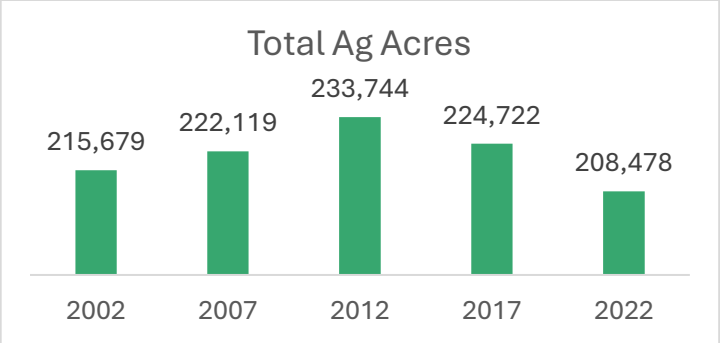
Regional Economic Indicators by Impact (2024 $)

Impact	Employment	Labor Income	Value Added[3]	Output
Direct	19,844	$829,603,969	$1,786,952,869	$4,585,775,959
Indirect	7,015	$470,779,337	$777,759,415	$1,618,554,606
Induced	4,761	$309,144,769	$529,553,347	$875,561,694
Total	**31,620**	**$1,609,528,075**	**$3,094,265,631**	**$7,079,892,259**

Source: IMPLAN

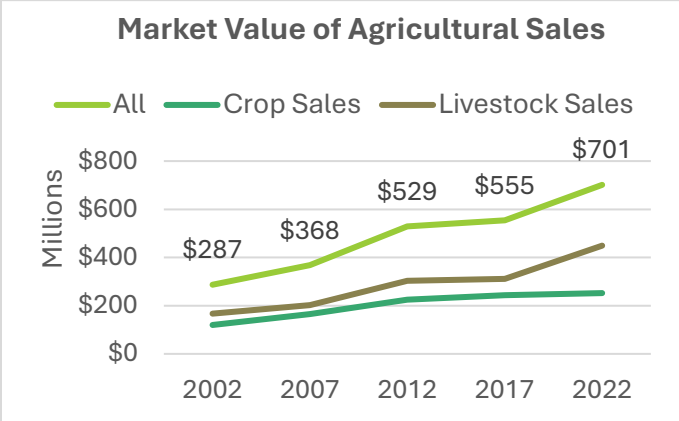
[3] Value Added is a large portion of Total Output. It includes Labor Income (LI), Proprietor Income (PI), Employee Compensation (EC), Other Property Income (OPI), and Taxes on Production and Imports (TOPI).

Overall Trends in Berks County Agriculture



Source: USDA NASS, Census of Agriculture, 2022

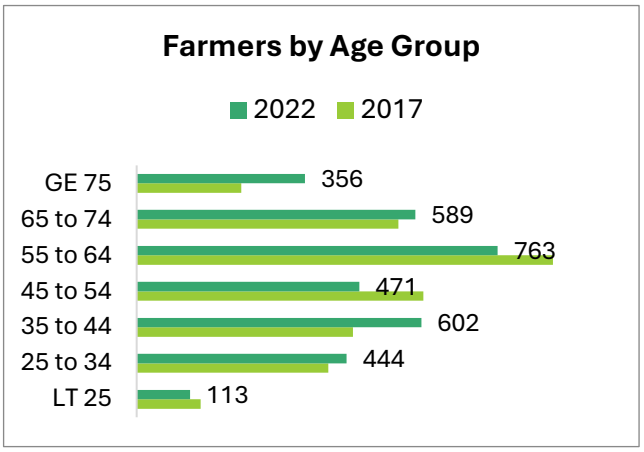
As noted above, Berks County is an established agricultural county in which the sector is an important economic driver. However, since 2017, the number of farms has declined by two percent, and farmland has declined by seven percent. The downward trend has been consistent since 2012. It should be noted that Berks County has successfully protected significant acreage with permanent agricultural conservation easements (79,151 acres) and has additional acreage enrolled in agricultural security areas and covered by ag zoning.



Source: USDA NASS, Census of Agriculture, 2022

While farm and farmland numbers have decreased since 2002, the market value of agricultural sales has steadily increased. Both crop and livestock sales have seen gains. Much of this is driven by growth in the poultry and egg sectors and an increase in the value of milk sales. Broiler production grew 89.4 percent between 2017 and 2022. Produce sales, which tend to have a higher value per acre, have also increased by about 9 percent.

As in many other economic sectors, owners of farms are aging, and it is ever more difficult and expensive to hire reliable employees. Berks County has an advantage over other counties in that the number of farmers is increasing. It also has a growing number of farmers under the age of 45. Additionally, because the county is affordable relative to other areas of the state, owners and most experienced ag laborers can earn enough to support the cost of living.



Source: USDA NASS, Census of Agriculture, 2022

Subsectors

Agriculture encompasses a great number of activities. Below is a description of the sectors that impact Berks County most significantly. The data is from the USDA National Agricultural Statistics Service Census of Agriculture, 2022.

Horticulture and Indoor Production

Horticulture sales from Berks County include mushroom production, floriculture, nursery, and greenhouse tomato production. The county's sector represents 14 percent of all horticulture sales in Pennsylvania. The mushroom industry dominates the sector with sales of $141.9 million. However, other significant and growing sectors, such as greenhouse tomato production, doubled its production area to 257,7006 SF and contributed to a doubling of greenhouse vegetable sales to $1.2 million in 2022. Other significant horticultural activities, such as bedding plant and cut-flower production, are also on the rise.

Produce

Outdoor-grown produce is also a vital part of the Berks County agricultural economy. Approximately 2,073 acres of farmland are dedicated to growing vegetables, fruits, melons, and berries worth more than $17 million. Top crops include sweet corn, pumpkins, tomatoes, apples, peaches, and grapes.

Mushrooms

Berks County is second in mushroom production in Pennsylvania and the US. Mushrooms represent 93 percent of horticulture sales in the county. Production area increased 58 percent since 2017 to more than 5.7 million SF.

Vineyards and Wineries

Vineyards are mostly small, family-owned, and operated, but the sector is growing. There has been a 33 percent increase in total acreage and a 71 percent increase in the number of farms since 2017. There are currently 24 vineyards and 12 wineries with tasting rooms. Berks County ranks sixth in the state in this sector.

Grain and Oilseed Production

Grain and oilseed production utilizes significant farmland, 147,856 acres, in the county, though the number has decreased by 13 percent since 2017. Even with that decrease, the sales increased 36 percent. As a feed source for livestock operations, changes in the livestock sector affect grain and oilseed production in terms of the type of crop grown and the number of acres. If changes result in decreased demand, it may enable a transition to different crops, such as industrial hemp.

Dairy

The county's dairies produced about 521 million pounds of milk worth $143 million in milk sales in 2022. The number of farms is declining, but cow numbers are growing, increasing the average herd size from 77 in 2007 to 132 in 2022. Dairy farms remain a key sector in the county.

Cattle and Calves

Cattle sales contributed $33.1 million in 2022, an increase of 2.6 percent since 2017. This rise comes even though the number of cattle farms has decreased 17 percent, and cattle inventory is down 27 percent.

Poultry

Poultry is the number one sector by sales value in Berks County. Sales of poultry and eggs were $234 million in 2022, an increase of 90.3 percent since 2017. The increase came from a significant

increase in broiler house growth and the number of turkeys. Broiler numbers grew 89.4 percent between 2017 and 2022, and turkey inventory grew 39 percent. These increases offset the decrease in egg production, which has declined 26 percent since 2017.

Agritourism

While agritourism is not a typical production sector, it is vital to the ongoing survival of some farm operations. It provides a key conduit for ag operations to reach consumers for both sales and education. Berks County's location enables significant consumer access to support growth in agritourism operations. Since 2017, the number of farms reporting agritourism income went from 18 to 38, an increase of 111.1 percent, continuing growth that started in 2012.

Adding Value

Value-added agriculture plays a significant role in Berks County, PA, contributing to the economic strength and diversity of the region's agricultural sector. The county is particularly noted for having more than 250 on-farm retail outlets selling more than $7.5 million in value. Many of these markets produce or sell the $4.9 million in value-added products recorded in the 2022 Census of Agriculture, which include a wide range of goods such as dairy products, specialty meats, artisanal cheeses, and various processed foods. This approach to agriculture enhances the profitability of farming operations by creating products with higher market value and supports the local economy by fostering small businesses and providing job opportunities.

The growing interest in local, sustainable, and specialty foods has further driven the expansion of wholesale sales of agriculture products, including the expansion of auction sales in Berks County. Between 2017 and 2022, this type of wholesale activity grew 134 percent.

Additionally, value-added agriculture in Berks County supports agritourism, drawing visitors to the region's farms and wineries and enhancing the overall tourism industry. The development of products such as wine, specialty crops, and organic goods has been instrumental in creating a unique identity for Berks County's agricultural sector, distinguishing it from other regions in Pennsylvania. This focus on value-added agriculture helps farmers mitigate risks associated with commodity price fluctuations and promotes sustainability.

The Importance of Mushroom Production in the Region

The Pennsylvania mushroom industry is the largest in the United States, with Berks and Chester Counties accounting for nearly 80% of the total output. According to a 2018 report by Econsult Solutions, Inc., commissioned by the American Mushroom Institute, Pennsylvania's mushroom industry had a direct economic output of $764 million. This activity generated an additional $322 million in indirect and induced spending, culminating in a total economic impact of approximately $1.1 billion within the state. The industry supported around 8,600 jobs, contributing $287 million in employee compensation.

Beyond agriculture, the mushroom industry intersects with various non-agricultural sectors that are important to Berks County. For instance, mushrooms are integral to food processing industries, featuring prominently in products like sauces, soups, and plant-based meat alternatives. The health benefits of mushrooms have spurred investments in nutraceuticals and pharmaceuticals, which utilize them in dietary supplements and immune-boosting products. These products gained favor with consumers during COVID-19, adding to mushroom demand. Additionally, innovations in sustainable packaging and construction materials have emerged, with mycelium-based products offering eco-friendly alternatives to traditional materials.

Chester County is the largest mushroom producer in the United States. The county alone accounted for 67% of the state's production and 37% of total U.S. production as of 2022. This dominance underscores the industry's importance to both the state and national economies. The mushroom sector contributes through direct sales and supports ancillary businesses, including suppliers and service providers, amplifying its economic footprint.

Berks County has the second-largest mushroom production in both the nation and the state. It is also home to one of the world's largest mushroom producers, Giorgio Fresh Mushroom. The county is home to several mushroom farms, many of which are family-owned and have been operating for generations. It is also home to one of the world's largest mushroom production facilities, Giorgi Mushroom Company. Collectively, these farms contribute over $140 million in output to the local economy, with many of these dollars recirculating to other agricultural sectors such as dairy, poultry, and field crop farming that supply critical inputs.

Given the size and importance of the Berks mushroom industry, its continued success is vital to the local economy as well as the statewide industry. Shock analysis run by ACDS, LLC in 2024 highlights the widespread economic impact of the total loss of the Berks mushroom industry. This analysis indicates a decrease in total economic local output of $202,907,851; a loss of 1,228 jobs; a reduction of $106,127,364 in labor income; a loss of $132,362,272 in value-added activities, including rents, proprietor income, and intermediate input purchases; and decline in total annual tax revenue of $31,393,566.

Section 3: Competitive Assessment

Introduction

The competitive assessment briefly describes key conditions/elements affecting the ultimate success of the agricultural industry in the county and region. These conditions are then assessed as strengths, weaknesses, or mixed factors in terms of their current and potential contribution to the economic health of the industry as follows:

- **Strengths** are those factors that contribute to the growth and stability of the agricultural economy, as measured by profit-making opportunities at the farm level and public benefits such as tax base enhancement, job creation, and quality of life improvement at the community level.
- **Mixed results** are those factors that significantly offset positive and negative qualities or may be indeterminate in their potential impact due to their current transitional nature.
- **Weaknesses** are those factors that present challenges to the development of the agricultural industry or act as impediments to expanding the public benefits of agriculture.

These conditions represent a snapshot of findings uncovered through one-on-one interviews, focus groups, and economic and marketing data. Following is a summary list of these findings:

Strengths

1. Industry clusters
2. Agricultural, food, and beverage entrepreneurs
3. Market demand
4. Political support
5. New and beginning farmers
6. Investments in value-added agriculture
7. Robust agricultural land preservation
8. Agricultural diversity
9. Soils and climate

Mixed

1. Definition of agriculture
2. Knowledge transfer
3. Industry collaboration
4. Regional agriculture supply chain
5. Regional development patterns

Weakness

1. Agricultural finance
2. Regulatory framework and enforcement actions
3. Succession and transition planning
4. Workforce skills and availability

Strengths

Industry Clusters

The continuity and health of agriculture in Berks County is correlated to a strong industrial base designed to support its activities. With nearly $800 million in farm gate sales, 77 percent are derived from just three sectors: poultry, dairy, and greenhouse (See Appendix B). Berks can anchor a robust value chain that is further bolstered by a regional agricultural industry that generates nearly $4.6 billion in annual direct output (See Appendix C) and over $7 billion in total output.

Given the size and scale of agriculture within the county and region, it is unsurprising that there is significant vertical and horizontal support for agriculture, food, and fiber. This support is perhaps nowhere more evident than in the tax contributions attributable to agriculture as determined by the strength of these relationships, whereby agriculture induces nearly double its tax contribution through its backward linkages.

Using a contribution analysis model, IMPLAN demonstrates that 10% of agriculture's economic activity is returned to the community through taxes and fees. This excludes the underlying value of the land. Of this, approximately $3.2 million accrued to the county, $26.1 million to the commonwealth, and $55.6 million to the federal government, annually. (See Appendix D for a full analysis of the on-farm retail industry contribution.)

Imputed Annual Tax Impact

Impact	County	State	Federal	Total
Direct	$1,664,300	$14,894,542	$33,665,231	$59,966,209
Indirect	$1,002,920	$6,950,909	$12,377,989	$25,893,404
Induced	$552,714	$4,249,434	$9,553,760	$17,481,530
Total	$3,219,934	$26,094,885	$55,596,980	$103,341,143

Source: IMPLAN, 2023

Yet, even with the scale and scope of these pillars of the Agriculture Industry cluster, the industry faces numerous challenges that could make this strength a weakness if conditions deteriorate in any of the issues highlighted below.

1. **Enhanced Productivity**: Clusters are changing as poultry replaces dairy as the region's top industry. Similarly, specialty agriculture and craft foods and beverages are increasingly important and may require new support structures.
2. **Innovation and R&D**: Farm innovation research and extension needs—such as developing new farmer training for the adoption of automation, data management, technology applications—are changing as labor shortages and production efficiency become more acute. This situation is complicated by a growing bioeconomy nationally, requiring more agricultural raw material. For a definition and more detail about the bioeconomy see Appendix E.
3. **Supply Chain Efficiency**: Clusters are changing and adapting to new market realities, resulting in the manufacturing and distribution sectors losing their direct connection to agriculture in sectors such as meat and dairy. Fortunately, the growing agricultural region

supports many diverse supply chains, such as poultry, further strengthening supply chain relationships.

4. **Access to Skilled Labor**: Labor is short for all industries, causing a wage, skill, and availability imbalance.
5. **Market Access**: Distributors and retailers are requiring farmers to provide more downstream marketing services in order to access retail opportunities. Examples of these services include inventory management, retail sales floor operations planning, and product stocking.
6. **Economic Growth**: Economic growth is challenged by the rapidly rising business costs.
7. **Risk Management**: Risk management for non-commodity crops is a challenge that came up in interviews as both a market and regulatory risk. Market risk comes from industry consolidation and regulatory risk from an uncertain policy environment.
8. **Government and Institutional Support**: While government support is generally strong, serious issues, such as land development requirements and zoning, can negatively affect investment and growth in various agricultural segments.

Summary

Much of the reason for the success of agriculture in Berks County is the specialization of operations focused on producing food, fiber, and agribusiness. Berks County farmers work within one of the strongest agricultural clusters in the Eastern United States, with nearby access to nearly forty percent of the United States population. This proximity enables efficiency, cost management, resilience, specialization, risk management, and supply chain optimization.

Entrepreneurship

Berks County has historically been a place of significant agricultural ingenuity and product development. Access to large consumer and industrial markets for agricultural products drives much of this innovation, enhanced by access to one of the most diverse food markets in the United States, with highly varied tastes for food, fiber, and beverage products.

Demographics Within Drive Times from Reading

	60-minute drive	180-minute drive	300-minute drive
Households	935,227	13,626,331	21,917,721
Food away from home	$4,030,314,786	$59,491,885,582	$94,501,592,389
Food at Home	$7,411,867,974	$109,857,945,193	$174,813,333,118
Bakery & Cereal	$965,500,078	$14,329,510,377	$22,793,454,808
Meats, Poultry, Seafood	$1,599,192,437	$23,879,037,207	$37,926,244,796
Dairy Products	$719,414,563	$10,690,627,418	$17,013,067,581
Fruits & Veggies	$1,466,334,323	$22,178,114,243	$35,059,290,179
Snacks and Others	$2,661,426,573	$38,780,655,948	$62,021,275,754
Diversity Index	54.3	75.2	71.3

Source: ESRI Business Analyst Online, 2024

Developing products that are in demand by these diverse communities is currently a strength of Berks County producers at the smallest level of production. This has created nodes of specialized market knowledge that have not been translated across product lines. For example, farmers specializing in fruits and vegetables for Slavic markets could also consider developing complementary products in meat and dairy. This indicates that there may be significant opportunities to build on existing sales while increasing industry contributions in vertical product developments.

For this type of development to continue, improvements in access to market information, outreach, and product development are essential. Because each opportunity is generally centered on one or two farm operations, the industry as a whole has not responded with the development of supportive infrastructure such as product development labs. In addition, the regulatory environment must allow entrepreneurs to innovate and be agile, encourage them to identify markets, and build new products or processes. Integration and cooperation are necessary to build industry relations across product development in various subsectors.

Other regional agricultural strategic and development projects, such as the Chester County Agricultural Economic Development Strategic Plan, The Economy League of Philadelphia Food Hub Project, and the Chester-Berks Food Hub Feasibility Study, have proposed a value-added processing center to support cluster growth and local farm revenue. Proposed value-added activities coming from these studies include fruit and vegetable-related processing such as post-harvest crop conditioning, packing, repacking, sorting, cutting, chopping, modified atmosphere packaging, and custom processing for restaurants and institutions, as well as meat processing and butchering.

If there is further consideration of building one within the county to serve the larger region, gaining input from local entrepreneurs and buying groups in the Philadelphia, New York, and Baltimore areas will be vital. Both large and small farms can benefit from a range of facility and non-facility-based services demanded by sophisticated buyers such as crop conditioning, aggregation, packing, repacking, portioning, and supply chain management. Berks County can help support this from an infrastructure perspective, but it will need regional collaborations to bring such a facility to fruition.

Summary

Building skills and improving collaboration among small businesses and entrepreneurs is essential for agriculture's long-term success in Berks County. A change in marketing support infrastructure and the regulatory environment may be necessary to encourage them to make significant investments in innovation or new market development and to attract and retain them in the county. Agricultural operations will require a level of flexibility that allows for new ways of doing business without significant restrictions or obstacles.

In addition, entrepreneurs are less likely to invest in an uncertain climate. Therefore, Berks County must include in the next iterations of Imagine Berks and the county's Comprehensive Plan data and market information of the economic contribution of the industry (direct and indirect contribution) and the commitment to policies, regulations, funding and education that support the Ag Industry.

Market Demand

As identified in the entrepreneurship section above, farmers, agribusinesses, processors, and food and beverage entrepreneurs can access a massive market within a five-hour drive. This market alone consumes $269.3 billion in foodstuff annually. The most significant component of these purchases is made for consumption at home through well-established retail structures comprising mass merchandisers, supermarkets, grocery stores, specialty markets, farmers markets, online providers, restaurants, and meal kit manufacturers.

Members of nearly every supply chain segment indicated that information gaps, communication challenges, and transaction inefficiencies present significant hurdles to increasing business-to-business (B2B) and business-to-consumer (B2C) activity when seeking to maximize access to these markets. The lack of information flow caused by these issues was particularly acute for small and mid-sized businesses throughout the supply chain. Interviews within the supply indicated the following.

Supply Chain Segment	Needs Summary
Farmers	• Farmers are often unaware of the opportunities offered by large institutional buyers. • Transportation is often inefficient and difficult to plan on a collaborative basis with other perishable distributors. • Food safety standards, including traceability standards, blockchain, and recall requirements are difficult to implement and are not cost-effective for small farms. • Transaction settlement systems are costly to manage and are often not linked to inventory management programs.
Auction Markets, Logistics Providers & Distributors	• Driver shortages, less-than-truckload (LTL) shipments, and time-in-service restrictions make offering reliable and profitable routes difficult. • Aggregating shipments that meet retailer demands and organizing local cross-docking opportunities are beyond the technical reach of most small and mid-sized operators, as are the increasing requirements for traceability and technology integration. • The lack of a co-op that brings together products and markets them is especially needed for small producers.
Wholesalers	• Managing connections between a large number of small farmers and retailers is a challenge. • Wholesalers are limited by personnel, technology, and time, and handling multiple small vendor accounts with the required food safety audit trail and recall system information is not cost-effective, limiting local options. LTL and empty backhaul make logistics a cost center. • Sales to large accounts require a high level of supply chain visibility, which small wholesalers may not be able to comply with.
Manufacturers	• Food processing companies face challenges in procuring local products largely because of the specialized nature of their inputs and the costs of local products versus globally sourced products. • Additional issues include food safety, price stability, supply chain transparency, logistics efficiency, and recall efficiency. Simplifying any of these functions may open additional purchasing volume for local products.
Institutions & Food Service Contractors	• Institutional food service focuses on risk management and cost control as primary controls in procurement systems. • Food safety programming such as GAP and Primus are difficult for small farmers to afford and maintain. • Liability and other insurances can limit sales to institutions.
Retailers	• Retailers generally fall into two categories. The first group is the large regional and national chains operating within fully integrated supply chains that require close coordination of store-level electronic data and full compliance with blockchain,

Supply Chain Segment	Needs Summary
	logistics systems planning, and electronic billing. The second group is small retail operators that have little time to source from multiple vendors and are often required to provide their own logistics solutions because of their lower volume of purchases. • These users are often interested in local foods but find it difficult to make their own discovery. At the farm level, there are issues with inventory selection and management based on local regulations.
Restaurants	• These food system participants frequently purchase small, mixed lots of products that are inefficient to deliver and have a strong interest in call-in and electronic ordering systems. They have little time to call more than a handful of potential suppliers, meaning it is difficult for them to source local products consistently. • Labor shortages are an additional challenge for restaurant owners. They would like to coordinate with farmers and distributors to purchase ready-to-prepare items to relieve some of this pressure in their kitchens.
Consumers	• Consumers increasingly demand transparency and expect the food system to be able to deliver validated supply chain information such as source confirmation. • For ethnic and culture-based buyers, finding desired products is a challenge. • For the post-COVID food shopper, easier access to online shopping opportunities is also important.

Developing strategies to assist food entrepreneurs and agribusinesses with the above issues can effectively help them meet the demands of a large and growing market or retain customers by building a strong and loyal customer base for Berks County products.

Summary

There are many opportunities for market development based on unique target populations from within a short driving distance. Data supplied and analyzed by the county and educational institutions may help local producers determine new markets and marketing strategies.

New market demand enables continued growth, and knowledge of the demand empowers the food and beverage sectors to adapt their product lines to consumer preferences. In addition, producers who sell directly to consumers can adjust prices as changes in the supply chain occur.

Political Support

Farmers in Berks County face a patchwork of municipal rulemaking and enforcement that creates unbalanced treatment of farmers across the county. As described by farmers, the key issues that can be affected by the public sector include the following:

- **Infrastructure Development:**
    - **Transportation and logistics**: In conjunction with the Regional Area Transportation Study (RATS), municipal support can lead to improved infrastructure, such as roadways with wider shoulders, which are essential for transporting agricultural products to markets in slow-moving or large equipment.
    - **Protection of water supply**: Understanding how alternative development can influence the quality of ground and surface water essential for human and animal consumption.
- **Regulation and Standards**
    - **Food safety and quality standards**: Implementing third-party and Food Systems Modernization Act (FSMA) food safety standards has challenged many farms and become a roadblock to market entry. On-farm retailing has been a good counterbalance to this trend.
    - **Environmental regulations**: Berks farmers are generally free of the more restrictive policies found in the Chesapeake Bay watershed but do have concerns about uneven application of other environmental, pesticide, marketing, and land use regulations at the state and local levels.
- **Education and Training**
    - **Capacity building**: Industry finds that political support for building agricultural industrial capacity is generally strong. Education and training for both farmers and workers on best practices, new technologies, and sustainable farming methods are robust. Having a greater focus on agriculturally specific technical skills would be beneficial.
    - **Youth engagement**: Initiatives and activities to encourage young people to pursue careers in agriculture are well regarded and generally supported by the County. Farmers would like to formalize these activities to ensure the sector's long-term viability.
- **Land Policies and Decision-making**
    - **Land rights**: Clear and secure land control and land use policies are needed to ensure farmers have the legal right to use and invest in their land consistent with modern agriculture's needs. Many municipalities have adopted such policies, but there needs to be more uniformity, especially with complementary land uses, reviews, and updates to agriculture zoning and related ordinances.
    - **Land preservation**: County-provided resources for land preservation have led the county to be a leader in protecting high-value lands. The program has also effectively supported farm growth and new/beginning farmer land acquisition. It would be difficult for the poultry industry to expand without these large, consolidated blocks of agricultural land, given the acreage requirements for feed supply and nutrient management, making this program essential to future

agriculture. Agricultural land preservation changes to support alternative enterprises and new farmer land purchases were highly demanded in interviews.

- **Food Security and Public Health**
    - **Nutritional programs**: Federal and state support for improved food access and nutrition outcomes has been important for ensuring food security and public health while creating opportunities for farmers to benefit from program spending directly. COVID-era programs such as the local food box project that linked local farm products to local populations of need had positive economic returns for farms and there is strong interest in seeing a return of such programs.
    - **Food system resiliency**: While this is not currently a formal element of the local food system, there is a new focus and resources for urban agriculture in the county.
- **Research and Development**
    - **Funding for innovation**: Farmers in many industries acknowledged that state and federal funding for innovation and technology adoption is helpful but that the specific needs of local farms require a new approach to funding the types of market and production research that lead to increased market access, improved farming techniques, opening opportunities in bioeconomy, and proper adaptation of advanced technologies.
    - **Extension and government services**: Supported extension, soil conservation, and NRCS program services provide farmers with the latest research findings, practical advice, and cost-share support to improve productivity and sustainability. These services are critical to all farms in the county but are especially important to small and midsized farms and need to be accessible in person in addition to their online presence.

At the county level, Berks County has done much good to normalize and harmonize land use, environmental codes, and enforcement. The process must continue adapting to changes in agriculture and the local economy. The county should adopt the comprehensive policy development approach to consider a diverse, modern agricultural industry, understanding it as an economic driver in addition to its place-making and natural resource values. The work of the Department of Agriculture is frequently cited as having a significant and positive influence on economic outcomes, even within the plain sect communities.

Summary

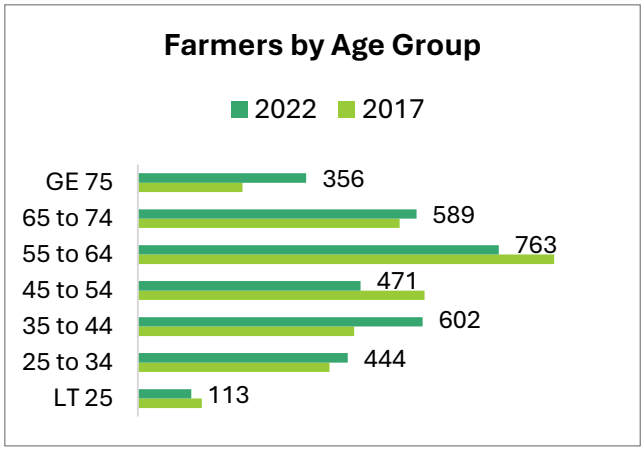
The creation of the county's Department of Agriculture demonstrated Berk's ongoing commitment to supporting the breadth and diversity of the agricultural industry. Subject matter expertise from the Department of Agriculture and information in this study can help inform elected and municipal officials about what and how existing and proposed policies impact working land and the industry's economic contribution and sustainability.

New and Beginning Farmers

Berks County is a place where new and beginning farmers are experiencing success. The large and thriving Mennonite community is adding to the numbers and diversity of farm operations, but others

outside the plain sect are also focused on new market opportunities. Proximity to three of the nation's largest metropolitan markets has also put Berks County in a strong position to attract agricultural entrepreneurs focused on creating unique products for high-value specialty and urban markets. High school agricultural and vocational programs are contributing to a new class of food, farming, and beverage industry entrepreneurs with an encouraging focus on future opportunities.

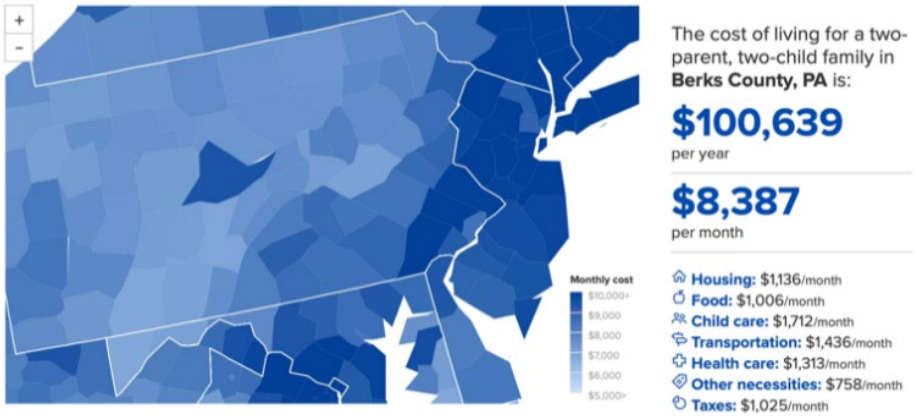
Despite having a new and emerging class of owner-operators, many assets are in the hands of older farmers. These owners are often less likely to take risks and use their assets to anchor retirement activities. Since corporate farm ownership is still rare, older farmers hold many of the assets, as presented above, so it may be difficult to transition to the next generation. Even if there is agreement among farm families or partners, unplanned transfers can be influenced as much by tax and estate law as by the owner's intent.



Source: USDA NASS, Census of Agriculture, 2022

Beyond the disposition of land by tenure, the cost of land and access to finance is another significant barrier to entry. Because the average age of new farmers in the region is close to 45, it will be important to focus on developing a pipeline of new producers by working on youth engagement and relevant skill development and providing an environment that encourages second-career operations. Ensuring financing and entrepreneurial skills development for younger farmers will be critical for their future business success.

The cost of living is another local contributing factor to the success of young and beginning farmers. It is significantly more expensive to support a family budget in Berks than in central and western Pennsylvania. As long as market access and entrepreneurism are strong along with access to capital, profitability will help to manage this fact.



Source: Economic Policy Institute Family Budget Calculator, January 2024. Data are in 2023 dollars. Download the full dataset.

Summary

New and beginning farmers are necessary for the agricultural industry to continue in Berks County. Whether they are young entrants starting their first job or second-career entrepreneurs, resources,

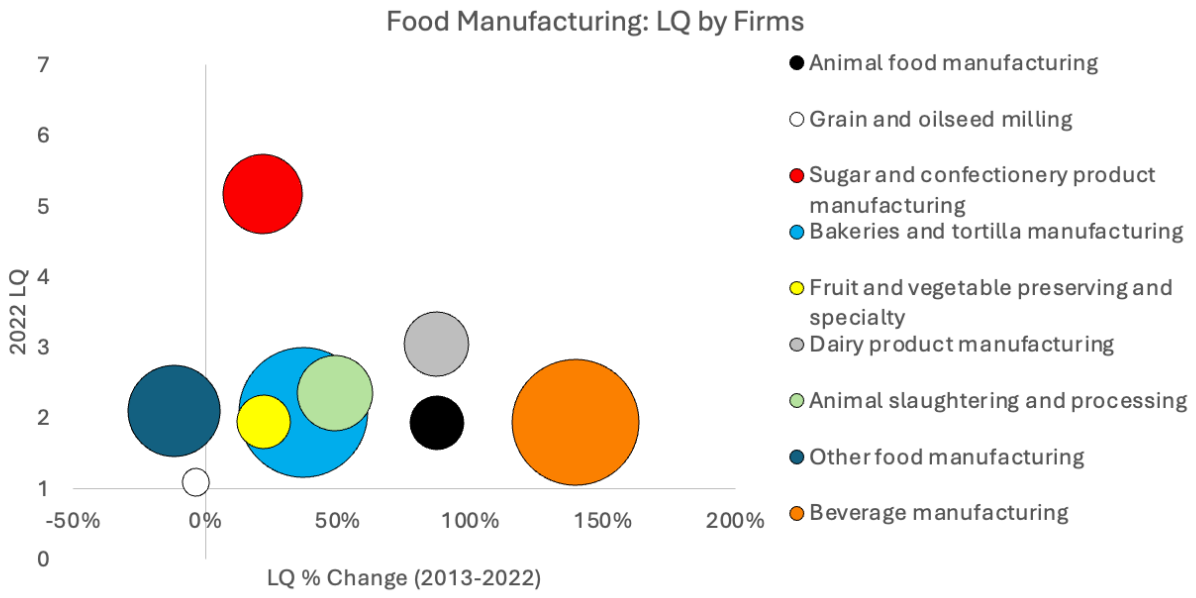
and assistance are essential for success. Supporting a faster transition of assets while there is interest from the next generation of farmers is important for the continuation of the industry.

Investment in Value-Added Agriculture

Value-added agriculture is changing the form and function of agricultural products to make them more valuable to the end consumer. This essential function in the food supply chain often requires significant capital investment and risk to get started. For a definition of value-added agriculture and examples of applications, see Appendix F.

Over the last several decades, Berks County has been a target for investment in value-added agriculture which has made it headquarters for several major farm-based food brands, including Giorgi Mushroom / Giorgio Foods, Bell & Evans Poultry, and Joe Jurgielewicz & Son as well as nationally recognized private research in production agriculture in organizations such as the Rodale Institute. The new investment created by these larger operations has been complemented by the development of smaller retail and processing businesses specifically dedicated to serving the region's robust consumer demand. In fact, Berks, like much of the region, has become a recognized center for on-farm and direct market activity.

Across farming sectors, there is significant interest in seeing a higher level of local development of processing, handling, and retailing activity aligned with the production sector. Organic growth of local businesses is the preferred form of growth for value-added agriculture to ensure that connections to local farms remain strong.



LQ: Firms							
NAICS	Industry	2013	2022	% Change	2013	2022	% Change
3111	Animal food manufacturing	1.03	1.93	87%	2	4	100%
3112	Grain and oilseed milling	1.13	1.09	-4%	1	1	0%
3113	Sugar and confectionery product manufacturing	4.26	5.18	22%	8	9	13%
3114	Fruit and vegetable preserving and specialty	1.6	1.95	22%	3	4	33%
3115	Dairy product manufacturing	1.63	3.05	87%	3	6	100%
3116	Animal slaughtering and processing	1.58	2.35	49%	6	8	33%
3117	Seafood product preparation and packaging						
3118	Bakeries and tortilla manufacturing	1.52	2.08	37%	18	24	33%
3119	Other food manufacturing	2.38	2.1	-12%	9	12	33%
3121	Beverage manufacturing	0.81	1.94	140%	5	23	360%
3122	Tobacco manufacturing						

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, March 2024

Berks has a strong processing and distribution infrastructure, existing workforce skills, and infrastructure. It is thus well suited to this type of development, especially in the food and beverage sectors. These sectors are already attracting investment and have specializations, as evidenced by high location coefficients in the adjoining chart.

At the entrepreneurial level, there is a strong interest in shared assets. Farmers, retailers, wholesalers, restaurants, and value-added processors in both the beverage and food sectors could benefit from a value-added processing facility that accommodates the region. Having a local facility would increase efficiency for producers already processing and offer those doing product development a place for trial and error. Such a facility could be the difference between success and failure, and if designed correctly, it could significantly increase the integration of agricultural sectors.

Summary

To encourage increased investment in value-added agriculture, the county has a local infrastructure fund that could support new infrastructure. Clarifying the working definitions of agriculture to be more inclusive of the full value-added activities would positively impact local farms. Berks County should assess what it can do to benefit from additional state and federal resources to enhance this investment.

Agricultural Land Preservation

In recent years, the Berks County Agricultural Land Preservation Program has continued to recognize the challenges associated with present day farming. And seeks to address changes in agricultural practices and shifting economic conditions. The Department of Agriculture uses the preservation program to access farmers to provide education on innovative land conservation and farm viability approaches. Emphasis has been placed on supporting sustainable farming practices, enhancing the economic resilience of preserved farms, and integrating farmland preservation with broader land-use planning initiatives.

Today, the Berks County Farmland Preservation Program stands as a model of successful agricultural conservation, having preserved over 79,000 thousand acres of farmland and securing the future of numerous family farms. It exemplifies the county's commitment to maintaining its agricultural heritage while balancing the demands of growth and development. This is most evident

in the robust increase in agricultural land values with the average per acre value of land now $5,740 per acre and highly productive land now $13,215 per acre.[4] The program's ongoing efforts ensure that Berks County's fertile lands remain a vital part of the community, contributing to its economic prosperity, environmental health, and cultural identity for generations to come.

Berks County Agricultural Land Preservation Program

Pennsylvania was one of the first states in the nation to embrace farmland preservation, and it has served as a laboratory for the use of creative working lands conservation ever since. The Berks County Agricultural Land Preservation Program has its roots in the late 1980s, a period marked by growing concerns over the rapid loss of agricultural land to urban and suburban development. This trend threatened the county's rich agricultural heritage and the economic stability that farming provided to the region. Recognizing the need to protect its valuable farmland, Berks County established its Farmland Preservation Program in 1989, becoming one of the early adopters of such initiatives in Pennsylvania.

The program focuses on purchasing agricultural conservation easements from willing landowners. These easements restrict non-agricultural development on the land, ensuring that it remains available for farming in perpetuity. The first easements were purchased in 1990, setting a precedent for future preservation efforts. The program was designed to be voluntary, providing financial compensation to farmers for the development rights they forgo, thereby making it an attractive option for those committed to maintaining their land for agricultural use.

Throughout the 1990s and 2000s, the Berks County Agricultural Land Preservation Program gained momentum, aided by increased funding and growing public support. State funding through Pennsylvania's Agricultural Conservation Easement Purchase Program, established in 1988, played a crucial role in expanding the county's efforts. This period saw a significant increase in the number of farms and acres protected as more landowners recognized the benefits of the program. By the end of the 2000s, Berks County had become a leader in farmland preservation, consistently ranking among the top counties in Pennsylvania for the number of acres preserved, which is now approaching 80,000 acres.

The program's success can be attributed to its robust partnerships and community engagement. Collaboration with local municipalities, agricultural organizations, and conservation groups has been essential in promoting the program, securing additional funding, and creating local ordinances supporting farming. Educational outreach efforts have also helped raise awareness about the importance of the preservation of farmland, fostering a sense of shared responsibility among residents and stakeholders. These collective efforts have ensured the program's sustainability and adaptability to changing needs and circumstances.

[4] Represents net present value of land over a 20-year period based on a 2023 average reported land rent of $373.50 per acre (high of $860 per acre) at a 5.25 percent discount rate and 2.53 percent annual reported growth rate.

Reassessing agricultural land preservation criteria may be part of a larger paradigm shift. IMAGINE Berks set the stage for discussions about the breadth and diversity of agri-business in Berks County and how SMART growth principles can help to alleviate competing land uses. Even with this recognition, American Farmland Trust estimates could cause the conversion of up to 24,700 prime farmland acres to non-agricultural uses by 2040.

Acres of Pennsylvania's best agricultural land[2] projected to be converted, 2016-2040

Scenario	Pennsylvania	Berks County
Business as Usual	346,200	15,600
Runaway Sprawl	483,600	24,700
Better Built Cities	196,600	10,800

[2]Lands with productivity, versatility, and resiliency (PVR) values above the state median. See the PVR Fact Sheet.

Source: American Farmland Trust, Farms Under Threat 2040

Building a more updated and flexible understanding of the needs of modern agriculture will help the preservation program adapt. Such changes would entail creating programs that increase the functionality of farmland preservation programs for use in intergenerational transfers, allowing beginning farmers to use promised future preservation payments to finance purchases, ensuring that land is available for the continued expansion of the poultry industry as an example, and expanding the preservation approach to considering what constitutes a prioritized farm beyond Prime and Productive soils.

Summary

As the county continues supporting and funding farmland preservation, it may consider establishing a preservation target because targets for Prime and Productive soils must expand to ensure commodity production. In addition, Berks County might be part of advocating for changes to the program to incorporate new and more modern activities that occur on smaller lots and varied soil types.

Agricultural Diversity

Berks County boasts a diverse and economically robust agricultural sector, with several key industries driving its agricultural success. The county's largest sectors include poultry and egg production, dairy farming, mushroom cultivation, grain and oilseed farming, hog farming, and cattle production. Poultry and egg production alone generated $234 million in sales in 2022, reflecting a nearly 90% increase since 2017. Similarly, dairy farming remains a cornerstone of the county's agricultural economy, contributing $143 million in milk sales in 2022, representing a 24% increase from 2017. These industries not only provide significant economic contributions but also support a variety of related businesses and services within the region.

Industry	2022	% Change from 2017
Oilseed and grain farming	330	-21%
Other crop farming	313	-17%
Beef cattle ranching and farming	257	4%
Animal aquaculture and Other animal production	208	-20%
Dairy cattle and milk production	185	-16%
Poultry and egg production	107	-16%
Greenhouse, nursery, and floriculture production	104	12%
Sheep and goat farming	94	9%
Fruit and tree nut farming	67	-8%
Vegetable and melon farming	62	9%
Hog and pig farming	43	-7%
Cattle feedlots	39	11%

Source: USDA NASS, Census of Agriculture, 2022

Mushroom production is another vital sector in Berks County, which is second in mushroom sales in both Pennsylvania and the United States. In 2022, the value of mushroom sales in the county reached $141.9 million, accounting for a substantial portion of the county's horticultural sales. Grain and oilseed farming, while experiencing some fluctuations in acreage, has also shown resilience, with a 36% increase in sales between 2017 and 2022, contributing $70.6 million in 2022. The diversity of these top sectors—from animal-based agriculture to crop production—provides the county with a balanced agricultural portfolio, reducing overall economic risk by not relying too heavily on any single commodity or market.

The strength of these agricultural sectors plays a crucial role in anchoring a wide array of service and supply businesses in Berks County. From feed suppliers and equipment manufacturers to transportation services and agribusiness consultants, these industries generate demand for a variety of goods and services, thereby supporting local economies. Additionally, strong agricultural sectors encourage investment in related infrastructure, such as processing facilities and distribution networks, further embedding agriculture as a key economic driver in the county.

Furthermore, the diversity within Berks County's agricultural sectors offers significant risk management advantages. By having a mix of animal, crop, and horticultural production, the county is better insulated against market fluctuations, diseases, or climate-related challenges that might impact one particular sector. This diversity stabilizes the local economy and enhances the resilience of individual farmers, who benefit from multiple revenue streams. The strong performance and interconnectedness of these sectors underscore the importance of continued support and innovation to maintain Berks County's leadership in agriculture.

While traditional agriculture's impact is well understood and its impact largely recorded in agricultural statistics, Berks County has a robust and growing urban agriculture community. as noted in the sidebar. Interviews with practitioners indicated that many of urban agriculture's needs are similar to traditional agriculture but with nuances related to the spaces and the communities in which they exist. Integrating urban agriculture's voice into the larger conversation about agriculture is important as many of these operations are closely aligned with emerging market segments.

Summary

Strong and diverse agricultural sectors anchor Berks County and have essential risk management benefits at the macroeconomy level by ensuring economic stability, thereby mitigating the impact of market fluctuations or industry-specific challenges. This diversified agricultural foundation supports continued investment in infrastructure and related businesses, positioning Berks County as a leader in agricultural innovation, sustainability, and economic resilience.

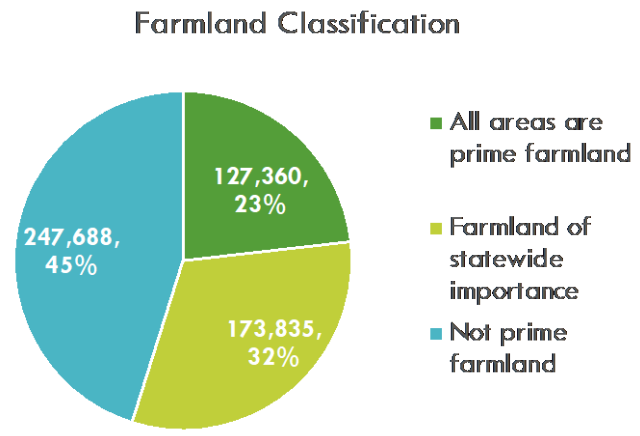
Urban Agriculture in Berks

Recent developments in urban agriculture in Berks County, specifically in and around Reading, PA, highlight the growing movement toward community-driven food production. As part of the 2024 Urban Agriculture Tour, Pennsylvania's Agriculture Secretary Russell Redding visited several urban farms in Reading to showcase their contributions to improving access to fresh, local food. These initiatives are helping combat food deserts and boost local food security.

One the highest profile projects is Real Farm Real Food, a permaculture-based garden, which exemplifies sustainable practices that can be scaled to different sizes, from small urban plots to larger farms. Other urban agriculture efforts in Reading include the City of Reading Pollinator Garden, Reading Bucket Farm, and the 18th Wonder Improvement Project. These initiatives focus on meeting local consumer demand, enhancing biodiversity while also providing residents with fresh produce. Community members are engaged in the process, and the projects foster a connection between urban dwellers and agriculture. At Bog Turtle Creek Farm, for example students play an active role in maintaining the farm and supplying fresh produce to the local Penn Street Market, demonstrating how urban farming is integrated into educational and community-building efforts.

These initiatives are supported by federal and state grant programs aimed at expanding urban agriculture infrastructure. These programs aim to address food insecurity but also create economic opportunities in underserved urban neighborhoods across Pennsylvania. Urban farming in Berks County is thus contributing to sustainable food systems and community resilience.

Soils and Climate



Source: USDA NASS, Census of Agriculture, 2022

Berks County, Pennsylvania, is an exceptional region for farming due to its highly productive agricultural soils and favorable climate conditions. The county's soils are predominantly classified as silt loams, which are well-drained and fertile, making them ideal for a variety of crops. According to the USDA's Natural Resources Conservation Service, more than half of the county's land area is designated as prime farmland, a classification that highlights soils with the best physical and chemical characteristics for agricultural production. These soils retain moisture well, support healthy root systems, and are less prone to erosion, making them suitable for both row crops and more intensive agricultural practices like fruit and vegetable farming.

The climate of Berks County further enhances its suitability for agriculture. The county experiences a temperate climate with four distinct seasons, providing a long growing season that averages around 180-200 days. This extended growing period allows farmers to cultivate a diverse array of crops, including corn, soybeans, wheat, and a variety of fruits and vegetables. The area's relatively mild winters and warm, humid summers are conducive to livestock farming and crop production. Moreover, the average annual precipitation of approximately 44 inches ensures that crops receive ample moisture throughout the growing season, reducing the need for extensive irrigation systems and helping to maintain soil health.

In addition to its physical and climatic advantages, Berks County has a robust agricultural community that is dedicated to sustainable farming practices. It is a leader in no-till farming practices and the home of the nation's largest private organic agricultural research center, The Rodale Institute. In addition, the county has committed to protecting nearly 80,000 acres of its most productive soils for future agricultural uses. Collectively these and other efforts ensure that the county's agricultural lands remain productive and viable for future generations, maintaining Berks County's reputation as one of the best places to farm in Pennsylvania.

Summary

Agriculture thrives in Berks County because of its rich environmental assets. Many of the same characteristics that make Berks County an ideal place to farm also make it ideal for development. The county uses SMART Growth principles to balance the needs for development and agricultural operations. Agriculture production can also occur on other soil types and this land is currently being used for uses such as grazing and viticulture.

Mixed

Definition of Agriculture

Defining agriculture as both a land and an economic use is essential to reviewing, assessing, and harmonizing the definition of agriculture. It will need to be applied across departments and municipalities to capture better what agriculture is and how it operates in local, national, and global markets. Clarifying the definition of agricultural use is important for several key reasons, reflecting the evolving nature of agriculture, the need for sustainability, and the broader socio-economic impact of farming activities. Here are the primary reasons:

- **Adaptation to Modern Agricultural Practices**
    - **Diverse Farming Activities**: Modern agriculture encompasses a wide range of activities beyond traditional crop cultivation and livestock raising. Expanding the definition to include urban agriculture, aquaculture, agroforestry, specialty crops, retailing, processing, aggregation, agrivoltaics, etc., allows diverse farming practices to be recognized and supported. This is important in Berks County, where many of its highly diversified farms include retail operations and on-farm processing.
    - **Technological Innovations**: Practices like hydroponics, vertical farming, and other advanced agricultural technologies reflect farmers' innovative approaches to fostering efficiency and productivity. This is becoming increasingly important in the biomaterials sector, where crop conditioning and processing may be best suited away from the farm at the material production site.
- **Promotion of Sustainable Practices**
    - **Environmental Stewardship**: Supporting processing businesses like Bell and Evans means incorporating broader definitions of agriculture that encompass sustainable practices like organic farming, conservation tillage, and regenerative agriculture, promoting methods that enhance soil health, reduce pollution, and increase biodiversity.
    - **Climate Resilience**: Following the leadership of Rodale Institute, the definition of agriculture must be broad enough to include climate-smart practices such as cover cropping, agroecology, and integrated pest management. Such practices help farmers adapt to and mitigate the impacts of climate change, ensuring long-term agricultural viability.
- **Economic and Community Development**
    - **Value-Added Products**: Recognizing activities like on-farm processing, agritourism, and direct-to-consumer sales supports the development of value-added products and services. Doing so is essential to boost farm income and aid rural economies in a county that supports more than 220 on-farm markets and attracts on-farm purchasing from a client base that travels up to five hours to make purchases.
    - **Employment Opportunities**: Expanded agricultural definitions can create new job and training opportunities in diverse areas, such as in-situ skills development in farm management, processing, marketing, and eco-tourism, contributing to local economic growth.
- **Alignment with Policy and Regulatory Frameworks**
    - **Comprehensive Land Use Planning**: Incorporating a wider range of agricultural activities into land use planning and zoning regulations supports more

comprehensive and flexible policies that reflect the actual use of agricultural land that may incorporate non-agricultural uses.
    - **Enhanced Eligibility for Programs**: Farmers engaging in non-traditional agricultural activities can become eligible for various government programs, grants, and subsidies. Equitable support across the agricultural sector will happen only when the farming activities are recognized as legitimate.
- **Consumer and Market Trends**
    - **Meeting Consumer Demand**: Consumers are increasingly interested in sustainably produced, locally sourced, and diverse food products. Expanding the definition of agricultural use helps meet these market demands and supports local food systems.
    - **Innovation and Market Access**: Recognizing and supporting innovative agricultural practices opens up new markets and opportunities for farmers, helping them to remain competitive and responsive to changing consumer preferences as well as keeping pace with the needs of the bioeconomy.
- **Environmental and Social Benefits**
    - **Ecosystem Services**: Agricultural activities that provide ecosystem services, such as carbon sequestration, water filtration, and habitat preservation, can be recognized and incentivized, contributing to broader environmental goals. These benefits, if codified, may allow farmers to benefit from new payment and financing systems that encourage environmental benefits.
    - **Cultural and Educational Value**: Agritourism, educational farms, and community-supported agriculture (CSA) programs enhance public understanding and appreciation of farming. They foster a stronger connection between urban and rural communities but often blur the lines between tourism, food service, transportation, processing, and retailing.

Summary

Harmonizing the definition of agricultural use is essential for fostering a resilient, diverse, and sustainable sector that can adapt to modern challenges and opportunities. It ensures that policies and support systems are inclusive, equitable, and reflective of the full scope of agricultural activities, benefiting farmers, consumers, and the broader community. Harmonizing such a modern and consistent definition across municipalities and agencies is essential to ensure that agriculture is understood and appreciated in its broader, modern form. Conversations looking at the various definitions of agriculture are underway and should diligently continue and not become too incremental.

Knowledge Transfer

Knowledge transfer is crucial in agriculture, particularly in a region like Berks County, for several reasons. It ensures the agricultural sector's continued growth, sustainability, and adaptability in the face of evolving challenges and opportunities. This is particularly true in an industry where assets and knowledge are often concentrated in older farmers with no next generation to take over. The concern about knowledge transfer and education manifested in numerous ways during the interview process. Following are a few key takeaways in this context:

- **Enhancing Productivity and Efficiency**
    - **Adoption of Best Practices**: Sharing knowledge about the latest farming techniques, crop management practices, and technological innovations helps farmers optimize their operations, resulting in shorter learning curves, higher yields, and more efficient use of resources.
    - **Precision Agriculture**: Knowledge transfer enables farmers to adopt precision agriculture techniques, such as GPS-guided equipment and data analytics, to improve planting, irrigation, and harvesting processes. It also increases a farmer's ability to manage the plethora of data generated in a modern agricultural operation, allowing farmers to focus on what truly impacts the bottom line.
- **Promoting Sustainability**
    - **Environmental Stewardship**: Educating farmers on sustainable practices, such as soil conservation, water management, and integrated pest management, helps protect the environment and ensures the long-term viability of farmland. In the case of Berks, this was often discussed in terms of Chesapeake Bay Watershed regulations and the expectation that the agricultural component would eventually move to the Delaware Watershed.
    - **Climate Adaptation**: Knowledge transfer is essential for equipping farmers with strategies to adapt to climate change, such as selecting resilient crop varieties and implementing water-saving irrigation techniques. Significant resources have already been invested in researching industrial hemp as a climate-adaptive crop with significant commercial applications.
- **Supporting Economic Viability**
    - **Market Access and Diversification**: Berks County already has a rich tradition of sharing market information amongst particular communities to expand markets without significantly increasing competition. Providing information on market trends, consumer preferences, and value-added products helps farmers diversify their income streams and access new markets, enhancing their economic stability.
    - **Financial Management**: Knowledge about financial planning, risk management, and available government programs can help farmers make informed decisions and secure necessary funding and support. It may also play a role in establishing credit relationships between farmers as assets change hands.
- **Fostering Innovation**
    - **Research and Development**: Collaboration between farmers, researchers, and agricultural extension services facilitates the development and dissemination of new technologies and practices that can drive innovation in the agricultural sector. As mentioned, industrial hemp offers a view of how this can be done at the farm and research institution levels.
    - **On-Farm Trials**: Encouraging farmers to participate in on-farm research and trials helps test and refine new approaches in real-world conditions, accelerating the adoption of effective solutions.
- **Preserving Agricultural Heritage**
    - **Traditional Knowledge**: Sharing traditional farming knowledge and practices ensures that valuable cultural and historical insights are preserved and integrated with modern techniques, enriching the agricultural landscape.

    - **Intergenerational Learning**: Facilitating knowledge transfer between older and younger farmers supports the continuity of farming expertise and prepares the next generation for future challenges.
- **Enhancing Community Resilience**
    - **Collaborative Networks**: This is a weak area for Berks County as the traditional collaborative networks are disaggregated and do not have broad acceptance in the community. Therefore, building networks and cooperative groups among farmers should be a new focus to foster a sense of community and mutual support, enabling collective problem-solving and resource sharing.
    - **Education and Outreach**: Existing education and training networks are strong at the basic skills level, which is widely recognized by the agricultural community. Expanding these educational programs and resources by focusing on the future needs of agriculture will require concerted effort to bring farmers and agribusiness value chain members directly into the planning process.
- **Addressing Regulatory and Compliance Issues**
    - **Navigating Regulations**: Keeping farmers informed about changing regulations, compliance requirements, and best practices for meeting standards helps them avoid legal issues and maintain eligibility for various programs and certifications.
    - **Food Safety**: Knowledge transfer related to food safety practices ensures that agricultural products meet health standards, protecting consumers and enhancing the reputation of local produce. Knowledge of the intricacies of certain public and private programs is low despite generally good implementation of food safety protocols.

Summary

Knowledge transfer and education is a cornerstone of agricultural success in Berks County. It empowers farmers by passing on the information and skills they need to thrive in a dynamic and challenging environment, promoting sustainability, innovation, economic resilience, and community well-being.

Production agriculture is a hands-on learning profession. While skills training, agriculture education curriculum, and degrees are essential, every operation works differently (even within the same sector). The only way to have uninterrupted knowledge transfer is for information to flow freely and effortlessly. The county can create programs to assist in peer-to-peer networking and training.

Industry Collaboration

Agricultural industry sectors in Berks County collaborate through a variety of mechanisms that foster cooperation, innovation, and mutual support. These collaborative efforts help enhance the agricultural community's productivity, sustainability, and economic viability. The following are some key ways in which these sectors collaborate.

- **Government and Educational Institutions**
    - **Penn State Extension**: This organization is pivotal in facilitating collaboration by providing research-based knowledge and educational programs. They offer workshops, field days, and one-on-one consultations that bring together farmers from different sectors to share best practices and innovations. Regionalization has caused farmers to feel that some services, such as those provided by crop and livestock specialists, have become less accessible.

    - **Collaboration with Local Schools and Colleges**: Educational institutions partner with agricultural sectors to provide a wide array of workforce, technical, professional, and entrepreneurial development services. The county has particularly strong Career and Technology Centers as well as excellent agricultural programs in several local school districts. Local and regional universities, such as Penn State Berks, are active in specialized areas that support the industry. Generally, vocational training is considered excellent, but there is a high demand for qualified internships and research opportunities that are not fulfilled.
    - **Berks County Department of Agriculture**: This department works closely with various agencies and agricultural sectors to coordinate, develop and implement policies that support the agricultural community, including the operation of the county's well-known and successful farmland preservation program. The Department seems to have become the de facto entity representing the industry on policy matters.
- **Agricultural Associations, Chambers of Commerce, and Cooperatives**
    - **Berks County Farm Bureau**: This organization advocates for farmers' interests and provides a platform for collaboration on policy issues and resource sharing. It also organizes events and meetings where farmers can network and discuss common challenges.
    - **Dairy and Livestock Associations and Marketing Cooperatives**: These organizations support breed and industry-specific development as well as networking opportunities. They increase marketing efficiency through auctions and allow farmers to pool resources for bulk purchasing feed and supplies, share equipment, and collaborate on marketing initiatives. They also facilitate knowledge exchange on breeding, animal health, and production techniques.
    - **Greater Reading Chamber Alliance: The** Greater Reading Chamber Alliance (GRCA) and local chambers provide wide-ranging support to agriculture and related value chain businesses. A collaboration between the Department of Agriculture and GRCA is GrowTogetherBerks.com, a web-based platform for farmers, and an interactive map highlighting farms, markets, local product availability, and agritourism opportunities. Services also include industry events, business support programs, workforce development, site location support, communications, and lending. The GRCA co-publishes a monthly Ag e-newsletter with the Department of Agriculture.
    - **Berks Agricultural Resource Network:** Berks Agricultural Resource Network (BARN) plays a role in sustaining and enhancing the agricultural sector in Berks County. By fostering collaboration, providing marketing support, and promoting economic development, BARN helps ensure that agriculture remains a vital and vibrant part of the local economy and community in both rural and urban areas.
    - **Collaborative Research Initiatives**: Berks County is home to a nationally recognized organic farming research facility, the Rodale Institute, that conducts research at its own facilities as well as with collaborating farmers. Additionally, several farmers have organized privately to conduct crop research in collaboration with industry experts and researchers on projects aimed at improving crop yields, pest management, sustainable farming practices, and the introduction of new crops into commodity production systems. These collaborations often result in the development of new technologies and techniques that benefit multiple sectors.

    - **Pilot Programs and Demonstration Farms**: Pilot programs in organic field crops and industrial hemp production are increasing. These programs test innovative practices in real-world settings, providing valuable data and insights shared across the agricultural community to support growth in downstream industries such as poultry processing and biomaterials.
- **Resource Sharing and Networking**
    - **Shared Equipment and Facilities**: Farmers from different sectors collaborate by sharing expensive equipment, such as tractors and irrigation systems, which reduces costs and maximizes resource utilization.
    - **Joint Ventures**: Partnerships between crop farmers and livestock producers can lead to integrated farming systems where waste from one sector (e.g., manure) is used as an input for another (e.g., crop fertilization), enhancing sustainability.
    - **Agricultural Fairs and Expos**: Events like the Berks County, Kempton, Oley, and Kutztown Fair provide opportunities for farmers, vendors, and agricultural businesses to showcase their products, share knowledge, increase public awareness of agriculture, and form partnerships.
    - **Workshops and Seminars**: Regularly organized events focused on topics like sustainable agriculture, market trends, and regulatory compliance bring together stakeholders from various sectors to learn and collaborate. Many farmers and agribusinesses indicated that these types of networked learning events are declining in number and content despite being highly valuable.

Agricultural industry sectors in Berks County collaborate through a combination of educational initiatives, associations, market strategies, research projects, resource sharing, community events, and digital platforms. These collaborative efforts help build a resilient and innovative agricultural community that can adapt to changing conditions and continue to thrive. However, many farmers fear that the initiatives are not coordinated and, therefore, do not fully represent or take into consideration agriculture as an industry, creating an opportunity for greater awareness and coordination.

Summary

Business collaboration is crucial to a vibrant agricultural economy, particularly with the increasing diversity and automation of operations that comprise most of Berks County's industry sectors. The Department of Agriculture is in a great position to help facilitate additional networking and collaboration initiatives.

Regional Agricultural Supply Chain

Berks County maintains a viable value chain with sufficient agricultural service and supply companies, including crop and production support, large animal veterinarians, harvesting services, postharvest conditioning, equipment service, environmental consulting, forestry management, marketing services, breeding, apiary, and many others. These services are bolstered by an even larger regional supply chain that services nearly all segments of the agricultural economy.

For some industries like fruit growing and vineyard management, however, these services are already thin, and farmers now rely on value chain activities that predominately operate in other parts of Pennsylvania and New York, with some farmers going even farther for service. While it is good that these services exist, the distances add to the risks and costs of doing business.

Service, equipment, and supply providers face numerous challenges in remaining competitive in the marketplace. These threats can disrupt the entire agricultural value chain, affecting both primary producers and the ancillary businesses that provide essential services and products. Here are some of the more common issues discussed during interviews:

- **Economic Pressures**
  - **Market Volatility**: Fluctuations in commodity prices can lead to unpredictable revenues for farmers, affecting their ability to invest in support services and products. This volatility can be due to changes in global markets, trade policies, and domestic demand.
  - **Rising Costs**: Increasing input costs such as seeds, fertilizers, and equipment, as well as labor costs, can squeeze profit margins for farmers and agricultural support industries. This can lead to reduced investments and financial instability.
  - **Workforce Availability**: A shortage of skilled labor is a major threat, as agricultural support industries rely on a steady supply of knowledgeable workers for tasks ranging from equipment repair to agronomy services. This shortage can be exacerbated by aging populations, the lack of rural transportation, and the migration of younger workers to urban areas.
  - **Global Competition**: Increased competition from global markets can pressure local agricultural industries, making it harder for them to compete on price and quality. This affects both primary producers and the support industries that serve them.
- **Technological Changes**
  - **Rapid Technological Advancements**: Technological innovations can improve efficiency and productivity but also require significant investments in new equipment and training. Smaller support businesses may struggle to keep up with these changes, risking obsolescence.
  - **Integration Challenges**: Integrating new technologies into existing systems can be complex and costly, creating barriers for smaller firms that lack the resources to adapt quickly.
- **Infrastructure**
  - **Aging Infrastructure**: Inadequate or aging infrastructure, such as roads, storage facilities, and internet connectivity, can impede the efficiency of agricultural operations and support services.
  - **Investment Gaps**: Limited investment in rural infrastructure can hinder the development and expansion of agricultural support industries.

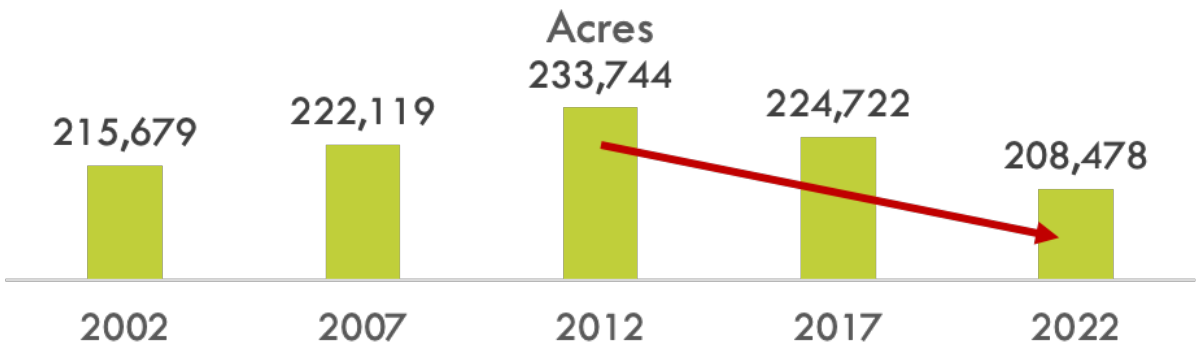
Addressing the above concerns requires a coordinated effort involving policymakers, industry leaders, and the agricultural community to develop strategies that enhance resilience, foster innovation, and ensure the long-term sustainability of agricultural support industries in Berks County.

Summary

The transition from a dairy-led economy locally and regionally has forced a shift in the agricultural services sector. With poultry moving into the lead role, support services and agribusiness should remain viable, with some shift in functions inevitable.

Regional Development Patterns

The population growth rate in Berks County has shown a modest but steady increase over recent years. Between April 2020 and July 2023, the population grew by approximately 0.9%, increasing from 428,849 to around 432,821. This growth rate reflects an ongoing trend of population stability and slight growth despite broader regional and national demographic shifts. This period of growth continues a longer-term trend observed since 2010, where the county's population and diversity consistently increased year over year, albeit at a moderate average annual growth rate of around 0.4 percent, adding to conversion pressure on farmland to adapt to demand for residential and commercial land use.



Source: USDA NASS, Census of Agriculture, 2022

The county, under the leadership of the Berks County Planning Commission (BCPC), should continue to evaluate land use planning and policy decisions, considering and balancing the long-term economic viability of its productive agricultural lands and support for agribusinesses against other land use demands following SMART Growth principles. Some of those decisions could come into play with the potential reduction in acreage with the possible new farm definition discussed above, which may allow for agricultural activity in more suburban and urban areas. In addition, as farms incorporate accessory uses like agritainment or agritourism events to assist with profitability, there may be more impact, such as additional traffic, when these events occur.

Summary

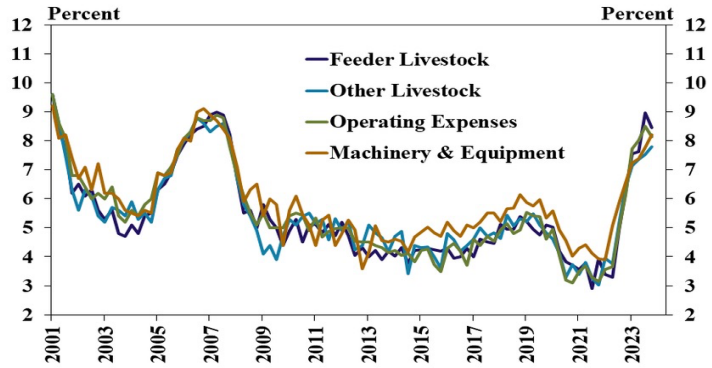
It will be important for the county to continue its commitment to SMART growth and balancing development that supports the diverse needs of the agricultural industry. However, doing so requires the county to understand better what modern agriculture needs to succeed and for producers to remain viable. This is a continuous process.

Weaknesses

Agricultural Finance

Rapidly rising land costs, a large number of young or beginning farmers, and generally low profitability at the farm level make for difficult agricultural finance conditions. Regional bankers point to the tightening credit standards referenced above as a primary limiter to servicing young and beginning farmers and certain agribusiness sectors.

Chart 3: Average Effective Interest Rate by Loan Type



Sources: Survey of Terms of Lending to Farmers and Federal Reserve Bank of Kansas City

Additionally, the market is still unfavorable for those farms and agribusinesses for whom credit is available. Credit costs are becoming prohibitive, reducing overall lending in the industry. As interest rates rise, however, tools such as Aggie Bonds become more attractive tools for agribusiness finance. Aggie Bonds are offered on a first come, first served basis until the Commonwealth's bond allocation is expended.

In response to these conditions, Berks County has been aggressively providing credit facilities to farmers through the Greater Berks Development Fund (GBDF). In the last 15 years, the GBDF has provided farmers with nearly $15 million in loans to support just over $43 million in project development activity. The 42 loans ranged from $125,000 to $1,000,000 for projects as wide ranging as intergenerational farm transition to farm-based retail stores and poultry houses. While this type of lending support is essential to the continuity of farming, the revival of private capital will be necessary to fill the demand for expansion and transition financing.

Unless there is a strong business history and sufficient cash to back a farm or agribusiness, most financing relies on revolving credit such as credit cards and trade credit or some form of government support such as FSA loans, USDA Business and Industry guarantees, or alternative and economic development-oriented financing. While many such sources are available, these financing tools are often expensive and require cumbersome processes. This has a stifling influence on innovation and farm startups.

Summary

If a new generation of farmers and agribusinesses is to arise in the county, finance-related issues must be addressed quickly. It may mean looking for alternatives to traditional debt, which has become fashionable in other areas of the US, including Real Estate Investment Trusts and private equity. Similarly, the focus must also be centered on creating a framework for investment in emerging industry sectors

Regulatory Framework and Enforcement Actions

Regulatory issues were the number one complaint listed in interviews by farmers, agribusinesses, food processors, and beverage makers in Berks County. Many of the people interviewed expressed that working in agriculture is "difficult enough" without local restrictions, which burdens them more. While the issues were different depending on the businesses interviewed, there were striking similarities in the effects:

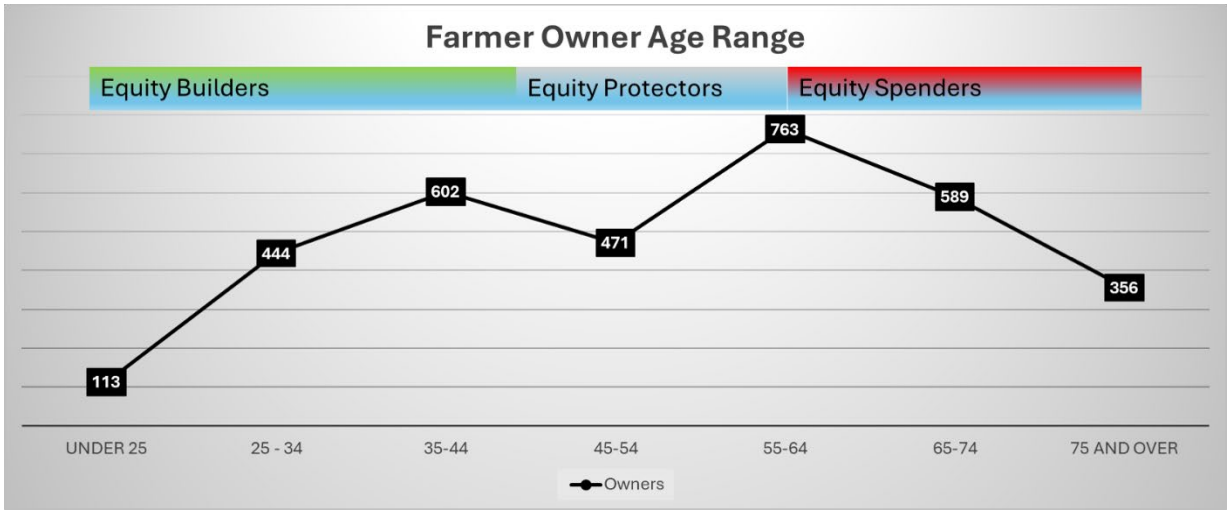
- **Compliance costs:** Navigating complex regulations and complying with reporting requirements are a significant burden for small companies with limited resources, and the burden causes these firms to be less profitable than larger competitors.
- **Stifling innovation:** Regulatory structures, particularly at the municipal level, can stifle innovation by making it difficult and expensive to experiment with new ideas and business models. This is a problem in both urban and vertical agriculture, where local regulations do not account for the type of land use or where permitting officials are unclear about what rules apply. For instance, modern vertical agriculture often has complex irrigation systems that are misconstrued as industrial plumbing systems. Additionally, bioeconomy-related manufacturing, where crop conditioning may yield a biomaterial like Hempwood or MettleWood, does not fit easily within the current regulatory framework. This makes it difficult for communities to determine under which regulatory framework they fall, and the extended costs and development horizons may make it too expensive to consider Berks as a suitable location.
- **Market entry barriers:** Complex and poorly understood regulations make it harder for companies to compete with established players with the resources to navigate the regulatory landscape. This is particularly challenging for on-farm retailing and on-farm manufacturing in Berks County and was a major concern for a number of interviewees. Concerns varied based on the municipality or municipalities within which the farm operates.
- **Uncertainty and delays:** The constantly evolving and sometimes contradictory nature of regulations can create uncertainty for businesses, hindering long-term planning and potentially delaying product launches. Several interviewees stated that regulatory delay was a factor in making farm changes as they feared having stranded assets if the process took too long to complete.
- **Limited agility:** Regulations can make it difficult for companies to adapt quickly to changing market conditions, disadvantaging startups that need to be flexible and responsive.

Summary

Policymakers must understand some of the unintentional consequences of regulations and, thus, try to create an environment that encourages the agricultural industry while protecting non-agricultural constituents, the environment, and the local economy's overall health.

Succession & Transition Planning

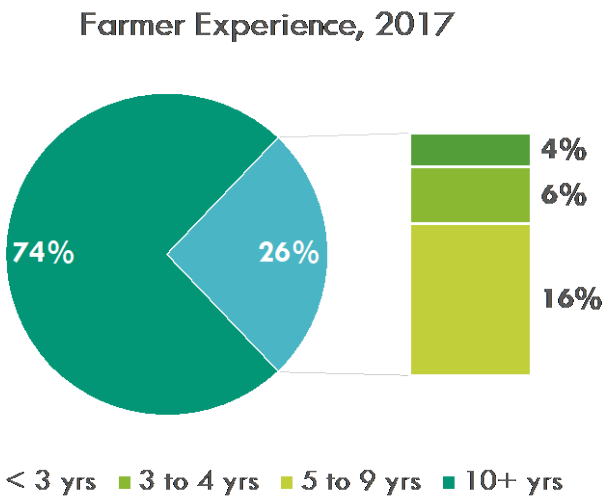
The orderly transfer of assets such as land, buildings, and equipment is necessary for young and beginning operators. The graphic below highlights the changing relationship between the treatment of investment assets and life stage.



Source: USDA NASS, Census of Agriculture, 2022

Local Considerations

From 2017 to 2022, a growing number of farmers reached the age at which they spend the assets accumulated as they enter retirement. Additionally, a large number of farmers entered the asset protection phase, not necessarily looking to take risks on long-term growth. Decisions made to protect assets can make it difficult for younger family members to persuade their older partners to take on risky projects that could enable them to build equity. As a new generation of agricultural entrepreneurs replaces older farmers, it is necessary to see land and other assets become productive under their management. Additionally, the loss of industry structure creates a condition whereby many younger farmers lack a connection to those who own and want to monetize the transfer of their assets.



Source: USDA NASS, Census of Agriculture, 2022

The plain sect is one of the few communities where this is not an issue. These farmers tend to support earlier transition and asset transfer to promote growing returns on equity.

Without a clear pathway linking the owners of assets to those new and emerging operators seeking to take risks and build a business, it is difficult to see a pathway for farms to find their way into the hands of risk-takers, whether they are part of the existing farm family or coming from outside of agriculture. Interviewees suggested that a number of issues need to be addressed. The first and most obvious is improving financial literacy and retirement planning. Second is the need for financial support of the transactions, including both funding for the asset transfer and the retirees' ongoing healthcare needs, which many cite as financially burdensome. Land preservation programs can support such transfers by improving tools to include options such as Purchase at Ag Value provisions in easements and improved and well-financed mentor-protégé programs.

Summary

Programs and policies supporting farmers transitioning into retirement and assisting new farmers with well-planned business strategies and financing for entry into the industry are an identified need.

Workforce Skills and Availability

Between the 2017 and 2022 US Census of Agriculture, the agricultural workforce declined by nearly 7.5 percent and now represents just over 1.2% of Berks County workforce. Because it is both a small workforce and a Priority C workforce, correcting deficiencies in both skills and availability will largely fall on the industry itself.

Skills

Even at the entry level, the agricultural labor force must develop and maintain a set of technical skills to be effective in the job. These include hard skills such as welding, fabrication, and animal husbandry, as well as life skills such as working as a team or arriving at work on time.

During interviews and listening sessions, many farmers indicated that while hard skills are in very short supply, the lack of soft skills is currently the most challenging issue. Many suggested that despite being able to hire consistently, retaining employees long enough to begin on-the-job training has become difficult. Farmers indicate that most new employees do not stay on for longer than one to two days.

The skills gap is partly due to the specialized nature of agriculture, which often requires additional skills beyond the high-quality CTC programs available. Even with this specialization, there are many high-quality programs in Berks County to help develop skills at all levels of the educational system and within the industry. Some of these local and regional programs include:

- **Penn State Extension Services, Industry, and University Programs**
    - **Educational Programs**: Penn State Extension in Berks County offers a wide range of educational programs and workshops on topics such as crop management, livestock care, soil health, pest management, and sustainable farming practices. These programs are designed to provide practical, research-based knowledge to farmers and their employees.
    - **Field Days and Demonstrations**: Extension services frequently organize field days and on-farm demonstrations, allowing farmers and workers to see new techniques and technologies in action and learn directly from experts.

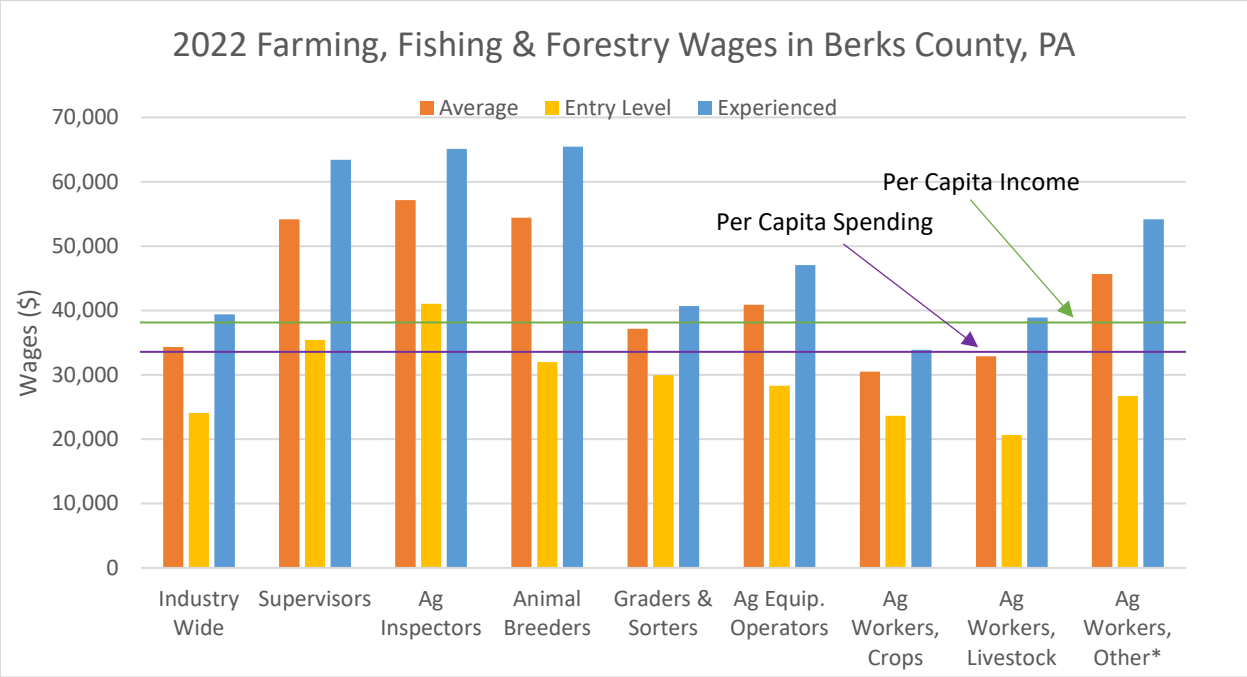
    - **Webinars and Online Courses**: Online resources, including webinars and self-paced courses offered by institutions like Penn State Extension, allow farmers and workers to continue their education at their own pace and stay updated on the latest agricultural trends and research.
- **4-H and FFA Programs**
    - **Youth Engagement**: 4-H clubs and Future Farmers of America (FFA) chapters in Berks County play a critical role in engaging young people in agriculture. These programs offer hands-on learning experiences in animal husbandry, crop production, and leadership skills, preparing the next generation of owners and employees.
    - **Competitions and Fairs**: Participation in county fairs and agricultural competitions provides practical experience and fosters a sense of community among young people interested in the industry.
- **Agricultural Education in Schools**
    - **Curriculum Integration**: Some schools in Berks County integrate agricultural education into their curricula, offering courses in agricultural science, environmental science, and biology that include practical agricultural components.
    - **Partnerships with Colleges**: Partnerships with local colleges and universities enable high school students to access advanced agricultural courses and dual-enrollment programs, providing a pathway to higher education in agriculture.
- **Technical Training and Certifications**
    - **Specialized Training Programs**: Various technical training programs are available for specific skills, such as equipment operation, pesticide application, and organic farming certification. These programs ensure that farmers meet industry standards and regulatory requirements.
    - **Certifications**: Programs like the Pesticide Applicator Certification and other specialized certifications ensure that farmers and agricultural workers are trained in safe and effective practices.
- **Apprenticeship and Mentorship Programs**
    - **Hands-On Training**: Apprenticeship programs provide hands-on training opportunities where new farmers and potential employees can learn directly from experienced farmers. Mentorship programs also pair new farmers and potential employees with experienced mentors to guide them through the complexities of farm management.

Internship programs that develop soft and hard skills before a worker begins employment would be helpful for both employer and employee. Such a program will allow a lower-stress environment for on-the-job training and enable the intern to experience a wider range of farm labor categories to make a better-informed job search decision.

Higher-level skills, including management, STEM, and digital literacy skills, are also in demand. According to farmers, the latter is particularly important in many emerging agricultural fields, where farmers face increasing data loads and need to learn the skills or hire employees with the skills to do the data engineering and programming required to benefit from the data on hand. As automation of farm processes increases, the need for high-level skills will increase commensurately.

Availability

Farmers and other firms in the value chain struggle to find enough workers to fill the available jobs. Thus, they cannot or will not expand operations until they can develop technology to replace labor or sufficiently improve operating revenue to increase wages.

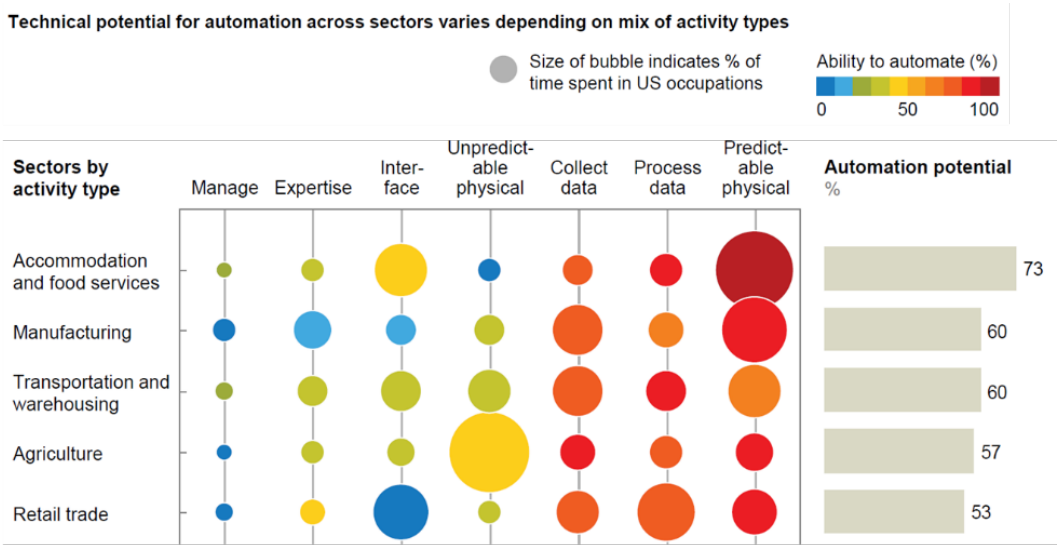


*Source: PA WorkStats Occupational Wages, 2022, ESRI Business Analyst, *BLS Occupational and Wage Statistics, 2023*

Attracting a non-traditional workforce has been suggested to fill the workforce void. These new workforce markets include temporary migrant workers, immigrants, urban workers, and workers in recovery. These workforce elements may require special training, recruitment, transportation, and language skills.

Attracting new entrants, however, will be difficult if wages do not increase, as entry-level wages significantly lag per capita income. As long as this condition persists, recruiting and developing good-quality employees who generally make solid living wages will be difficult. Given the skills gap highlighted above, increasing entry-level wages will only be possible when more skilled workers are available.

Farmers are increasingly looking to automate farm processes because of labor shortages. Automating farm work is crucial as it enhances productivity and reduces labor requirements and costs. Automation technologies, such as drones, autonomous tractors, and robotic harvesters, increase efficiency by performing tasks faster and more accurately than manual labor. They boost crop yields and minimize the physical strain on farm workers, allowing them to focus on more complex tasks. Additionally, automation can lead to more sustainable farming practices by optimizing resource use and reducing waste. In an industry facing significant labor shortages, especially during peak seasons, automation ensures continuity and reliability in farm operations, contributing to overall agricultural sustainability and profitability. However, implementation will not happen until new skills are developed and innovation and automation are better understood and financed.



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

Summary

Upskilling and reskilling in the agricultural workforce are essential to industry success. The responses, however, are not one-size-fits-all and will require both individualized and trial-and-error approaches to larger workforce development initiatives.

Workforce availability is an absolute growth limiter in agriculture. Until such a time as automation and technology can replace farm labor, it will be difficult to overcome this challenge. As the chart from McKinsey and Company above indicates, it will be some time before this type of automation is broadly available due to the unpredictable nature of agricultural work.

Section 4: Roadmap for the Future

The Growing Berks Plan's recommendations are carefully designed to align with the broader objectives of the IMAGINE Berks Economic Development Strategic Action Plan (IMAGINE Berks), ensuring that agriculture remains a cornerstone of the county's economic future. The Roadmap's intent is to identify three years of actionable items. The Berks County Department of Agriculture (Dept of Ag) must prioritize its initiatives, ensuring that new projects do not compromise the sustainability of existing programs. This approach will maximize the impact of financial, staff, and partner resources. It also requires that the Dept of Ag focus on formalizing collaborations with key community and business partners to implement many of the plan's recommendations. Such cooperation will enable initiatives that require more extensive funding and expertise than the Dept of Ag can provide alone.

By coordinating the recommendations in Growing Berks with IIMAGINE Berks, the Dept of Ag can focus on strategic investments that incorporate Agriculture's importance in other key sectors of the county's economy, such as manufacturing, distribution, tourism, technology, and workforce development. With a commitment to continue regular meetings with the agricultural community, we will be consistently and meaningfully engaging stakeholders to provide feedback on the recommendations to ensure that they are realistic and reflective of the industry's needs. This will allow us to maintain channels for ongoing dialogue, allowing for continued refinement of the plan to adapt to emerging challenges and opportunities.

Public and private sector partnerships are vital to agriculture in Berks County and bring together diverse resources, expertise, and capabilities to enhance the sector's sustainability and growth. Public sector involvement ensures that policies and regulations support agricultural development, and private sector investment can provide the necessary capital for farm and agri-business acquisition, infrastructure, and expansion. These partnerships also facilitate farmers' access to educational programs and training, and a broad support network.

To enhance and ensure the agricultural sector's long-term sustainability, productivity, and economic viability in Berks County, the Roadmap outlines recommendations with Leads, Partners, and activities in the following areas:

- Land Use and Land Security
- Workforce
- Technology and the Farm
- Entrepreneurship and Agri-Business Development
- Market Development
- Agriculture Finance

Based on these initial items, Leads and Partners will further outline specific activities, outreach, programs, and investments that align with the objectives of the Roadmap in coordination with the Agriculture Advisory Committee.

Land Use and Land Security

Purpose

Continued support for agricultural land access in Berks County is vital. Access to affordable, productive, and prime soil land supports new and existing farmers to expand their operations, innovate, and make sound investments. This is especially important as farmland faces increasing pressure from non-farm development and rising land values from uses that are not dependent on soil quality. Additionally, secure land tenure encourages long-term planning and stewardship of the land, which is crucial for maintaining soil health and environmental quality. Land access and sound land use policies can ensure the continued economic viability of the agricultural sector and protect natural resources for future generations.

Objectives

1. Update existing farmland protection programs that exhibit and reflect continued support for agriculture preservation.

2. Expand training opportunities for and outreach to municipal officials that raises awareness and understanding of agriculture, on-farm value-added uses, and ag accessory uses.
    a. Build better relations between farmers and nonfarm neighbors

3. Support transportation corridor planning to improve rural public transportation and design standards to support safer integration of farm and non-farm traffic.

Recommendations	Leads & Partners
L1. Update existing farmland protection programs that exhibit and reflect continued support for agriculture preservation.	**Leads** Berks County Department of Agriculture (Dept of Ag) Berks County Ag Land Preservation Board (BCALPB) **Partners** AgConnect Berks County Planning Commission (BCPC) Pennsylvania Dept of Agriculture's (PDA) Bureau of Farmland Preservation PA Farmland Preservation Association (PFPA) Greater Reading Chamber Alliance (GRCA) Advocacy Committee

Actions

Dept of Ag and BCALPB will assess needed changes and potential amendments to land preservation programs to increase program flexibility and support farm and farmland transfer.

- Advocate with regional partners for review and clarifications to state program.
- Update and harmonize definition of agriculture.
  Ordinance and land use definitions should reflect the diversity of agriculture, including agritainment/agritourism, production, rural enterprises, lot size, etc.
- Prioritize program challenges i.e. Lot line issues, changing stormwater regulations, private labeling, production, or sale of products not produced primarily on the preserved farm.
- Separately define and determine Ag adjacent and accessory uses and how they best align with and support Agriculture definitions.
- Discuss various easements of land trusts and the alignment and conflicts with Ag Preservation.
- Explore program changes at state level for "Phase 2" of farmland preservation that would apply to communities who have been successfully implementing the current program.

Recommendations	Leads & Partners
L2. Expand training opportunities for and outreach to municipal officials that raises awareness and understanding of agriculture, on-farm value-added uses, and ag accessory uses.	**Lead** BCPC Dept of Ag **Partners** PA Department of Community and Economic Development (DCED) PA Department of Agriculture (PDA) AgConnect PDA Ombudsman PA Center for Agricultural and Shale Law National Ag Law Center

Actions

BCPC will include agriculture and related topics (including but not limited to value-added agriculture) in community engagement activities for the Comprehensive Plan, municipal meetings, and municipal training for local elected officials and municipal officials.

- Support accredited continuing education training and other municipal education opportunities for all municipal officials (including Boros and suburban communities) to expand land use understanding.
- Encourage best practices in planning using smart growth principles.
- Communicate how agriculture is regulated at the state and federal levels.
- Explain Ag Preservation regulations for preserved farms and Right to Farm law.
    - How agriculture and its related use definitions can support value-added activities and define value-added activities.
    - Agricultural standards and practices
    - Economic benefits to the tax base
    - Diversity of Berks County agriculture.
- Address ACRE misunderstandings and seek to improve relationships between farm and non-farm neighbors.
- Mediate challenges between farmers/landowners and neighbors or municipalities.
- Address inconsistent permitting requirements between municipalities and bring a more consistent standard.
- Continue to promote and support PDA's Agricultural Ombudsman Program by marketing the services to local farmers.
- Define normal agricultural practices and share that information.

Recommendations	Leads & Partners
L3. Support transportation corridor planning to improve rural public transportation and design standards to support safer integration of farm and non-farm traffic.	**Lead** BCPC Long Range Transportation (RATS) **Partners** PA Department of Transportation (PennDOT) PA Municipal League PA Farm Bureau Dept of Ag PDA Ombudsman Penn State Extension Berks Agriculture Resource Network (BARN)

Actions

BCPC and RATS will look at how best to protect critical ag transportation corridors.

- Define and map critical agricultural transport corridors.
- Assess road conditions and traffic loads along ag corridors.
- Determine if appropriate shoulder widths are in place for large equipment and horse and buggies to move about safely.
- Work with PennDOT for potential road signage improvements.

Ensure safe movement of agricultural goods and add safety for farmers moving large equipment or being transported by buggy or bicycle.

Ensure consideration of road design standards with a focus on:

- Road width.
- Shoulder stability.
- Speed.
- Water management.

Ensure that local and state planning and design initiatives incorporate interests and needs of agriculture particularly within areas that require the movement of large tillage equipment and slow-moving traffic.

Dept of Ag should serve as a liaison with Ag community and BCPC and RATS.

Workforce and Career Pathways

Purpose

Improving agricultural and related value chain workforce skills and awareness is essential for fostering a sustainable, productive, and competitive local economy. Enhanced workforce environments, including fair wages, safe working environments, and access to professional development opportunities can be important for attracting and retaining low- and high-skilled labor. This is a shared concern across agriculture, manufacturing, healthcare, and life sciences sectors. Increased job satisfaction and productivity reduced turnover rates and operational disruptions, and investment in the workforce will all support the workforce challenges of the farming and Ag industry.

Objectives

1. Expand knowledge and awareness of career pathways in Agriculture and its related fields.

2. Seek formal agribusiness representation on CTC, secondary education, and engineering college advisory boards.

3. Encourage programs and activities that address labor force needs across industries to include Agriculture.

4. Join with other non-ag-related businesses to promote improved public transportation or ride-sharing programs to enhance worker availability.

Recommendations	Leads & Partners
W1. Expand knowledge and awareness of career pathways in Agriculture and its related fields.	**Lead** Dept of Ag **Partners** Berks County Workforce Development Board (WDB) PA Department of Labor and Industry (DLI) Tec Centro Berks Technical Institute (BTI) Berks County Intermediate Unit (BCIU) Berks Business Education Coalition (BBEC) Berks Career and Technology Center (BCTC) Reading Muhlenberg Career and Technology Center (RMCTC) Berks County Future Farmers of America Ag Society (FFA)

Actions

Dept of Ag will work with Advisory Committee members to provide links to current career opportunities and recruitment. Programs should encourage students at the secondary and higher education level to explore career and entrepreneurship opportunities in agriculture.

Expand messaging that many Agriculture and Agriculture-related jobs require higher skill levels and education i.e. mechanics, chemists, environmental scientists.

Expand the Ag Career and Job Fair outreach to include a specific focus on internship opportunities and resources and expanded career pathways

Department works with WDB and its program partners to identify required skills and opportunities in Agriculture and assists in industry representation on committees to effectively keep Ag as a Watch Industry in Industry sector priorities.

Recommendations	Leads & Partners
W2. Seek formal agribusiness representation on CTC, secondary education, and engineering college advisory boards	**Lead** Dept of Ag Berks County WDB **Partners** BCIU RMCTC BCTC Berks County School Superintendents & School Boards Higher Education Council of Berks County (HECBC)

Actions

Dept of Ag and the Ag Advisory Committee will identify opportunities for Ag industry representation on Boards, committees, and advisory roles for academic and technical schools and other organizations that may be directly or indirectly related to Ag careers, education, and Ag workforce.

Increase awareness of farm and agribusiness needs

- Help to build curriculum that meets these needs
- Create a focus on emerging sectors and technical fields that correlate with Agriculture

Ensure that farm and agribusiness workforce needs and skillsets are clearly understood and regularly and consistently addressed in curriculum development and certifications.

- Partner with school districts and CTCs to expand summer internships and externships to include additional and varied ag opportunities.

Recommendations	Leads & Partners
W3. Encourage programs and activities that address labor force needs across industries to include Agriculture.	**Lead** Dept of Ag Berks County WDB **Partners** BCIU RMCTC BCTC Berks County School Superintendents & School Boards HECBC South Central Transit Authority (SCTA/BARTA)

Actions

Dept of Ag and WDG will coordinate with industry, agencies, and institutions engaged in workforce development to ensure that agriculture's needs are represented. This may include seeking participation in USDA/ACT roll out of beta testing sites for Agricultural WorkKeys.

Determine if workforce readiness programs include identified skills for agriculture.

Develop a career readiness profile for Ag occupations.

- Based on the success of the ACT WorkKeys Career Readiness Certificate Programs in agribusiness related careers in rural communities.

Support and promote use of the PA Agricultural Apprenticeships and Pre-Apprenticeships including Agriculture Equipment Tech, Dairy Grazing, Diversified Vegetable, Landscape Management, Butcher, Dairy Herd Manager.

Join with other non-ag-related businesses to promote improved public transportation or ride-sharing programs to enhance worker availability.

Entrepreneurship and Agri-Business Development

Purpose

Supporting entrepreneurial farmers and agribusinesses is crucial for fostering innovation, adoption of technology, growth and resilience within the agricultural sector. Entrepreneurial farmers bring fresh perspectives and creative solutions to traditional farming practices, driving advancements in sustainable agriculture, value-added products, and efficient supply chains. By encouraging entrepreneurship, Berks County can enhance its agricultural diversity and adaptability, enabling farmers to respond swiftly to market changes and consumer demands. Additionally, entrepreneurial initiatives often lead to the development of new markets and business models, such as farm-to-table operations and agritourism, which can increase revenue streams and increase community engagement.

Objectives

1. Identify and expand training opportunities specifically for agricultural entrepreneurship and business needs including business management skills and financial literacy related to farming.

2. Create and support communication pathways to showcase and promote Ag activities and events for those interested in farming and Agri-business entrepreneurs.

3. Compile, assess, and promote agricultural resources and existing education programs offered by partners on various topics that support Agri-business development and new ideas.

Recommendations	Leads & Partners
E1. Identify and expand training opportunities specifically for agricultural entrepreneurship and business needs.	**Lead** Penn State Extension Dept of Ag **Partners** Natural Resources Conservation Service (NRCS) PA Small Business Development Center Agriculture Center of Excellence (PA SBDC Ag CoE) Kutztown University Small Business Development Center (KUSBDC) BCTC RMCTC All Berks Colleges and Universities GRCA Elevate Berks

Actions

Dept of Ag will work with Penn State Extension to identify relevant topics and outreach methods and assist agribusiness entrepreneurs to find training and support through existing programs. Gaps in training will be identified and addressed with Penn State Extension and other partners to provide the best training locations, platforms, and topics.

Conduct regular farm management skills training sessions.

- Survey farmers and agribusinesses related to management needs and concerns.
- Recruit expert speakers for in-person training and webinars.
- Hold periodic cross-industry networking events.

Promote and potentially expand education on food safety.

Recommendations	Leads & Partners
E2. Create and support communication pathways to showcase and promote Ag activities and events for those interested in farming and Agri-business entrepreneurs.	**Lead** Dept of Ag GRCA **Partners** Penn State Extension Farmers Legal Action Group International Farm Transition Network PA SBDC Ag CoE KUSBDC Farm Credit Ag Biz Masters

Actions

Develop and promote a Resource Guide for professionals with an Agriculture specialty.

Develop ways to actively link new farmers to existing farmers which might include providing a Roundtable format for peer-to-peer conversations.

Obtain feedback on how farmers want to access information.

Recommendations	Leads & Partners
E3. Compile, assess, and promote agricultural resources and existing education programs offered by partners on various topics that support Agri-business development and new ideas.	**Lead** Dept of Ag GRCA **Partners** Penn State Extension PA SBDC Ag CoE Elevate Berks Berks LaunchBox Farm Bureau BARN Berks County Industrial Development Authority (BerksIDA)

Actions

Dept of Ag will work with GRCA to promote resources and programs for farmers and Agri-business that are relevant and timely.

Develop an Ag resource directory in formats and platforms (digitally, print, in-person) that is easily accessible and user-friendly.

Support and facilitate resources for shared-use processing and distribution activities.

Explore the connections of extra/leftover produce and products that could assist with community food needs.

Technology and the Farm

Purpose

Access to and use of technology are essential for many farmers and agribusinesses in Berks County. It will drive productivity, efficiency, and sustainability in the agricultural sector. By integrating advanced technologies such as precision agriculture, automated machinery, and data analytics, farmers can optimize their operations, reduce costs, and improve crop yields. These innovations enable better resource management, such as precise water usage and targeted application of fertilizers and pesticides. This can also promote best practice environmental stewardship ensuring resilience and long-term viability.

For agribusinesses, leveraging processing, packaging, and distribution technology enhances product quality and extends market reach. Embracing innovation fosters a culture of continuous improvement and competitiveness, vital for the economic growth of the agricultural sector in Berks County.

Objectives

1. Create a convenient access point and support framework for information on emerging technology and best practice applications of such technology.

2. Support technology infrastructure and access that aligns with the needs of farmers and Agri-business.

Recommendations	Leads & Partners
T1. Create a convenient access point and support framework for information on emerging technology and best practice applications of such technology.	**Lead** Dept of Ag Penn State Extension **Partners** GRCA AgWeb NRCS Farm Bureau American Mushroom Institute (AMI) BCTC RMCTC All Berks Colleges and Universities FFAs Ben Franklin Technology Partners

Actions

Department serves as an aggregator of content links to direct farmers to most up-to-date innovation, technology, data, and resources.

Collaborate on content and presentation of special topics and tracks on emerging technologies and innovation in agriculture, food, fiber, and related industries in existing newsletters, social media, and communication platforms.

- Expand links to resources similar in design to the Kiplinger Newsletter.
- Utilize local ag producers who were early adopters of technology as subject matter experts.
- Outreach to vendors who can support educational programs about new products, software, robotics, etc. and might include how-to's – utilizing drones for example.

Identify simple and easy means to bring attention to the application of technology and innovation at the family farm scale with the intent to increase adoption rates.

Recommendations	Leads & Partners
T2. Support technology infrastructure and access that aligns with the needs of farmers and Agri-business.	**Lead** BCDCED **Partners** Penn State Extension Dept of Ag Berks County Digital Equity Coalition

Actions

Support existing broadband connection and education activity already underway which may include Starlink as a potential resource.

Support the work of the Berks County Digital Equity Coalition and Broadband Technical Committee and communicating the connectivity challenges related to the Ag community.

Support activities that address data management needs and access to appropriate broadband and internet connectivity for advanced farming operations.

Identify any gaps in coverage that might be limiting farm or producer expansion.

Market Development

Purpose

Berks County farmers have enviable access to retail, wholesale, and manufacturing markets. Market access and market development are crucial for farmers and agribusinesses in Berks County, as they directly impact their economic viability and growth potential. Effective market access allows farmers to sell their products at fair prices, reach a broader customer base, and reduce the risks associated with broader market fluctuations, enhancing their competitiveness and profitability. Key market development initiatives include establishing and enhancing farmers' markets, creating value-added products, leveraging e-commerce platforms, and providing new opportunities for revenue diversification, business expansion, and vertical integration.

Objectives

1. Support farm markets, stands, direct to market producers and growers with marketing and brand awareness of local products.

2. Identify and expand local and regional market opportunities for Berks County farmers and producers who want to expand to include value-added products.

3. Attract businesses to Berks County and the region that support and enhance existing farm activity and production and supports market resiliency and business security.

Recommendations	Leads & Partners
M1. Support farm markets, stands, direct to market producers, and growers with marketing and brand awareness of local products.	**Lead** Dept of Ag GRCA Penn State Extension **Partners** BCPC BARN AgConnect PASA/Kitchen Table Consultants

Actions

Build upon existing programs to increase market opportunities for farmers and raise awareness of direct market opportunities in agriculture.

- Utilize existing events that can include agribusiness, food service, and food manufacturers and to discuss opportunities and connections for value-added agriculture.
- Expand the use of the GROW Together Berks web platform to increase utilization and real-time updates by markets/stands and increase web traffic.

- Establish metrics for marketing success.
- Determine what information is of interest to those visiting the website.
- Explore creation of a bespoke marketing program with GRCA.

Increase utilization and understanding of PlacerAI software and other data to understand existing customer base and potential customer base.

Recommendations	Leads & Partners
M2. Identify and expand local and regional market opportunities for Berks County farmers and producers who want to expand to include value-added products.	**Lead** BCDCED GRCA **Partners** Dept of Ag Penn State Extension KUSBDC Elevate Berks

Actions

Increase collaboration between those who have successfully developed value-added products to leverage additional local and regional market opportunities.

Conduct Placer AI demonstration with Advisory Committee to understand broader application to industry.

Connect established food producers with farmers and producers who want to expand market opportunities with value-added products.

Communicate available resources for establishing and expanding new product development.

Recommendations	Leads & Partners
M3. Attract businesses to Berks County and the region that support and enhance existing farm activity and production and supports market resiliency and business security.	**Lead** GRCA **Partners** Dept of Ag BCDCED Reading-Berks Commercial Industrial Council (CIC) BCPC

Actions

Ensure that business attraction and expansion efforts and focus include Agri-businesses and Ag-related opportunities.

Expand business attraction messaging to include agriculture and agriculture-related assets.

Feature business opportunities and local connections with the Ag community that would be attractive to new investments.

Provide information to support business location and expansion decisions that include specific Agriculture data points.

Agricultural Finance

Purpose

Financing is critical in agriculture and food systems, enabling farmers and agribusinesses to invest in materials, technologies, and infrastructure necessary for productive and sustainable operations. Effective financing mechanisms, including loans, grants, and subsidies, help mitigate the risks associated with agricultural production, such as weather variability and market fluctuations, thereby stabilizing income for farmers and enabling their continued growth and resiliency. This financial support is essential for maintaining food security, promoting Agriculture development, and the ability to evidence economic results and impact.

Objectives

1. Increase awareness of and access to Agriculture financing resources.

2. Support financial education programs and resources for new and beginning farmers and farm transitions.

Recommendations	Leads & Partners
F1. Increase awareness of and access to financing resources.	**Lead** Greater Berks Development Fund (GBDF) Dept of Ag **Partners** KUSBDC Credit Unions Ag lenders Penn State Extension Farm Credit Farm Service Agency (FSA) GRCA BARN BerksIDA

Actions

Work with GBDF to identify and communicate AG financing resources for new and beginning farmers and expansion of existing farms and Agri-businesses.

Incorporate organizations and lenders who provide financing into Ag trainings and courses to expand their visibility and access to farmers and help to establish relationships.

Recommendations	Leads & Partners
F2. Support and identify financial education programs and resources for new and beginning farmers and farm transitions.	**Lead** Penn State Extension PDA Dept of Ag **Partners** KUSBDC GRCA American Farm Bureau Federation Ag lenders Elevate Berks Berks LaunchBox

Actions

Work with existing agriculture lenders and education providers to build a service provider network with an ag focus that supports existing operations (budgeting, business planning) and succession and transition planning.

Continue professional training for Dept of Ag staff on Farm Transitions Certification program and other training certificate programs.

Appendices

Appendix A: Data Deck

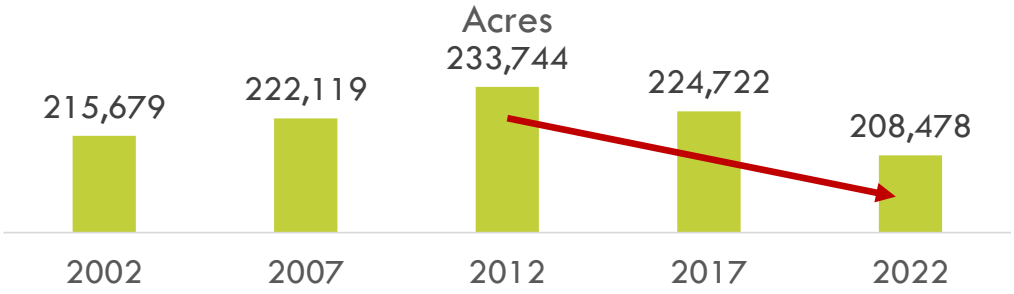
AGRICULTURAL SNAPSHOT BERKS COUNTY, PA (UPDATE)

March 27, 2024
Prepared by ACDS, LLC

FARM TRENDS

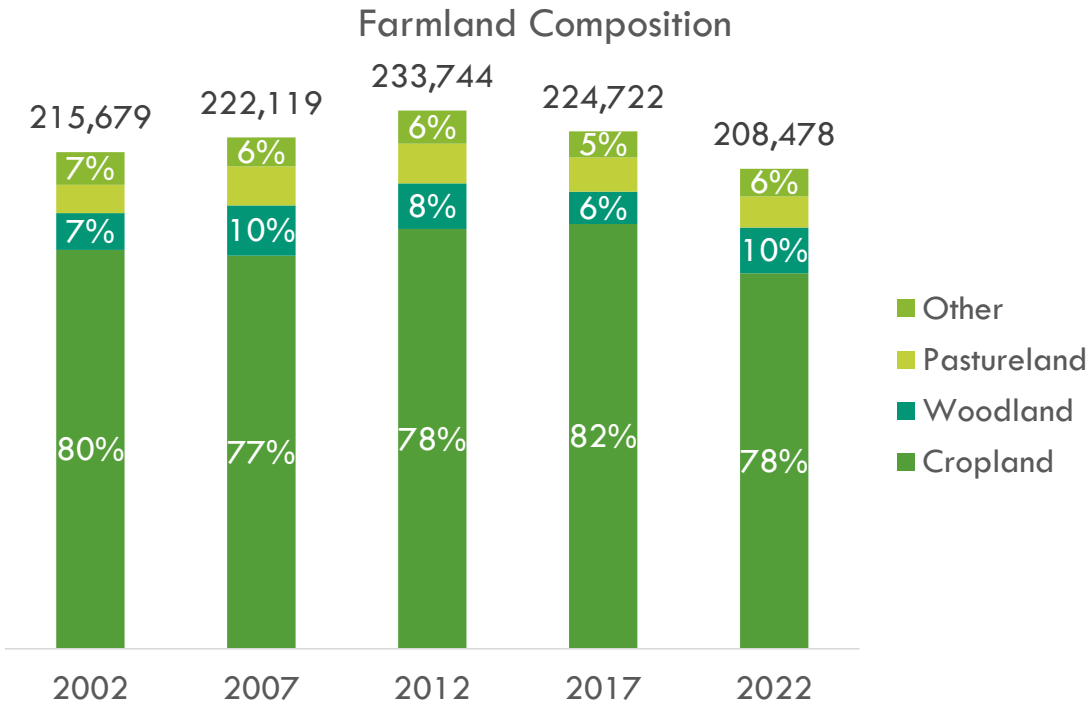
FARMS AND FARMLAND

- About 38% of the county's land is farmland
- **2% decline** in farms from 2017
- **7% decline** in farmland from 2017
- Number of farms and acres of farmland have been trending downwards since 2012
- Average farm size is relatively stable
- Median average farm size is relatively stable



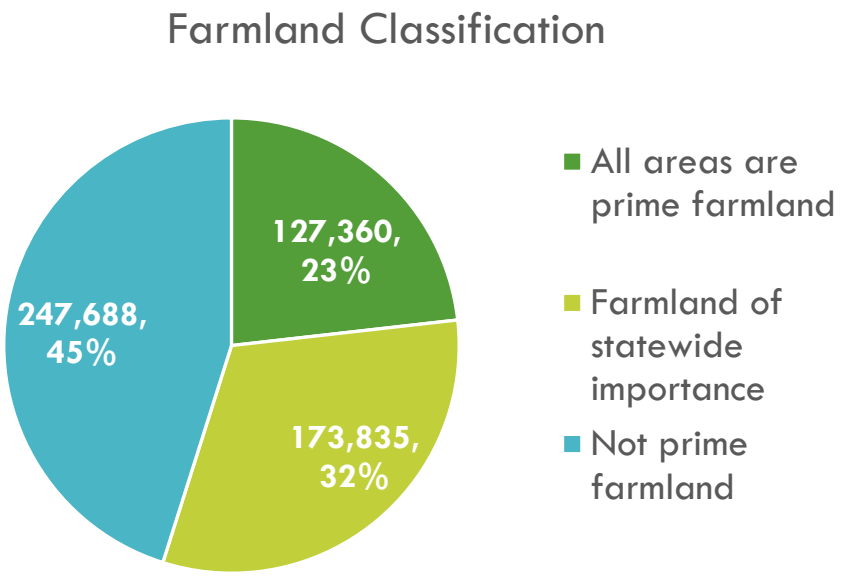
FARMLAND COMPOSITION

- Total farmland is lower than what it was in 2002 (20 years ago)
- Cropland decreased 11.6% since 2017; loss of over 21,000 acres
- Pastureland decreased 9.1% since 2017
- Woodland **increased 41.7%** since 2017; +5,859 acres
- Other agricultural land increased 6% since 2017



FARM PRESERVATION

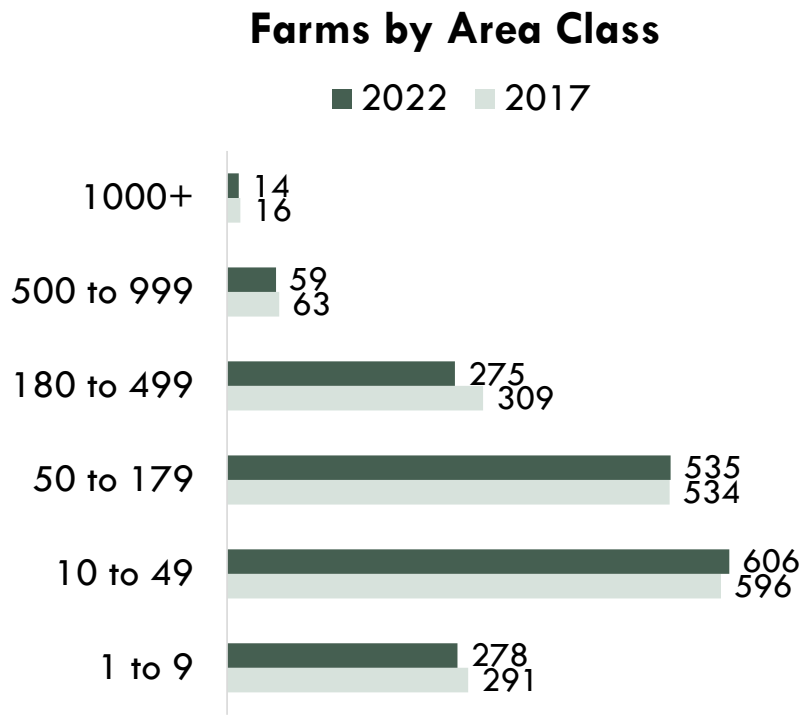
- 815 farms (78,000 acres) preserved through Agricultural Conservation Easement Program
- 166,250 acres enrolled in an Agricultural Security Area
- 127,360 acres of prime farmland
- Value of agricultural is $13,449 per acre in 2022; it was $11,209 in 2017



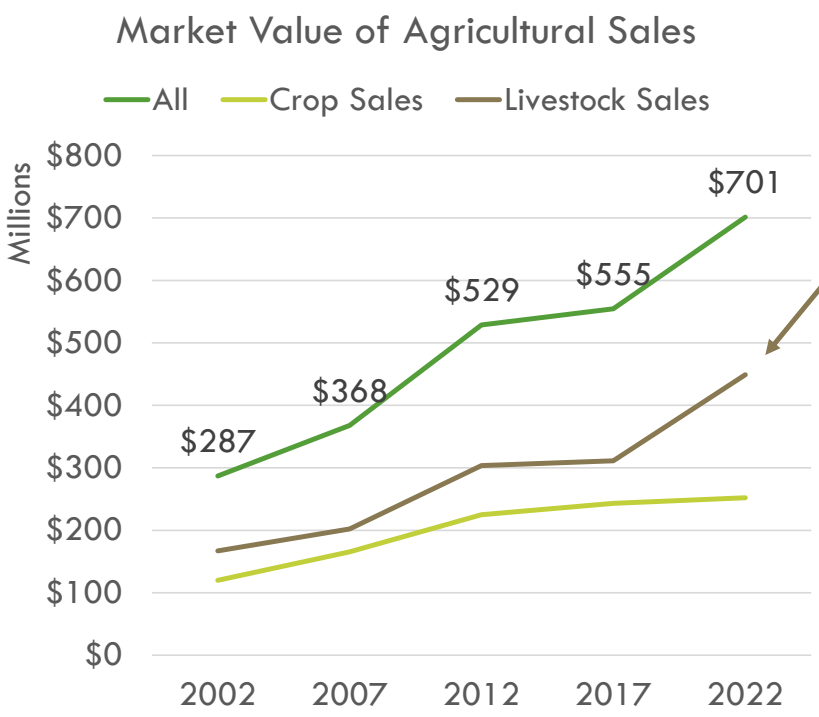
FARM SIZE

- Farms are slightly smaller on average since 2017 due to some loss of farms with more acreage
- **25% decrease** in the number of farms that are 50-179 acres from 2012 to 2017 → loss of "mid-sized" farms
- Not much change since 2017; except a notable decline in farms with 180 to 499 acres

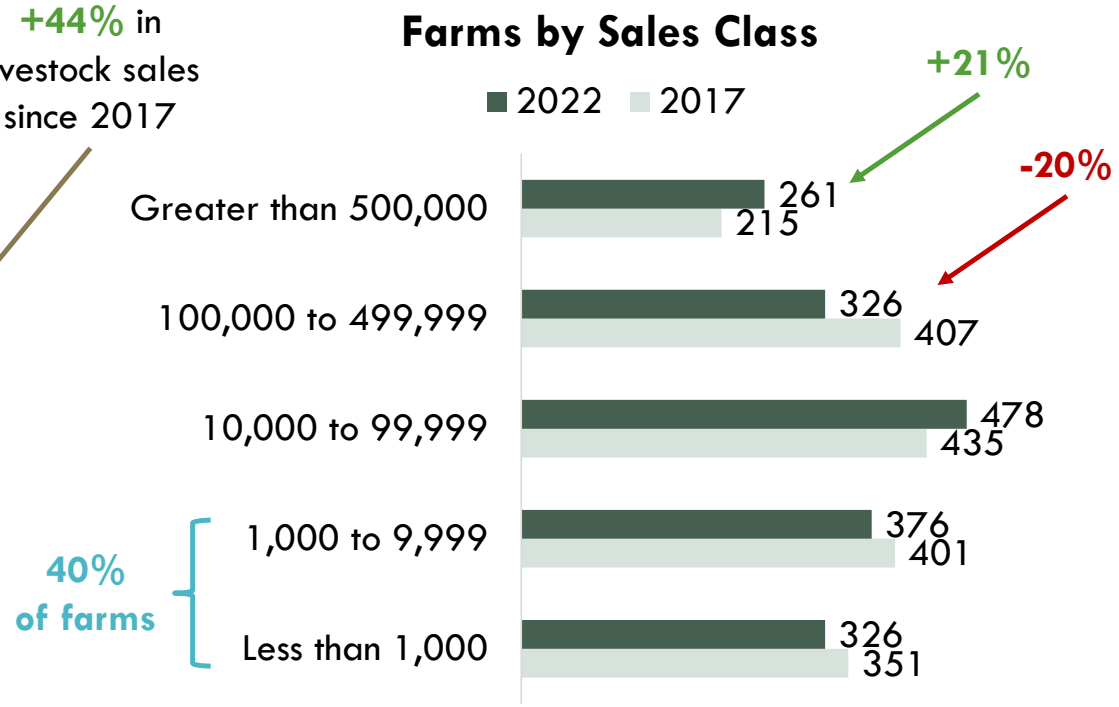
	2017	2022	% Change
Average Acreage	124	118	-5.0%
Median Avg. Acreage	52	49	-5.8%



FARM SALES



+44% in livestock sales since 2017



FARMS BY INDUSTRY

Hay →

Diversified →

Industry	2022	% Change from 2017
Oilseed and grain farming	330	-21%
Other crop farming	313	-17%
Beef cattle ranching and farming	257	4%
Animal aquaculture and Other animal production	208	-20%
Dairy cattle and milk production	185	-16%
Poultry and egg production	107	-16%
Greenhouse, nursery, and floriculture production	104	12%
Sheep and goat farming	94	9%
Fruit and tree nut farming	67	-8%
Vegetable and melon farming	62	9%
Hog and pig farming	43	-7%
Cattle feedlots	39	11%

COMMODITY SALES

Top 10 Commodities by Sales

Commodity	Sales (Million $)	% Change in Sales from 2017
Poultry & Eggs	234.0	90.3%
Milk from cows	143.0	23.5%
Mushrooms	141.9	-8.4%
Corn	42.6	38.7%
Hogs	34.6	-9.0%
Cattle & Calves	33.1	2.6%
Soybeans	21.4	23.4%
Other crops and hay	11.0	-8.1%
Vegetables	8.6	29.1%
Fruits, tree nuts, and berries	8.5	54.6%

Mushrooms fell from 1st in ranking

PRODUCTION HIGHLIGHTS

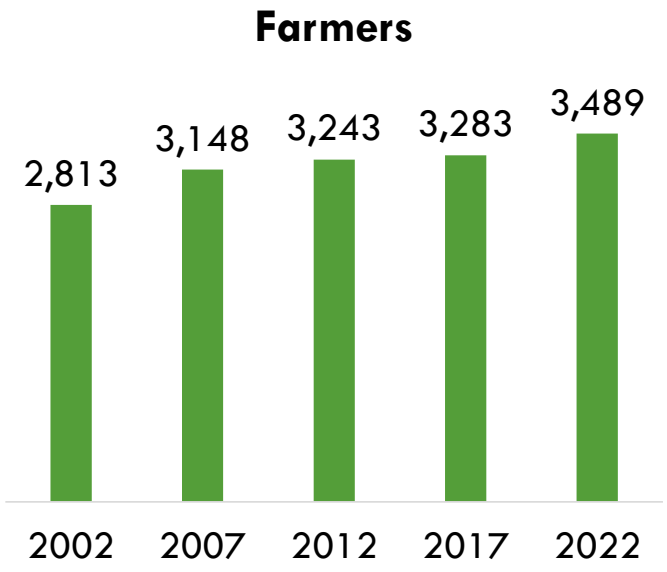
Crops and Livestock

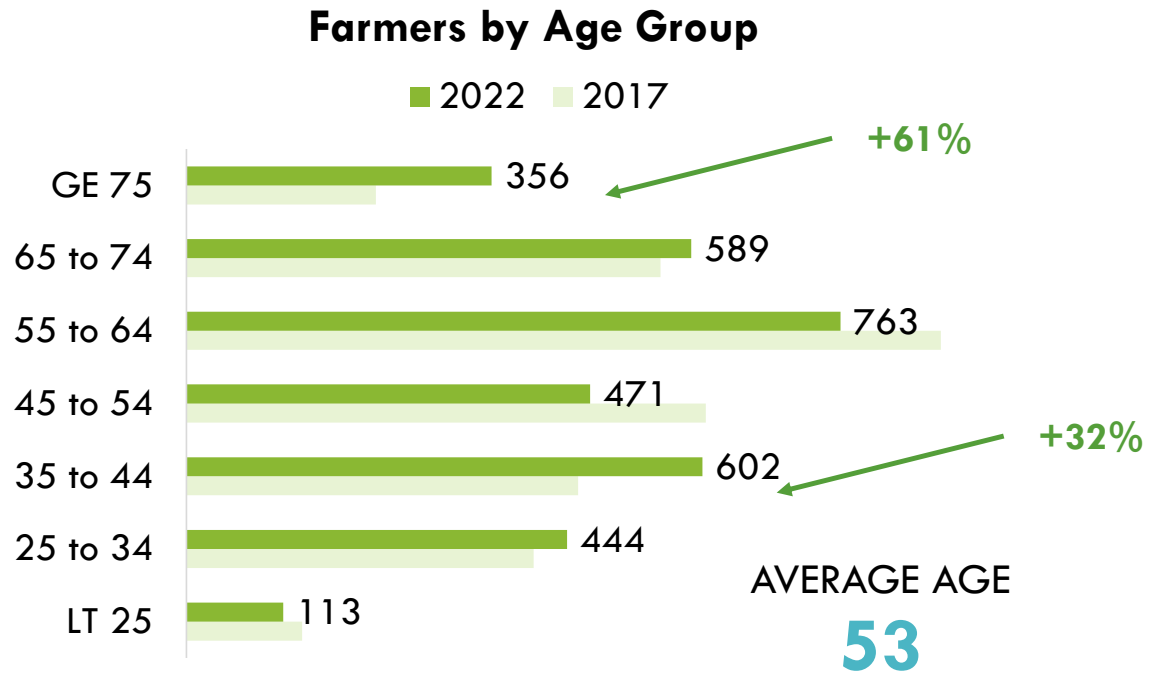
Crop (acres)	2022	% Change from 2017
Corn	45,159	-9.9%
Forage	41,719	-14.8%
Soybeans	36,162	-3.2%
Corn Silage	12,529	-35.0%
Wheat	8,937	-2.0%
Barley	2,458	-15.1%
Vegetable	1,996	-11.6%
Sorghum Silage	86	-55.7%

Livestock (head)	2022	% Change from 2017
Broilers	5,194,324	89.4%
Layers	1,436,531	-31.3%
Hogs	73,042	-6.6%
All Cattle	62,607	-26.9%
Turkeys	8,512	39.0%
Sheep and lambs	3,255	-1.1%
Goats	2,939	33.8%
Ducks	(D)	n/a

FARM TRANSITION AND FARM LABOR

FARMER DEMOGRAPHICS

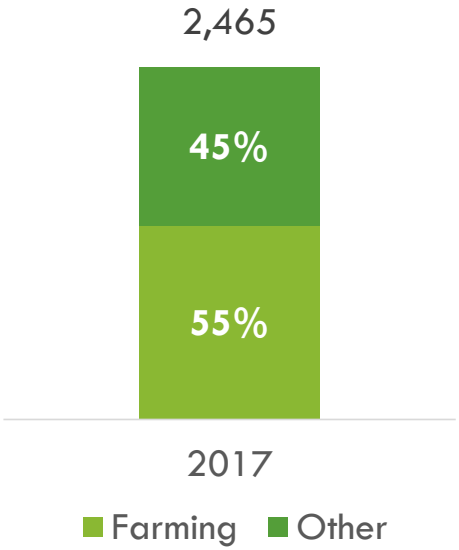




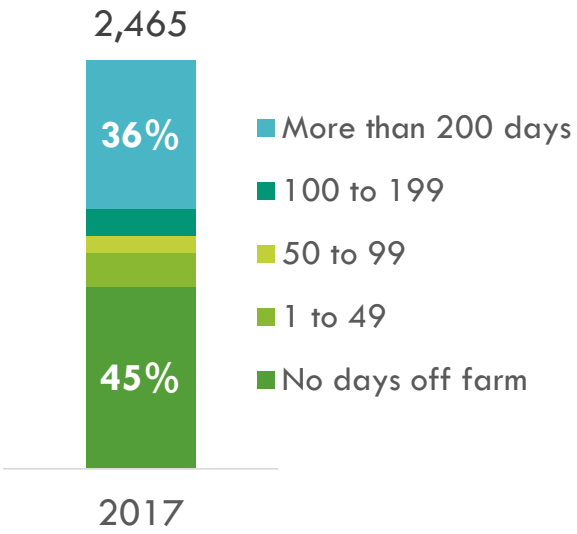
FARMER DEMOGRAPHICS

Principal Operators

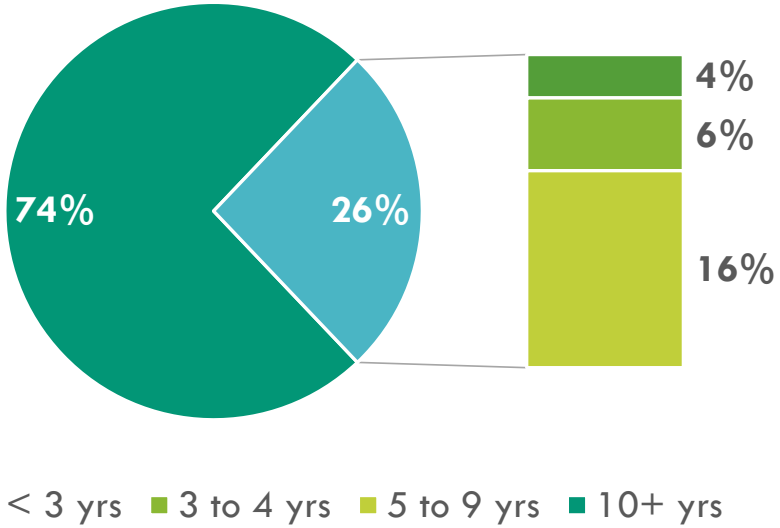
Primary Occupation



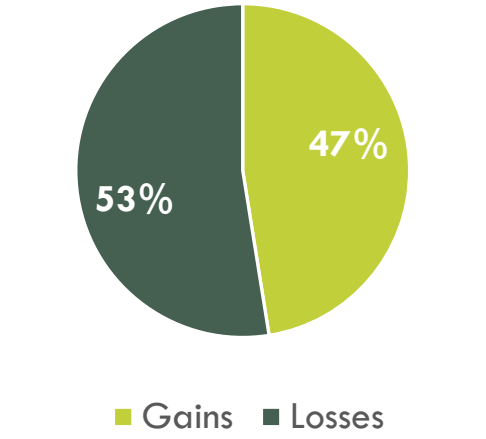
Days Worked Off-Farm

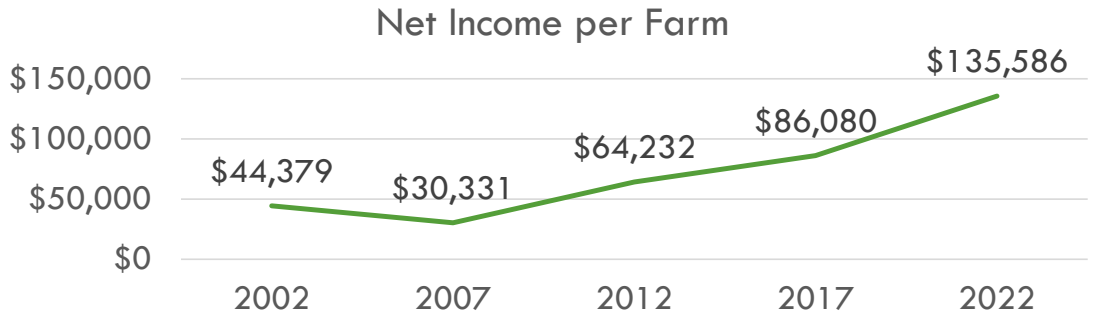


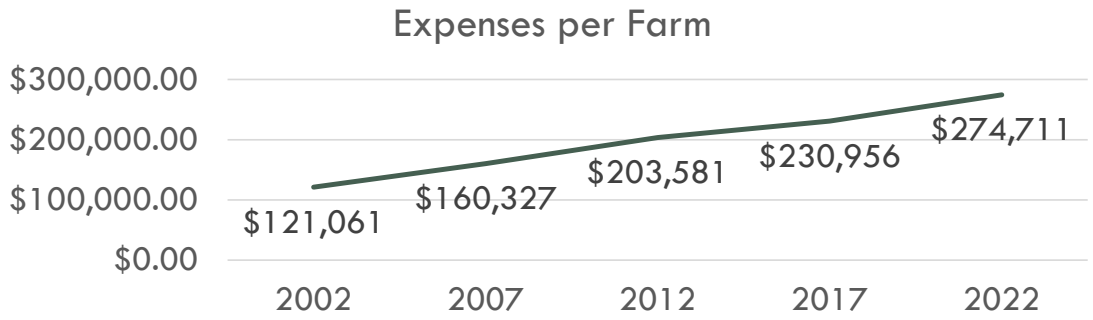
Farmer Experience, 2017



FARM PROFITABILITY

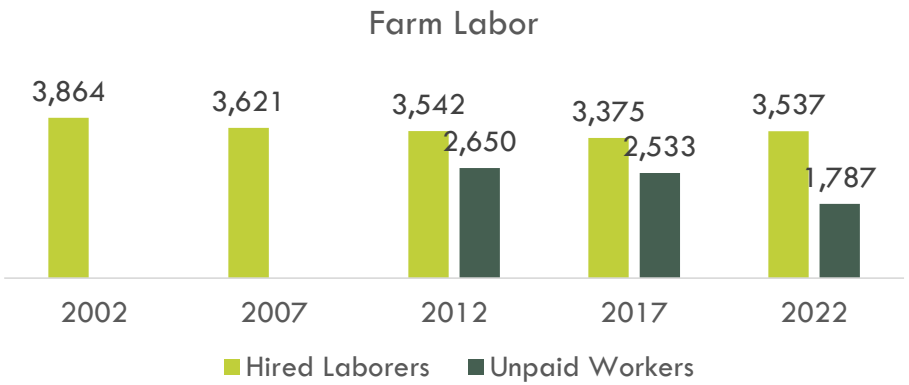






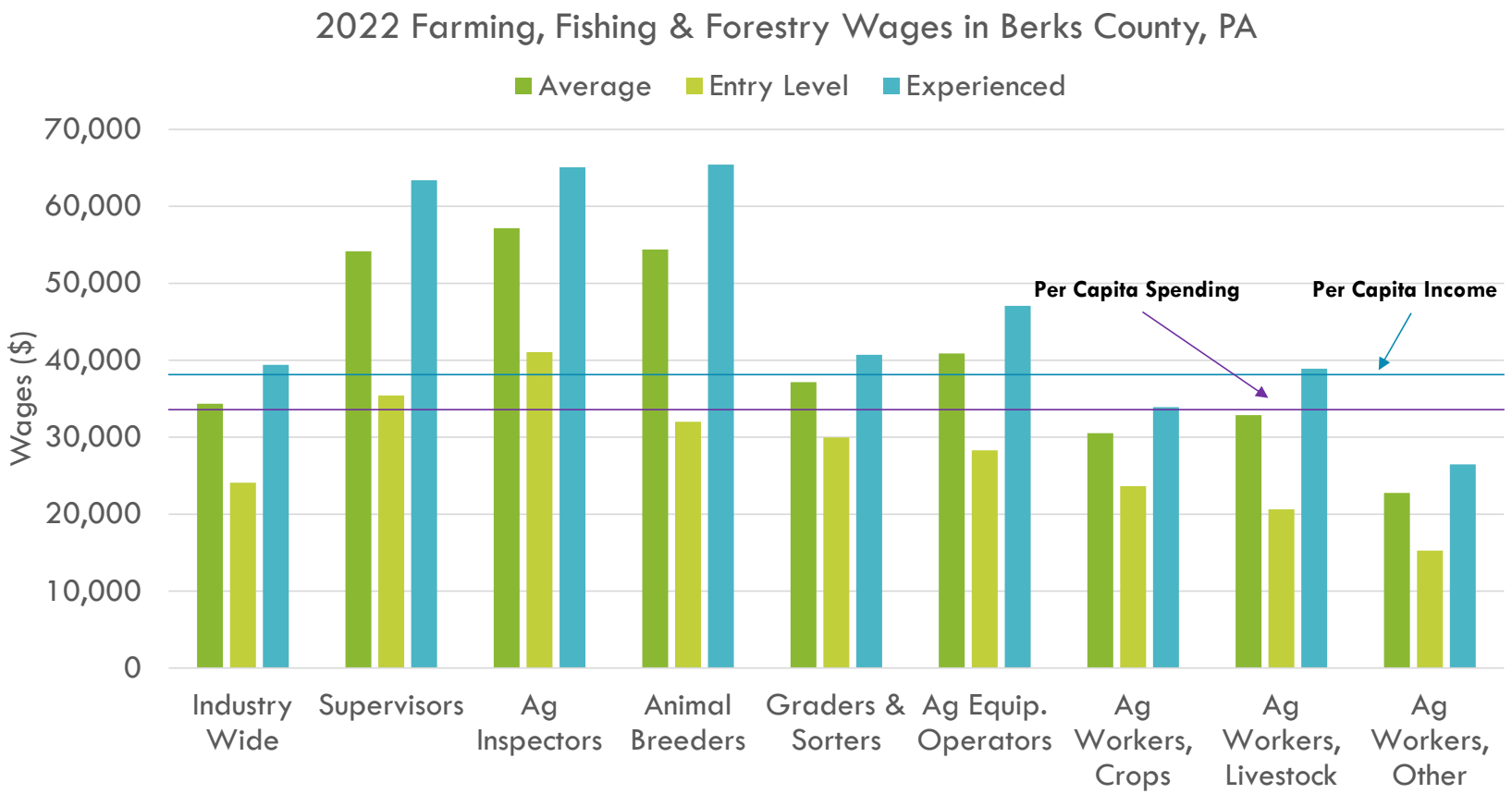
FARM LABOR

- **35% increase** in labor expenses between 2012 and 2017; slightly lower in 2022
- Labor as share of expenses is 20%
- Hired labor back to level in 2012
- 1,787 unpaid laborers **(-30% since 2017)**
- 107 migrant laborers in 2022; was 96 in 2017



	2007	2012	2017	2022	% Change from 2017
Labor Expenses ($1,000)	$53,663	$65,812	$99,042	$96,319	-3%
Total Farm Expenses ($1,000)	$317,448	$415,102	$417,800	$485,415	16%
Share of Total Farm Expenses	17%	16%	24%	20%	-16%

LABOR AVAILABILITY & WAGES

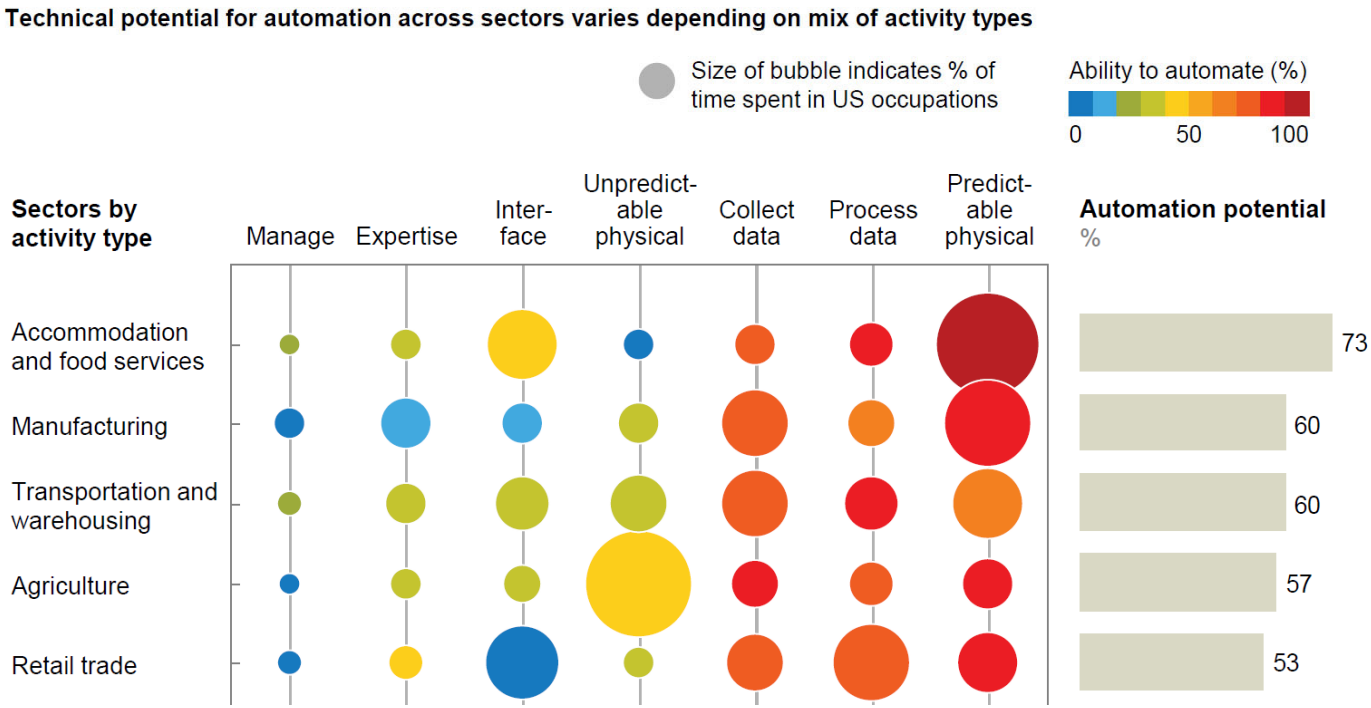


Source: PA WorkStats Occupational Wages, 2022, ESRI Business Analyst, 2022

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

HORTICULTURE & INDOOR PRODUCTION

- Horticultural sales in Berks County are 14% of all horticultural sales in PA
- Horticultural sales represent 60% of the crop sales in the county
- Mushroom production dominates activity
- Remainder of the horticultural sector is represented primarily by floriculture and nursery
- Increasing value of indoor production
- SF of greenhouse tomato production increased 4x from 28,500 SF in 2007 to 121,481 SF in 2017
- SF of greenhouse tomatoes **doubled** to 257,706 SF in 2022

Sales ($)	2012	2017	2022
Vegetables, Greenhouse	$572,918	$800,071	$1,214,633
Tomatoes	$409,244	$449,938	$921,522
Other Vegetables	$163,674	$350,133	$293,111
Fruits, Greenhouse	$19,900	$3,350	(D)

HORTICULTURE & INDOOR PRODUCTION

Sales, 2022 ($)	Pennsylvania	Berks
Horticulture Total	1,082,108,000	152,522,000
Mushrooms & Mushroom Spawn	598,511,262	141,917,311
Nursery	121,334,221	4,937,330
Floriculture	248,305,165	3,955,385
Greenhouse Vegetables & Fruits	23,729,348	2,429,266
Cut Christmas Trees & Short-Term Woody Crops	31,408,000	1,063,000
Propagative Material	35,478,630	369,934
Bulbs & Corms & Rhizomes & Tubers, Dry	229,505	50,500
Aquatic Plants	577,065	(D)

MUSHROOMS

- **Berks County is 2nd in mushroom production and sales in PA and the US**
- Value of mushroom sales in Berks County was $141.9 million in 2022
- Mushroom sales represent 93% of the horticultural sales in the county; 56% of the crop sales; and 20% of the total agricultural sales
- US fresh market sales of Agaricus mushrooms totaled 616 million lbs., down 8% from 2021-2022 season, while processed sales, at 64.0 million lbs., decreased 4%
- 114 million lbs. of all US mushrooms were certified organic during the 2022-2023 growing season

Table. Mushroom Production in Berks County, PA

	2002	2007	2012	2017	2022	% Change from 2017
Farms	9	7	6	6	8	33%
Sales (Million $)	--	(D)	(D)	154.9	141.9	-8%
Production Area (sq. ft.)	(D)	(D)	3,655,132	3,651,516	5,759,559	58%

PRODUCE

- About **1,075 acres** of fruits, tree nuts, and berries
- **$8.5 million** worth of fruit sales
- Increase in fruit acres since 2017

- About **998 acres** of vegetables and melons
- **$8.6 million** worth of vegetables sold
- Decrease in vegetable acres since 2012

Crop Acreage	2002	2007	2012	2017	2022	% Change from 2017
Fruits	1,319	1,260	1,050	975	1,075	10%
Orchard	1,319	1,191	974	911	994	9.1%
Non-Citrus	--	1,164	974	907	(D)	n/a
Tree Nut	--	26	--	4	(D)	n/a
Berries	--	69	76	64	81	26.6%
Vegetables & Melons	1,019	1,132	1,197	1,129	998	-11.6%

PRODUCE

Top Vegetables & Fruits by Acres

Acres	2017	2022	% Change
Sweet Corn	415	291	-29.9%
Pumpkins	248	198	-20.2%
Tomatoes	136	98	-27.9%
Snap Beans	10	68	580.0%
Potatoes	33	37	12.1%
Asparagus	17	25	47.1%
Chile Peppers	22	20	-9.1%
Bell Peppers	15	17	13.3%
Squash	22	14	-36.4%
Broccoli	9	12	33.3%

Acres	2017	2022	% Change
Apples	536	443	-17.4%
Peaches	141	227	61.0%
Grapes	149	198	32.9%
Watermelon	36	39	8.3%
Pears	32	35	9.4%
Blueberries	17	32	88.2%
Cherries	32	31	-3.1%
Nectarines	(D)	16	n/a
Raspberries	14	15	7.1%
Cantaloupe	42	15	-64.3%

VINEYARDS AND WINERIES

- Mostly small and family owned and operated
- Berks **ranked 6th in the state** for grape acreage in 2022; was ranked 4th in 2017
- 198 acres of grapes in 2022
- 24 grape farms in 2022; 14 in 2017
- **33% increase** in total grape acreage since 2017; continued growth since 2012
- **71% increase** in number of grape farms since 2017

Top 10 PA Counties	Grape Acres
ERIE	12,576
LANCASTER	418
BUCKS	232
SCHUYLKILL	226
LEHIGH	201
BERKS	198
MONTGOMERY	168
CHESTER	157
DAUPHIN	131
YORK	125

GRAINS, SOYBEANS, AND OTHER CROPS

- Grains and oilseed sales decreased 23% between 2012 and 2017, from $67 million to $52 million
- Sales increase 36% between 2017 and 2022; $70.6 million in 2022
- Grain and soybean acreage decreased 13% since 2017
- Potential niche opportunities to explore: industrial hemp and flax for textiles
- 44% of the county's soils are suited or moderately suited for industrial hemp

Crop Acreage	2007	2012	2017	2022	% Change from 2017
Corn	50,320	52,813	50,095	45,159	-9.9%
Forage	48,693	49,733	48,946	41,719	-14.8%
Soybeans	25,704	31,936	37,374	36,162	-3.2%
Corn Silage	16,808	21,530	19,289	12,529	-35.0%
Wheat	9,718	10,151	10,880	9,124	-16%
Barley	2,264	2,394	2,258	1,996	-11.6%
Oat	1,688	1,390	695	834	20.0%
Sorghum	(D)	27	339	247	-27.1%
Sorghum Silage	267	361	194	86	-55.7%
Grains & Soybeans	**155,462**	**170,335**	**170,070**	**147,856**	**-13%**

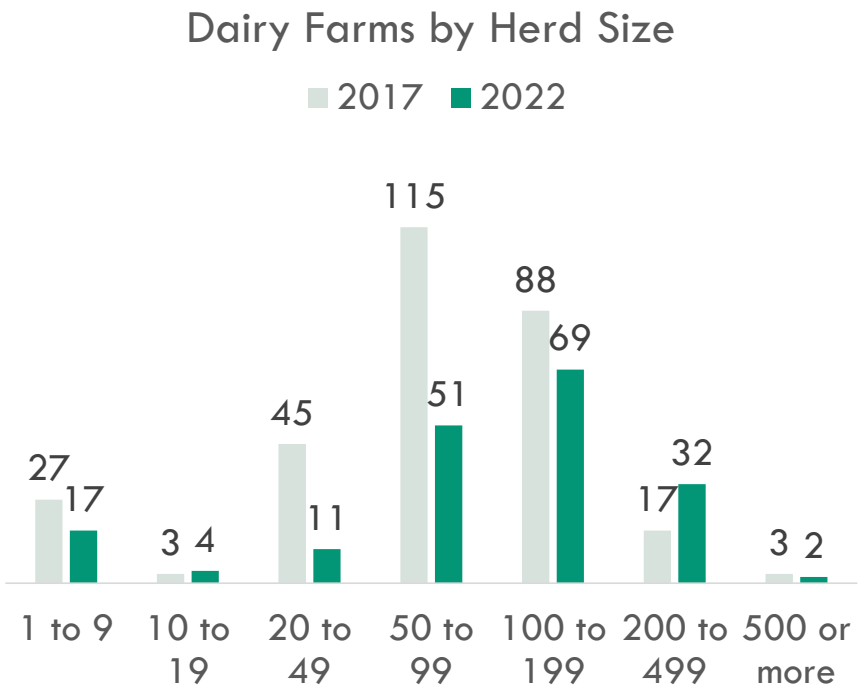
DAIRY

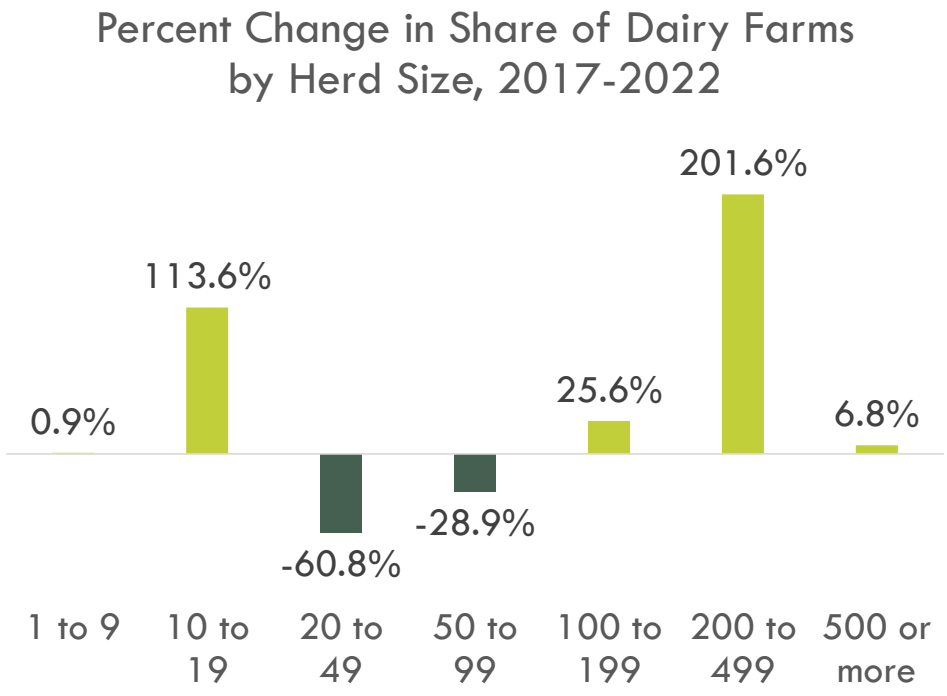
- Produced an estimated **521.8 million pounds** of milk in 2022
- **$143 million** in milk sales in 2022; 24% increase since 2017
- Most of the milk is sold in Federal Milk Market Order 1
- **Declining number** of dairy farms
- **17.4% decrease** in dairy cows since 2017
- Average herd size has increased over the years; significantly larger in recent years

	2007	2012	2017	2022	% Change since 2017
Dairy Farms	308	296	298	186	-37.6%
Cow Inventory	23,625	24,701	29,704	24,546	-17.4%
Cows per Farm	77	83	100	132	32.0%

DAIRY

Decrease in small-sized dairies; shift towards larger herds





CATTLE AND CALVES

Increase in Cattle Production Value

- Cattle sales contributed **$33.1 million** in sales in 2022
- Number of cattle farms has been declining since 2012. **657 cattle farms in 2022; 17% decline since 2017**
- **27% decrease** in cattle inventory since 2017
- **22% decrease** in farms with cattle sales since 2012
- **2.6% increase** in cattle sales ($) since 2017

	2007	2012	2017	2022	% Change
Cattle & Calves	66,950	79,323	85,593	62,607	-26.9%
Cows	26,322	28,050	35,649	29,860	-16.2%
Dairy	23,625	24,701	29,704	24,546	-17.4%
Beef	2,697	3,349	5,945	5,314	-10.6%
Other Cattle	40,628	51,273	49,944	32,747	-34.4%

Cattle & Calves	2007	2012	2017	2022	% Change
Farms with Sales	711	765	700	548	-21.7%
Inventory Sold	31,419	42,091	37,641	32,493	-13.7%
Value of Sales ($1,000)	24,122	40,345	32,284	33,117	2.6%

POULTRY

- **$234 million** in sales in 2022; almost doubled from 2017
- Increase in poultry inventory in recent years, especially broilers
- Strong growth in number of farms selling poultry for meat.
- Egg sales declining as layer numbers go down (-31%)
- Continued downward trend in number of layers since 2012. (**19% decrease between 2012 and 2017**)

	2007	2012	2017	2022	% Change
Broilers	1,427,007	1,774,488	2,742,038	5,194,324	89.4%
Layers	1,860,472	2,683,591	2,090,750	1,436,531	-31.3%
Turkey	254	296	6,125	8,512	39.0%
Ducks	(D)	167,131	(D)	(D)	n/a

	2007	2012	2017	2022	% Change
Farms w/ Broiler Sales	67	68	88	105	19.3%
Broilers Sold	9,603,987	13,027,727	16,661,358	30,432,551	82.7%
Farms w/ Duck Sales	13	13	11	15	36.4%
Ducks Sold	(D)	1,320,228	(D)	(D)	n/a
Farms w/ Turkey Sales	19	13	37	26	-29.7%
Turkeys Sold	6,761	0	26,167	8,542	-67.4%
Poultry & Eggs Sales ($1,000)	71,213	142,642	122,978	234,001	90.3%

HOGS

- **$34.6 million** in sales; 9% decrease from 2017
- Most hog operations are small scale
- 89% sell fewer than 25 hogs
- Hog and pig sales increased significantly since 2002; declined slightly between 2017 and 2022
- Declining red meat prices will lower industry revenue, but lower feed prices should help improve profit.
- Increases in poultry prices will likely help improve demand

	2007	2012	2017	2022	% Change
Farms	106	101	93	81	-12.9%
Inventory	71,199	66,645	78,195	73,042	-6.6%
Farms with Sales	107	91	100	92	-8.0%
Inventory Sold	180,540	131,246	289,494	231,287	-20.1%
Value of Sales ($1,000)	17,974	20,686	38,044	34,636	-9.0%

SHEEP AND GOATS

- Sales of sheep and goat products **has increased 80% from $695k to $1.25 million between 2017 and 2022**. This is after a decline in sales between 2012 and 2017.
- This is despite a decrease in the number of farms with sheep and goats
- About 56% of the goats sold in 2022 were for goat meat and other products. In 2017, 52% were goats for dairy.

	2007	2012	2017	2022	% Change from 2017
Sheep Farms	132	144	149	126	-15.4%
Sheep Inventory	2,483	2,303	3,292	3,255	-1.1%
Sheep Farms with Sales	75	95	87	99	13.8%
Sheep Sold	1,255	1,755	1,635	2,020	23.5%

	2007	2012	2017	2022	% Change from 2017
Goat Farms	149	139	108	90	-16.7%
Goat Inventory	1,890	3,078	2,197	2,939	33.8%
Goat Farms with Sales	52	73	60	63	5.0%
Goats Sold	859	1,844	1,284	1,179	-8.2%

AGRITOURISM AND ADDING VALUE

Growing Agritourism

- Agritourism in the region has been growing over the last decade
- Significant growth between 2012 and 2017
- Continued growth between 2017 and 2022
- **2x increase** in agritourism operations between 2017 and 2022
- Almost **4x increase** in agritourism revenue between 2012 and 2017

	2002	2007	2012	2017	2022	% Change From 2017
Farms	5	24	13	18	38	111.1%
Revenue ($)	4,000	188,000	191,000	740,000	801,000	8.2%

AGRITOURISM AND ADDING VALUE

Shift Towards Value-Added Processing and Organic Farming

- Need to ground-truth direct-to-consumer activity given the changes in USDA reporting
- The USDA Census of Agriculture no longer has data solely on direct-to-consumer activity; it is merged with value-added activity
- Farms sold **$4.2 million** worth of value-added products
- Berks County **ranks 9th** in PA for value-added sales in 2022; was ranked 6th in 2017

DTC (Retail)	2017	2022	% Change
Farms	253	251	-0.8%
Sales ($1,000)	9,953	7,558	-24.1%

Wholesale	2017	2022	% Change
Farms	63	148	134.9%
Sales ($1,000)	26,422	26,302	-0.5%

Value-Added	2017	2022	% Change
Farms	112	92	-17.9%
Sales ($1,000)	4,204	4,228	0.6%

AGRITOURISM AND ADDING VALUE

Shift Towards Value-Added Processing and Organic Farming

- Significant increase in organic sales between 2012 and 2017
- 10.8% decrease in sales between 2017 and 2022

Organic Production	2007	2012	2017	2022	% Change
Farms	--	17	66	65	-1.5%
Sales ($1,000)	--	6,398	153,823	137,235	-10.8%

DEMOGRAPHIC FACTORS

POPULATION AND INCOME

432,883 Population	**2.58** Avg. Household Size	**163,862** Total Households	**65.0** Diversity Index
$76,300 Avg. Disposable Income	**$70,725** Median HH Income	**$38,136** Per Capita Income	**98** Wealth Index

Source: ESRI Business Analyst, 2023

PSYCHOGRAPHICS

Statement	Expected Number of Adults	Percent of Adults	MPI
Am Interested in How to Help Env	60,466	17.7%	95
Buying American Is Important	**113,131**	**33.1%**	**103**
Buy Based on Quality Not Price	49,862	14.6%	97
Buy on Credit Rather Than Wait	41,358	12.1%	95
Only Use Coupons Brands Usually Buy	38,592	11.3%	102
Will Pay More for Env Safe Prods	38,266	11.2%	92
Buy Based on Price Not Brands	90,426	26.5%	97

Slightly higher propensity

Source: ESRI Business Analyst, 2023

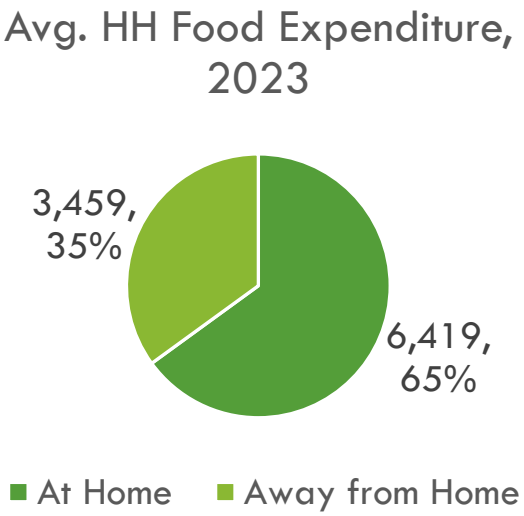
FOOD PURCHASING & CONSUMPTION TRENDS

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 11.4% of the household budget is spent on food
- Slightly higher propensity towards turkey consumption



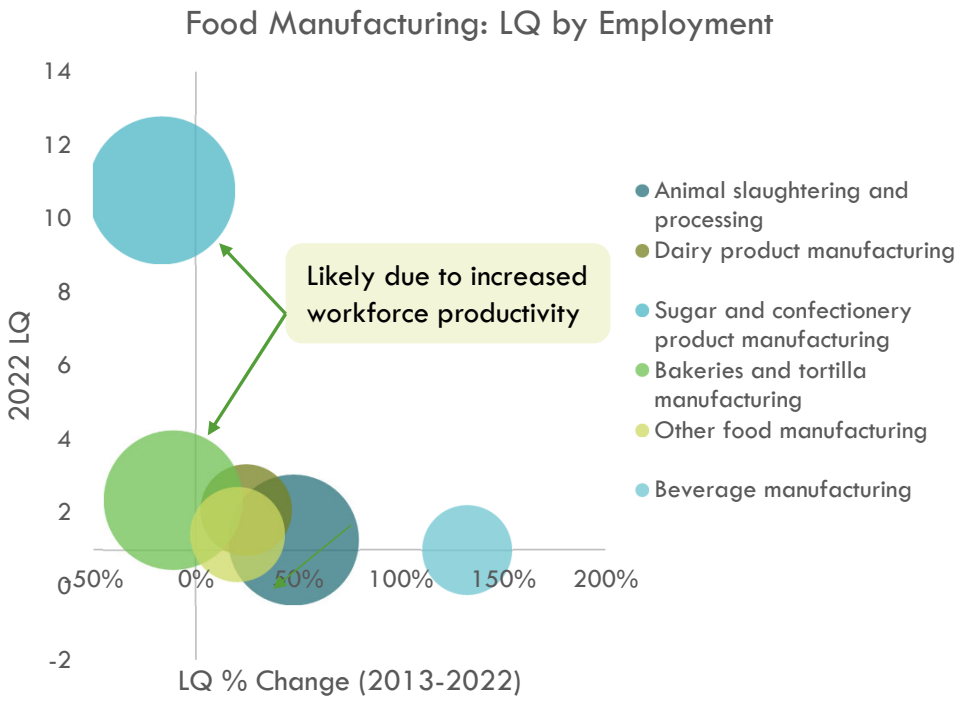
Source: ESRI Business Analyst, 2023

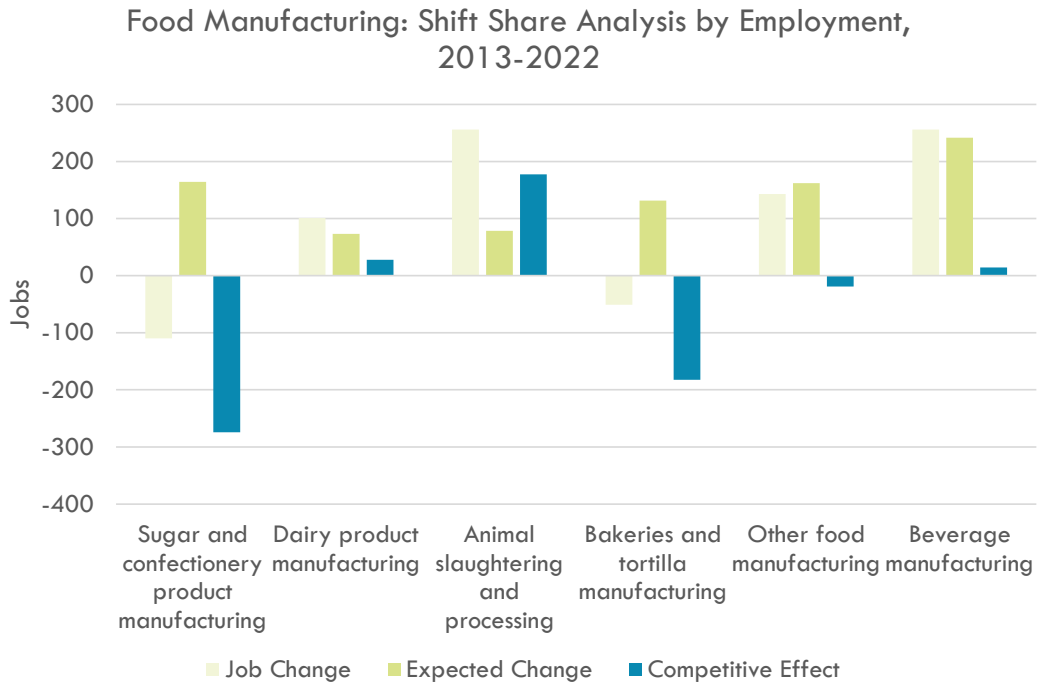
Grocery Market Potential	Expected Number of Adults	Percent of Adults	MPI
HH Used Bread/6 Mo	155,198	94.7%	100
HH Used Chicken (Fresh or Frozen)/6 Mo	115,802	70.7%	101
HH Used Turkey (Fresh or Frozen)/6 Mo	25,148	15.3%	104
HH Used Fish or Seafood (Fresh or Frozen)/6 Mo	97,952	59.8%	99
HH Used Fresh Fruit or Vegetables/6 Mo	144,866	88.4%	100
HH Used Fresh Milk/6 Mo	137,535	83.9%	102

INDUSTRY CLUSTER ANALYSIS

INDUSTRY CLUSTER ANALYSIS

Employment Data

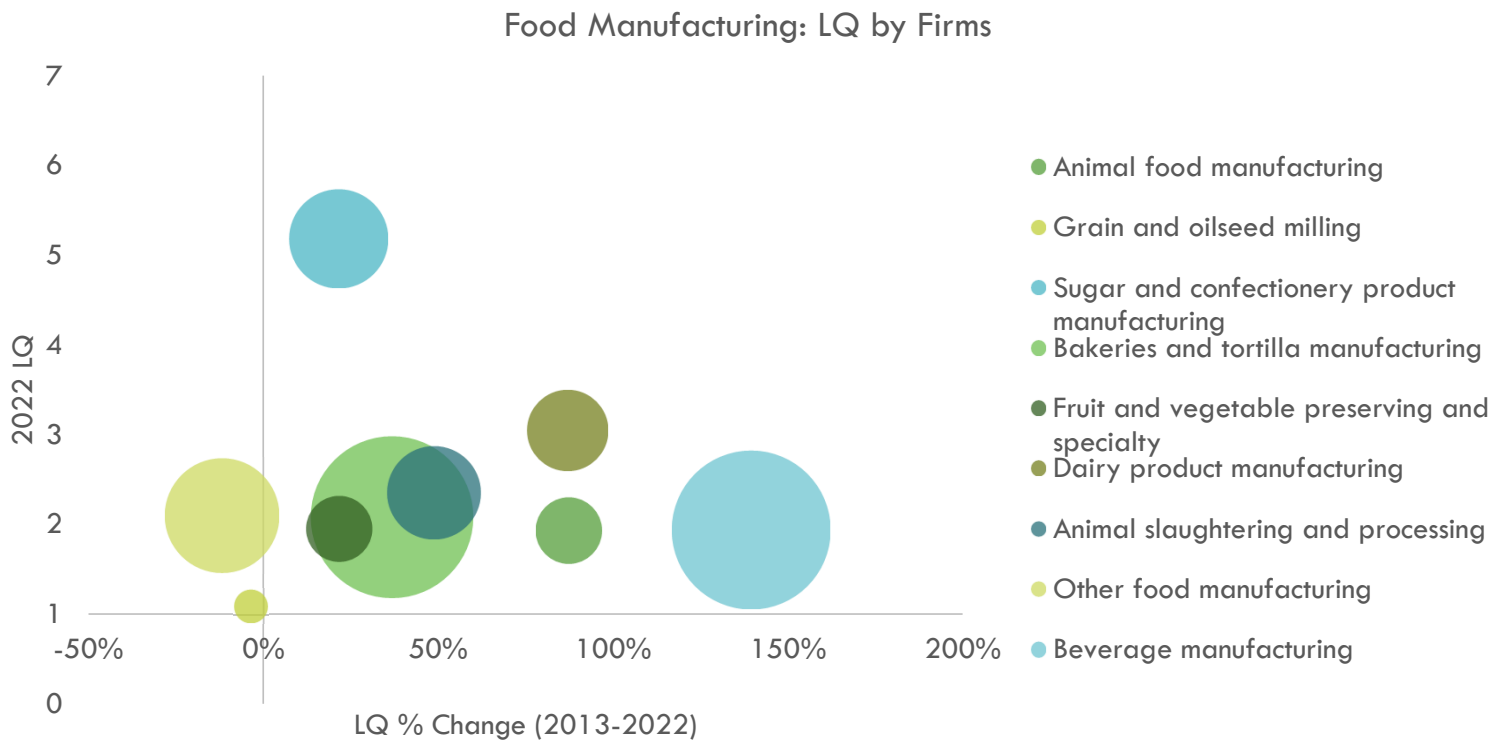




INDUSTRY CLUSTER ANALYSIS

Firm Data

- Many of the sectors are growing in importance
- Beverage mfg. and bakeries have notable increase in firm count
- Other food mfg. and grain milling are at risk



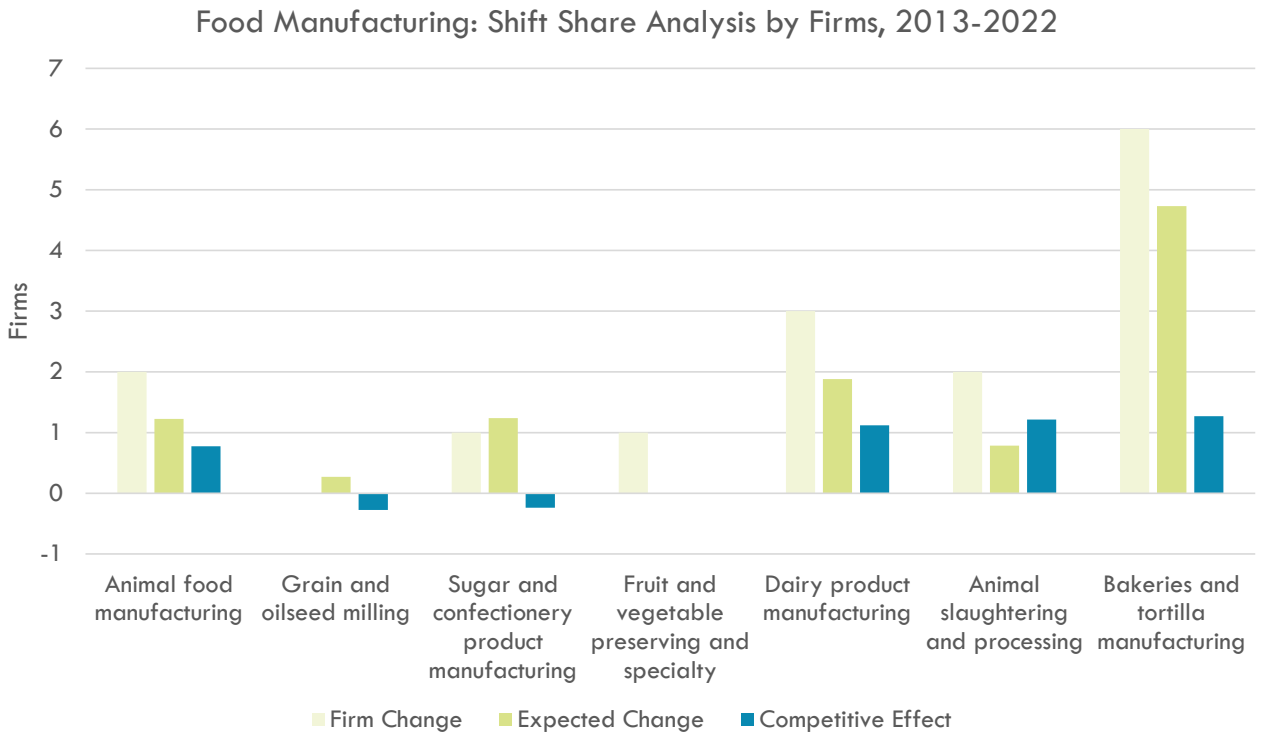
CLUSTER ANALYSIS DATA

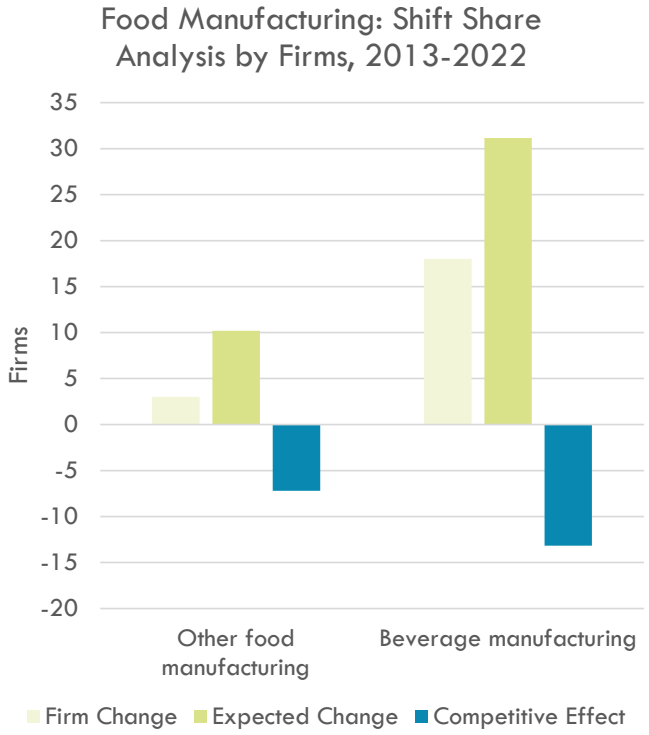
LQ: Firms							
NAICS	Industry	2013	2022	% Change	2013	2022	% Change
3111	Animal food manufacturing	1.03	1.93	87%	2	4	100%
3112	Grain and oilseed milling	1.13	1.09	-4%	1	1	0%
3113	Sugar and confectionery product manufacturing	4.26	5.18	22%	8	9	13%
3114	Fruit and vegetable preserving and specialty	1.6	1.95	22%	3	4	33%
3115	Dairy product manufacturing	1.63	3.05	87%	3	6	100%
3116	Animal slaughtering and processing	1.58	2.35	49%	6	8	33%
3117	Seafood product preparation and packaging						
3118	Bakeries and tortilla manufacturing	1.52	2.08	37%	18	24	33%
3119	Other food manufacturing	2.38	2.1	-12%	9	12	33%
3121	Beverage manufacturing	0.81	1.94	140%	5	23	360%
3122	Tobacco manufacturing						

LQ: Employment							
NAICS	Industry	2013	2022	% Change	2013	2022	% Change
3111	Animal food manufacturing	0	0		0	0	
3112	Grain and oilseed milling	0	0		0	0	
3113	Sugar and confectionery product manufacturing	12.91	10.77	-17%	1,072	962	-10%
3114	Fruit and vegetable preserving and specialty	0	0		0	0	
3115	Dairy product manufacturing	1.67	2.08	25%	274	375	37%
3116	Animal slaughtering and processing	0.86	1.27	48%	507	763	50%
3117	Seafood product preparation and packaging						
3118	Bakeries and tortilla manufacturing	2.64	2.35	-11%	918	867	-6%
3119	Other food manufacturing	1.18	1.42	20%	260	403	55%
3121	Beverage manufacturing	0.43	1	133%	97	353	264%
3122	Tobacco manufacturing						

INDUSTRY CLUSTER ANALYSIS

Firm Data





Appendix B: Berks Impact Study

Agriculture Sector Contribution Analysis

Berks County, PA | 2024

Methodology

A multi-industry contribution analysis (MICA) was conducted for the agricultural production sector in Berks County, PA. This analysis uses IMPLAN data from 2022 for the county, and the agricultural industries included in this analysis are as follows:

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 and forestry. 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.

Summary

Economic Output Contribution

The agricultural sector supported $1 billion in the local economy. Agriculture directly contributed $723 million in economic output and drives a total of $159.4 million in output in other industries. The contribution multiplier for the sector is 1.39. In other words, for every $1 of economic output, an additional $0.39 is generated in the local economy.

Employment Contribution

Agriculture supported about 4,596 full-time/part-time jobs (annual average); note that this is not FTE. The agricultural sector directly employs about 2,923 workers. This means the employment contribution multiplier is 1.57, indicating that every agricultural sector job supports a part-time job in another industry within the region. These employees also spend about $123.8 million in the local economy.

Labor Income Contribution

The industry supported about $245 million in labor income. The following is a breakdown of where the income is generated.

- About $53 million is employee compensation.
- About $96 million is proprietor income.
- About $138 million is other property income.

Table 1. Economic Indicators by Impact (2024 $)

Impact	Employment	Labor Income	Value Added[1]	Output
Direct	2,922.57	$148,694,321.03	$307,200,498.15	$722,908,698.11
Indirect	932.69	$55,002,715.26	$90,543,888.61	$159,414,226.33
Induced	740.40	$41,345,730.54	$73,252,090.25	$123,789,763.44
Total	**4,595.66**	**$245,042,766.82**	**$470,996,477.01**	**$1,006,112,687.87**

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. Poultry and egg production
2. Greenhouse, nursery, and floriculture production
3. Dairy cattle and milk production
4. Grain farming
5. Beef cattle ranching and farming

The top 2 industries represent 55% of the total output, and the top 3 industries represent 77% 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 wholesalers, real estate, and agricultural support services.

[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).

Figure 1. Agriculture Sector Total Output

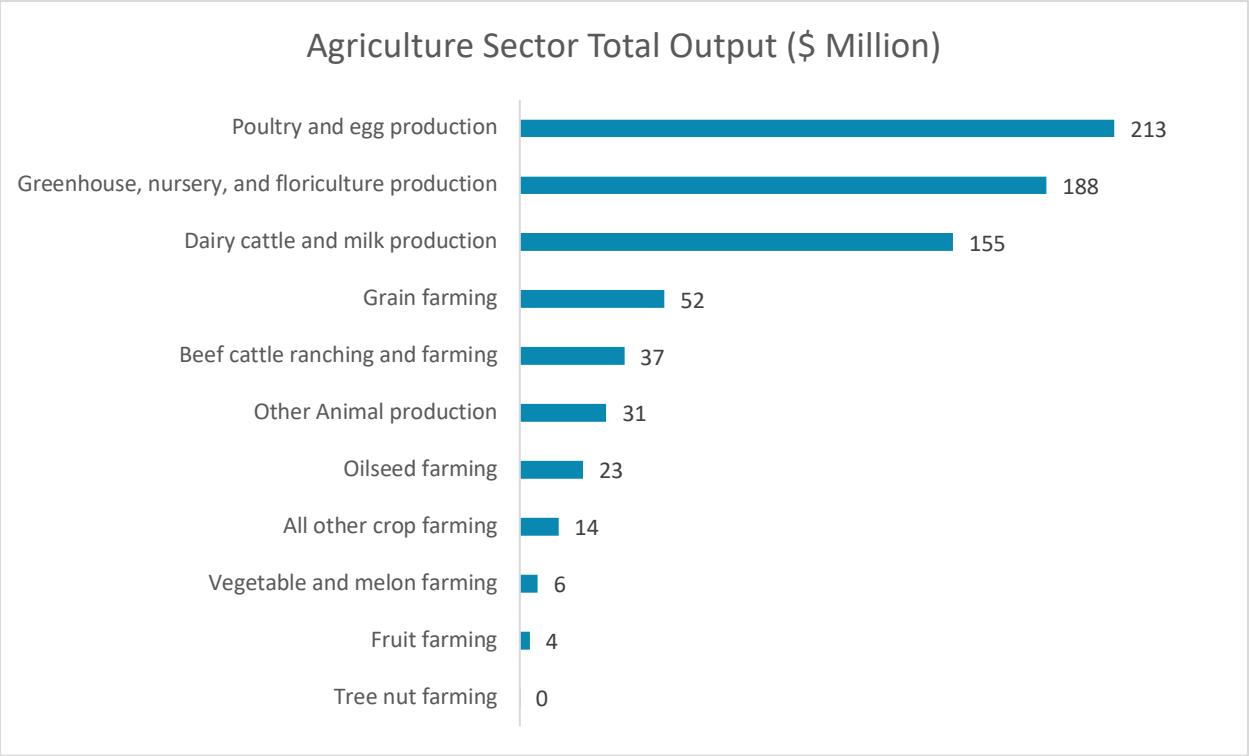
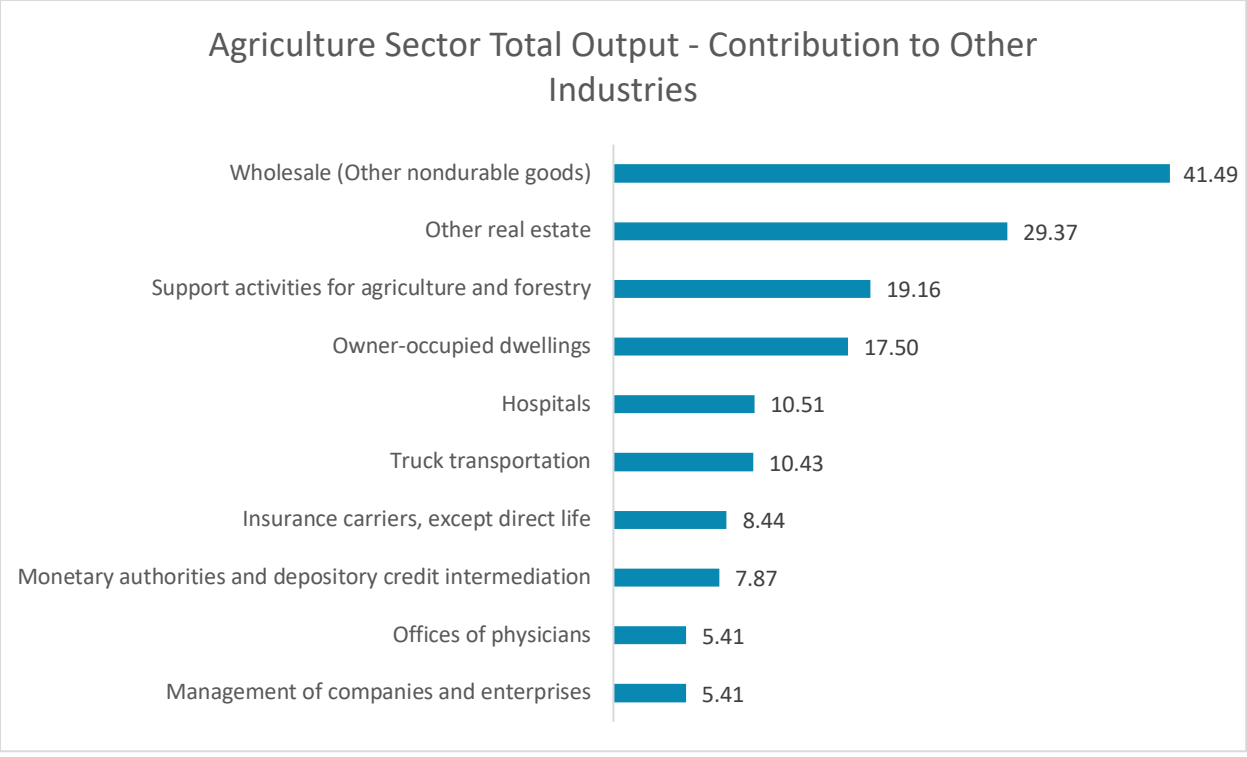


Figure 2. Agriculture Sector Total Output – Contribution to Other Industries



Employment

Most of the employment contribution is through the greenhouse, nursery, and floriculture production industry. It represents 41% of the sector's total job impact. All other crop farming (as an industry) contributes another 360 jobs. Poultry and egg production also contributed about 347 jobs. The top 3 industries combine for about 66% of the sector's total job impact.

Figure 3. Agriculture Sector Total Job Contribution

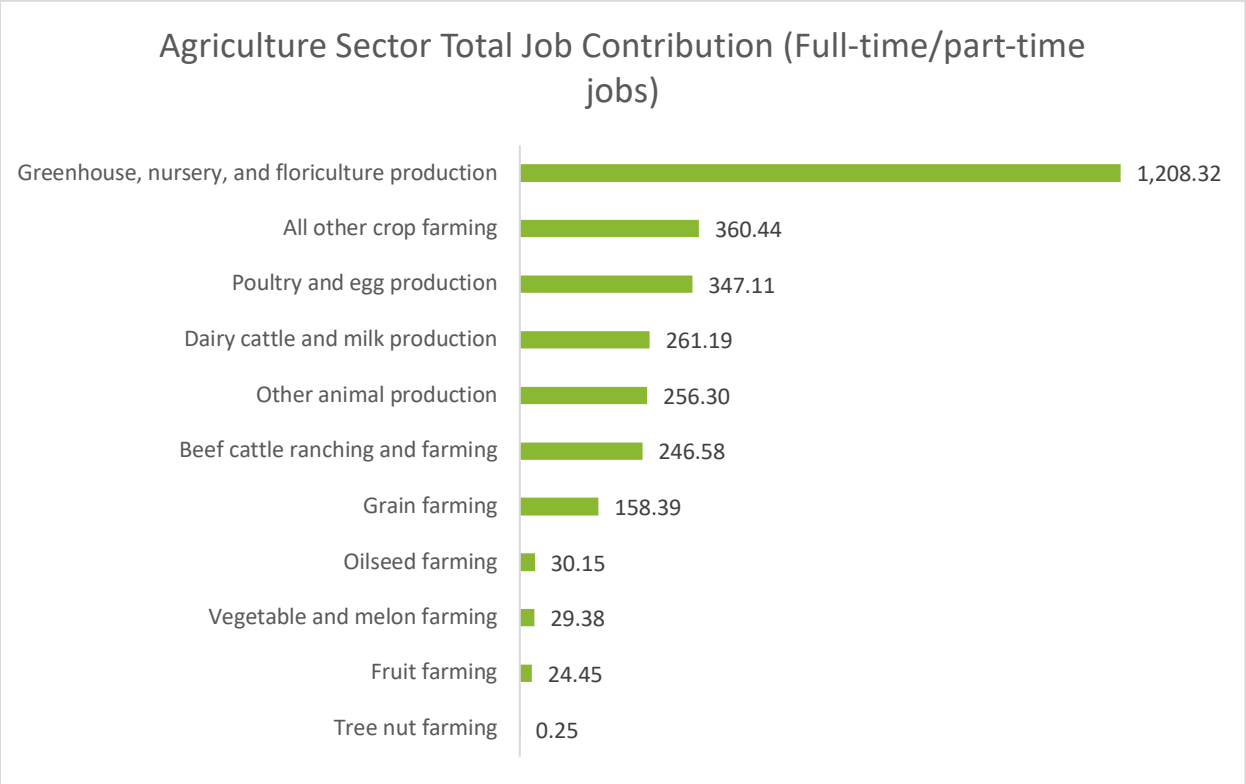


Figure 4 shows the industries the agricultural sector supports through indirect and indirect impacts. The main jobs are in the agricultural support services industry, real estate, and wholesalers. This reinforces the findings from the total economic output. However, the wholesale industry generates more output per job than the agricultural support services industry: $406k compared to $50k respectively. (See Table 2)

Figure 4. Agriculture Sector Total Job Contribution to Other Industries

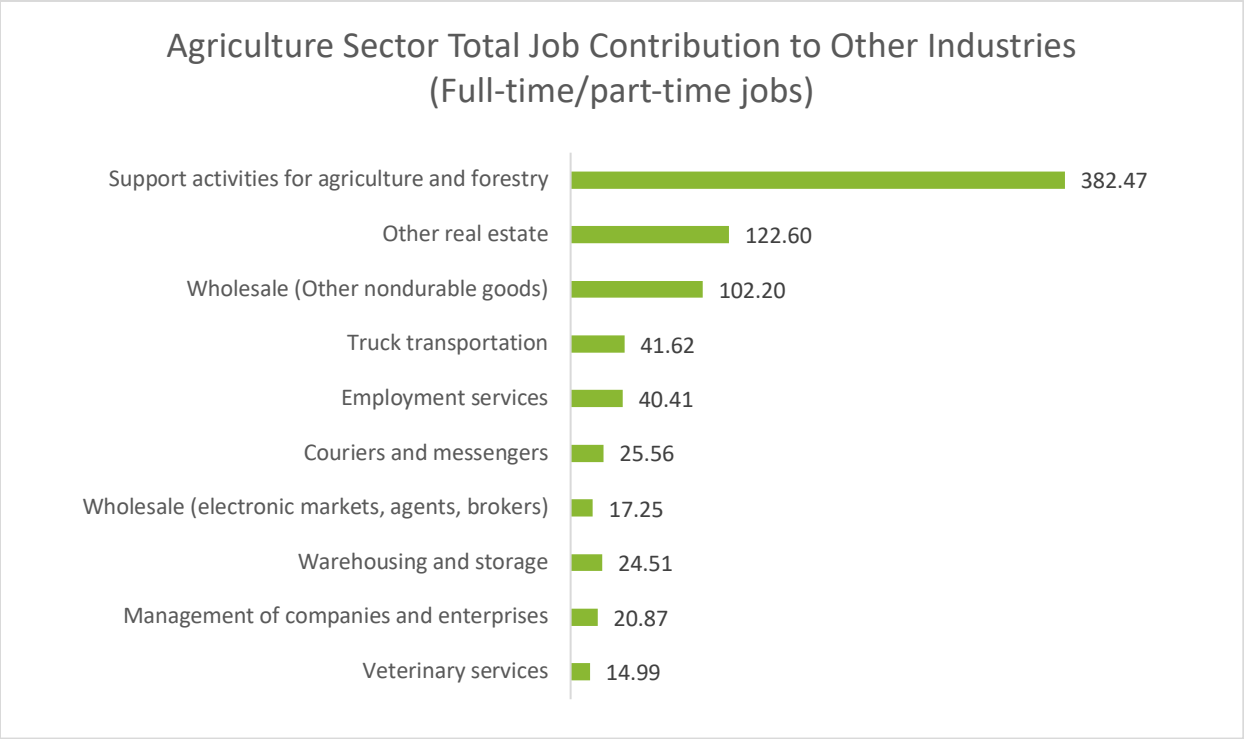


Table 2. Agriculture Sector Contribution to Other Industries

Industry	Total Output	Total Impact Employment	Output per Job
Wholesale (Other nondurable goods)	$41,494,721	102.20	$405,999
Other real estate	$29,367,683	122.60	$239,533
Support activities for agriculture and forestry	$19,159,442	382.47	$50,094

Source: IMPLAN

Taxes

The agricultural sector contributed about $103 million to federal, state, and local taxes. This represents about 10% of the total output. About $3.2 million went to the county, $26.1 million to the commonwealth, and $55.6 million to the federal government.

Table 3. Tax Impact

Impact	County	State	Federal	Total
Direct	$1,664,300.76	$14,894,542.30	$33,665,230.99	$59,966,208.95
Indirect	$1,002,920.88	$6,950,909.04	$12,377,989.39	$25,893,404.43
Induced	$552,714.30	$4,249,434.19	$9,553,760.85	$17,481,530.57
Total	$3,219,935.95	$26,094,885.53	$55,596,981.23	$103,341,143.96

Source: IMPLAN

Appendix C: Berks Region Impact Study

Agriculture Sector Contribution Analysis

Berks Region | 2024

Methodology

A multi-industry contribution analysis (MICA) was conducted for the agricultural production sector in the Berks Region, which includes Berks County, PA and its adjacent counties: Lehigh, Montgomery, Chester, Lancaster, Lebanon, and Shuylkill. This analysis uses IMPLAN data from 2022 for the region, and the agricultural industries included in this analysis are as follows:

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 and forestry. 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.

Summary

Economic Output Contribution

The agricultural sector supported $7.1 billion in the local economy. Agriculture directly contributed $4.6 billion in economic output and drives a total of $1.6 billion in output in other industries. The contribution multiplier for the sector is 1.54. In other words, for every $1 of economic output, an additional $0.54 is generated in the local economy.

Employment Contribution

Agriculture supported about 31,622 full-time/part-time jobs (annual average); note that this is not FTE. The agricultural sector directly employs about 19,844 workers. This means the employment contribution multiplier is 1.59, indicating that every agricultural sector job supports a part-time job in another industry within the region. These employees also spend about $875.6 million in the local economy.

Labor Income Contribution

The industry supported about $1.6 billion in labor income. The following is a breakdown of where the income is generated.

- About $976.9 million is employee compensation.
- About $632.6 million is proprietor income.

The other value added components include:

- About $1.2 billion is other property income.
- About $268.7 million is taxes on production and imports.

Table 1. Economic Indicators by Impact (2024 $)

Impact	Employment	Labor Income	Value Added[1]	Output
Direct	19,844.49	$829,603,969.17	$1,786,952,869.19	$4,585,775,959.63
Indirect	7,015.70	$470,779,337.68	$777,759,415.58	$1,618,554,606.29
Induced	4,761.61	$309,144,769.25	$529,553,347.37	$875,561,694.90
Total	**31,621.80**	**$1,609,528,076.10**	**$3,094,265,632.15**	**$7,079,892,260.82**

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. Poultry and egg production
2. Dairy cattle and milk production
3. Greenhouse, nursery, and floriculture production
4. Grain farming
5. Other animal production

The top 2 industries represent 59% of the total output, and the top 3 industries represent 78% 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 wholesalers, other animal food manufacturing, real estate, and agricultural support services. Note that 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.[2]

[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] 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

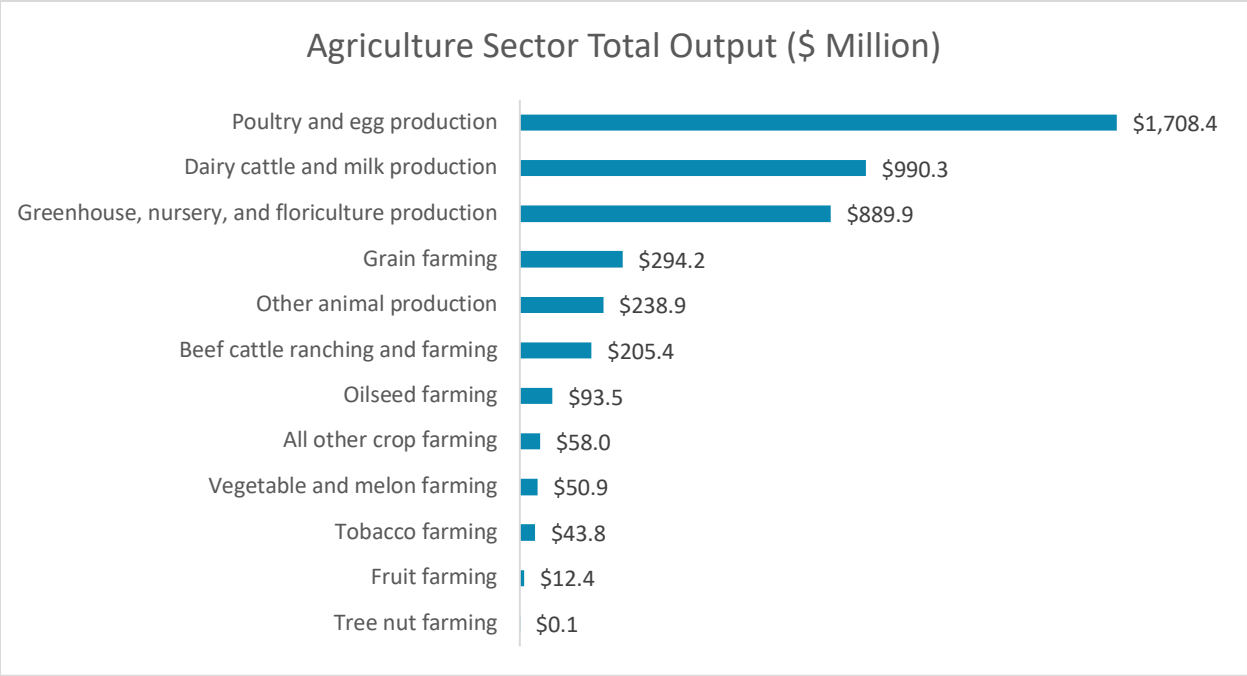
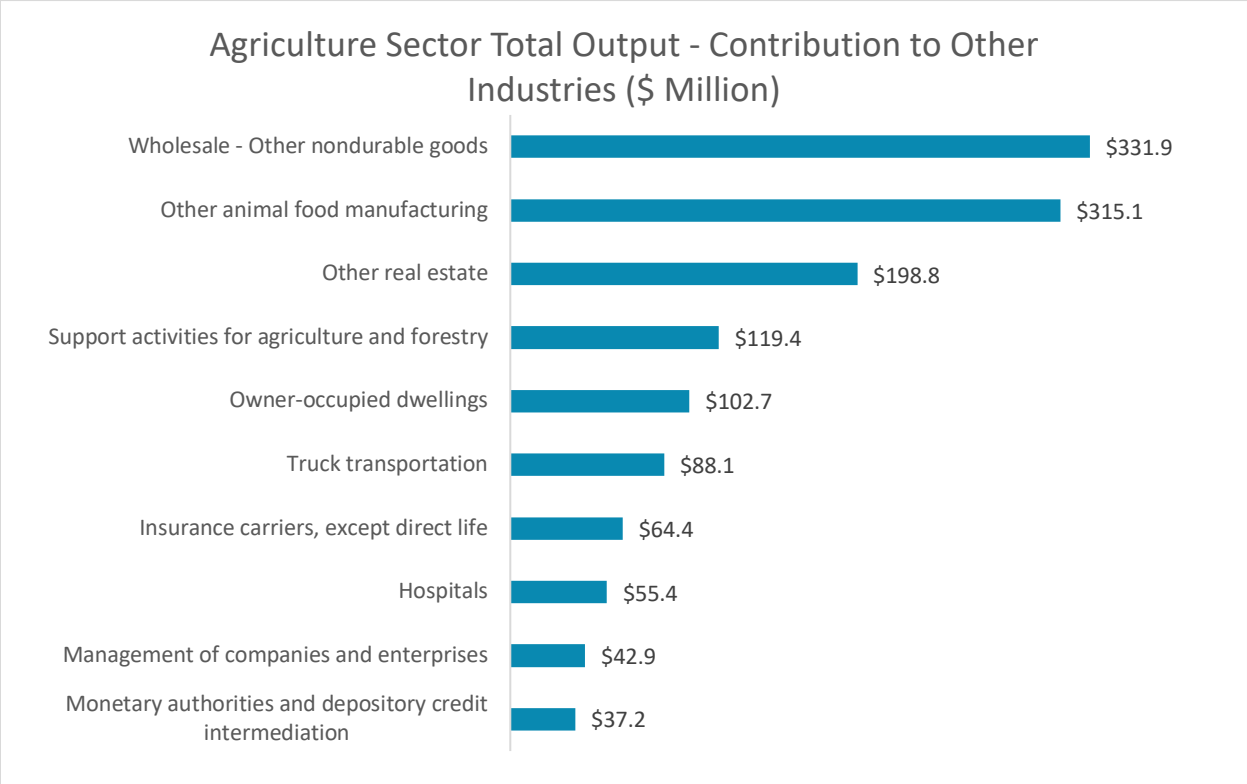


Figure 2. Agriculture Sector Total Output – Contribution to Other Industries



Employment

Most of the employment contribution is through the greenhouse, nursery, and floriculture production industry. It represents 36% of the sector's total job impact. Poultry and egg production contributed about 3,252 jobs (16%). Other animal production (as an industry) also contributed another 2,241 jobs (11%). The top 3 industries combine for about 63% of the sector's total job impact.

Figure 3. Agriculture Sector Total Job Contribution

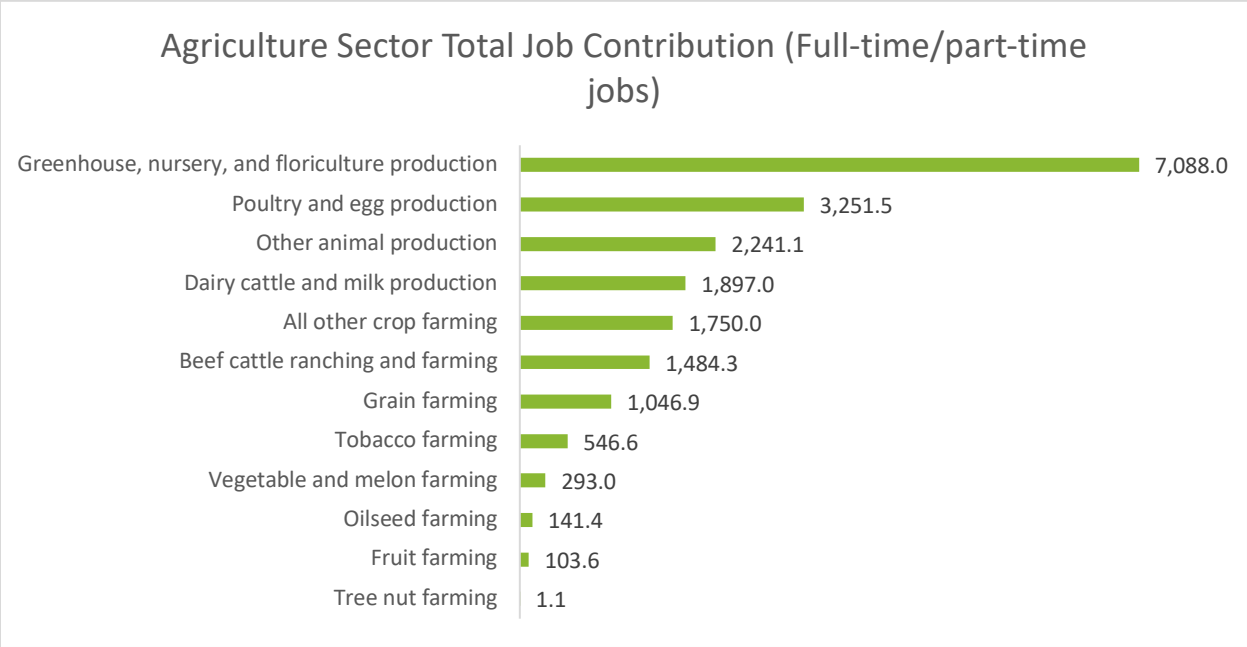


Figure 4 shows the industries the agricultural sector supports through indirect and indirect impacts. The main jobs are in the agricultural support services industry, real estate, and wholesalers. This reinforces the findings from the total economic output. It is worth noting that the wholesale industry generates a high output per job than the agricultural support services industry: $422k compared to $49k respectively. (See Table 2) Moreover, the other animal food manufacturers industry has a very significant output per job at $1.3 million.

Also, while full-service and limited-service restaurants did not make it to the top 10 industries that agriculture contributed towards to, the agriculture sector supported 482 restaurant jobs. Despite being only 2% of the total jobs supported, agriculture does support about $45.3 million in economic output in the restaurant sector. This suggests a strong linkage between local farms and local restaurant businesses.

Figure 4. Agriculture Sector Total Job Contribution to Other Industries

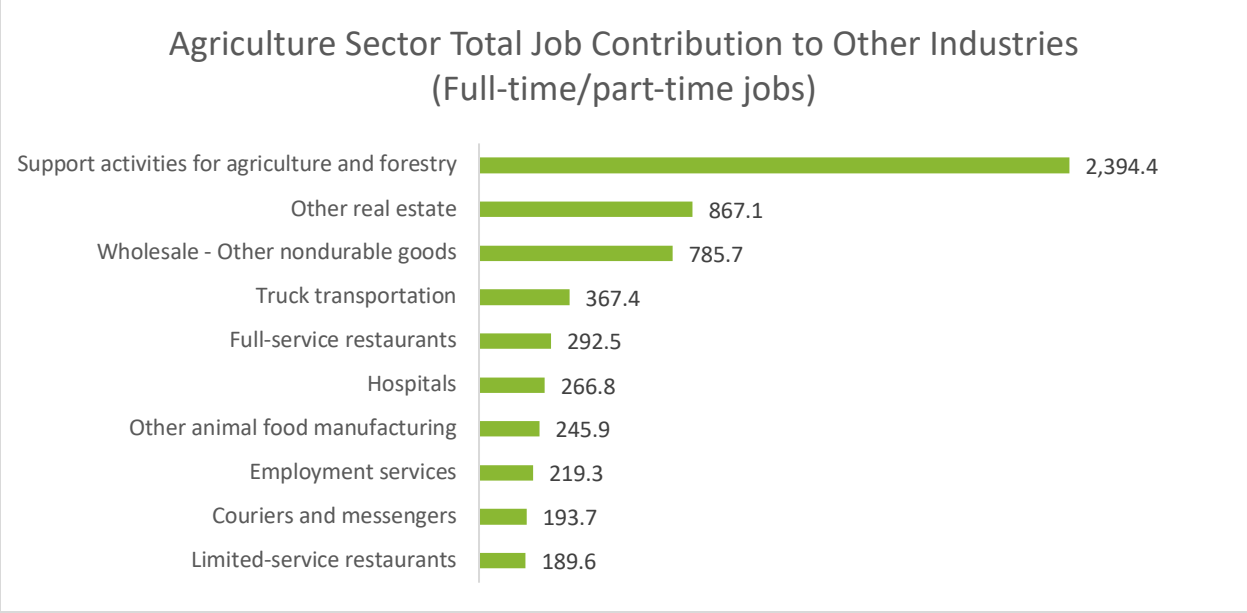


Table 2. Agriculture Sector Contribution to Other Industries

Industry	Total Output	Total Impact Employment	Output per Job
Support activities for agriculture and forestry	$119,394,207	2,394.4	$49,863
Other real estate	$198,756,841	867.1	$229,226
Wholesale - Other nondurable goods	$331,872,000	785.7	$422,397
Other animal food manufacturing	$315,111,664	245.9	$1,281,713
Restaurants (full-service and limited-service)	$45,268,490	482.1	$93,903

Source: IMPLAN

Taxes

The agricultural sector contributed about $666.6 million to federal, state, and local taxes. This represents about 9% of the total output. About $16.4 million went to the county, $186.1 million to the commonwealth, and $347.6 million to the federal government.

Table 3. Tax Impact

Impact	County	State	Federal	Total
Direct	$8,255,737.92	$99,106,089.37	$179,205,166.91	$345,603,018.49
Indirect	$5,620,143.40	$57,843,477.31	$100,968,207.65	$203,788,162.55
Induced	$2,527,914.20	$29,152,250.00	$67,416,232.99	$117,194,547.70
Total	$16,403,795.52	$186,101,816.68	$347,589,607.55	$666,585,728.74

Source: IMPLAN

Appendix D: Retail Shock Analysis

MEMORANDUM

DATE: 07/16/2024
TO: Emily Wangolo, Berks County Department of Agriculture
FROM: J. Philip Gottwals, ACDS LLC
RE: Retail Shock Analysis

Background

Approximately 14 percent of farms in Berks County have farm-based retail outlets. These outlets distinguish themselves with the unique nature of their products and market segmentation strategies. Because of the importance of these operations, ACDS LLC has conducted two small retail shock analyses to model specific positive changes in retail activity and its overall impact on both agriculture and the general economy.

Shock Model 1 – Across the board increase in on-farm sales totaling $5.4 million allocated to both fresh and processed farm products distributed across the standard food basket for Berks County but no new employment.

Shock Model 2 – New, year-round fresh fruit and vegetable market in the urban core of the county serving specialty fruit and vegetable demand, creating $3.06 million in new sales and 15 new jobs.

Retail shock analysis using IMPLAN evaluates the economic impact of changes or "shocks" in the retail sector on a given economy. IMPLAN is an input-output modeling system that helps analyze the effects of different economic activities and policies.

Key Steps in Retail Shock Analysis Using IMPLAN:

1. **Defining the Shock:**

- Determine the specific retail event or change to analyze.
    - Output
    - Employment
    - Value Added (total output minus intermediate inputs, not the same as value-added processing)
    - Property income
    - Job skills
    - Taxes
    - Environmental factors
- Defining the event specifics
    - Industry sectors impacted
    - Absolute or percentage of contribution changes

2.**Data Collection:**

- Identify relevant IMPLAN data sets
- Create industry data profile for benchmarking

3.**Input-Output Model Setup:**

- Set up the input-output model in IMPLAN by setting geographic and industry sector fields.
- Create impact allocations by sector.

4. **Running the Shock Model:**

- Input the shock details into IMPLAN.
- Run the model to simulate the economic impact of the retail shock. The model will analyze how the shock affects various economic sectors and the overall economy.

5.**Analyzing Results:**

- Review the output generated by IMPLAN. This includes measures such as changes in gross output, Value Added, employment, and tax revenues.
- Interpret the results to understand the retail shock's direct, indirect, and induced effects.
    - Direct effects are the immediate impacts on the retail sector.
    - Indirect effects are the impacts on supply chain industries.
    - Induced effects are the impacts resulting from changes in household spending.

Retail shock analysis using IMPLAN generally supports enhanced economic performance in industries such as retailing and services that recirculate dollars through a community. Governments and policymakers use retail shock analysis to assess the financial implications of proposed retail developments or regulations. This helps them make informed decisions about policies that will impact the local economy.

For the Berks County Department of Agriculture and its partners in agricultural economic development, this analysis can be used to understand the potential benefits or drawbacks of expanding an already robust agricultural retail sector or supporting its expansion to infill urban food deserts. By evaluating the effects of retail changes on the local economy, these agencies can strategize effectively to promote sustainable economic growth and development. The insights gained from retail shock analysis are crucial for planning and implementing initiatives supporting community well-being, such as improved food access and food system resiliency and enhancing the tax base.

Retail businesses can use shock analysis to evaluate the potential impact of strategic decisions such as expansion, relocation, or changes in product offerings. By understanding the economic effects of these decisions, businesses can optimize their strategies to enhance profitability and competitiveness. This analytical approach ensures that business strategies align with broader economic goals, benefiting both the companies and the communities they serve. Furthermore, businesses can use the model to help identify workforce skills impacts to assess workforce development and recruitment strategies.

Shock Model 1 - Summary

Small changes in markets, regulations, and even promotions can significantly impact farm-based retail operations. Even simple policy changes, such as expanding the definition of agricultural uses to include more on-farm value-added processing and larger accessory-use buildings to accommodate year-round sales, could have an appreciable impact on individual farm performance.

Modeling this impact required that ACDS select the most fitting category of retailer. The comparative NAICS code of 445299 for Specialty Food Retail was chosen because it represents a wide variety of products and includes ethnic specialties in poultry, meat, eggs, dairy, fruits, vegetables, and baked goods. ACDS has assigned approximately $25,000 in new annual sales per farm-based outlet for a total increase of $5,400,000 in sales across the county. Because individual sales increases per farm are low, the ACDS team expects they will be absorbed within existing overhead structures and will not require new direct employment at the farm level.

Introduction to the NAICS sector structure

Industry Overview

The Specialty Food Stores industry in the US includes businesses that sell premium food products such as baked goods, candy, artisanal cheeses, and packaged coffee. Despite facing competition from traditional supermarkets and grocery stores, which have increasingly included specialty food items in their aisles, the industry has grown due to rising health awareness and consumer preference for ethnic specialty, premium, all-natural foods. These characteristics match the on-farm sales structure in Berks County.

The following is a summary of the national sector performance, according to IBIS World sector reports.

Market Performance

- Revenue Growth: The industry revenue grew at an annualized rate of 0.7% over the past five years, reaching an expected $12.4 billion in 2024, with an anticipated growth rate of 2.1% for that year. Over the next five years, from 2024 to 2029, the industry is expected to grow at an annualized rate of 2.6%, reaching $14.1 billion.
- Profitability: Profit margins have remained stable at around 6.4% during this period.
- Employment: The industry employs approximately 141,000 people, with annual employee growth projected at 1.8% over the past five years and expected to increase by 2.2% from 2024 to 2029.

- Businesses: The industry has 47,295 businesses, and the number is expected to grow at 1.5% annually from 2024 to 2029, slightly higher than the industry's growth rate of 1.0% annually from 2019 to 2024.

Key Drivers and Trends

- Health Consciousness: Increased consumer awareness of health and dietary issues has driven demand for organic, local, and gourmet products.
- Pandemic Impact: The COVID-19 pandemic restrictions significantly boosted demand for specialty foods as consumers cooked more at home due to restaurant closures.
- Competitive Pressure: Traditional supermarkets and grocery stores pose a significant competitive threat due to their ability to offer specialty foods at lower prices and provide a convenient one-stop shopping experience.

Market Segmentation

- Demographic demand: Cultural and ethnic consumers increasingly seek authentic products and experiences.
- Age matters in shopping preferences:
    - The largest market segment is younger consumers (ages 23 to 41), who are motivated by health trends and adequate disposable income.
    - Consumers aged 42 to 53 have increased demand, especially parents purchasing for their families.
    - Consumers aged 54 to 72 represent the smallest segment due to typically fixed incomes and less engagement with new dietary trends.

Future Outlook

- Economic Conditions: Rising disposable incomes and consumer spending are expected to drive demand for specialty food stores.
- Product Offerings: Introducing new product lines, such as plant-based options and products with sustainable packaging, is expected to attract a broader customer base.
- Technology: The adoption of advanced inventory management systems, blockchain for supply chain transparency, and contactless shopping technologies is expected to enhance operational efficiency and customer experience.

Geographic Breakdown

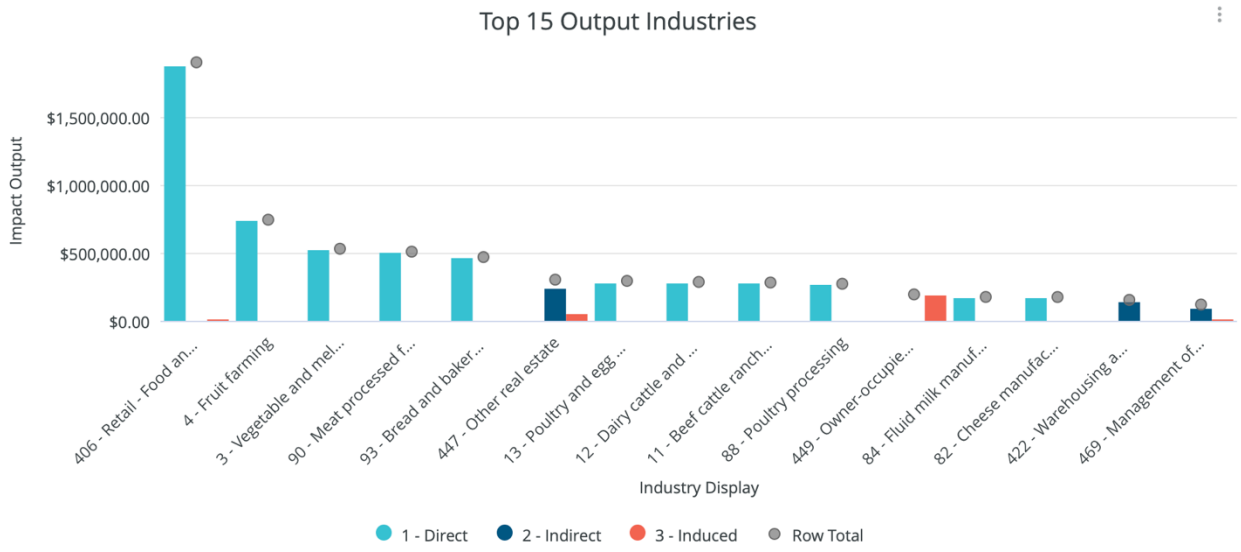
- Regional Concentration: The highest concentration of specialty food stores is in the West and Mid-Atlantic regions, influenced by population density and proximity to agricultural hubs.
- Pennsylvania has the second highest direct-to-consumer sales in the US, behind California at $600 million.

Industry Challenges

- Regulations: Specialty food stores must comply with general food and labor laws, but they are not bound by many industry-specific regulations. In agriculture, complexities in local land use laws make it difficult to combine retailing with farming.
- External Competition: The growing presence of specialty food products in traditional supermarkets remains a significant challenge.

Shock Model 1 – Results Summary

Adding $5,400,000 in new sales to existing markets distributed across Berks County has a significant direct impact on a number of important sectors led by related retailing, farming and manufacturing activities. Industries with the greatest induced and indirect effects were real estate related activities and warehousing and distribution. The top 15 industries affected can be seen in the following chart.

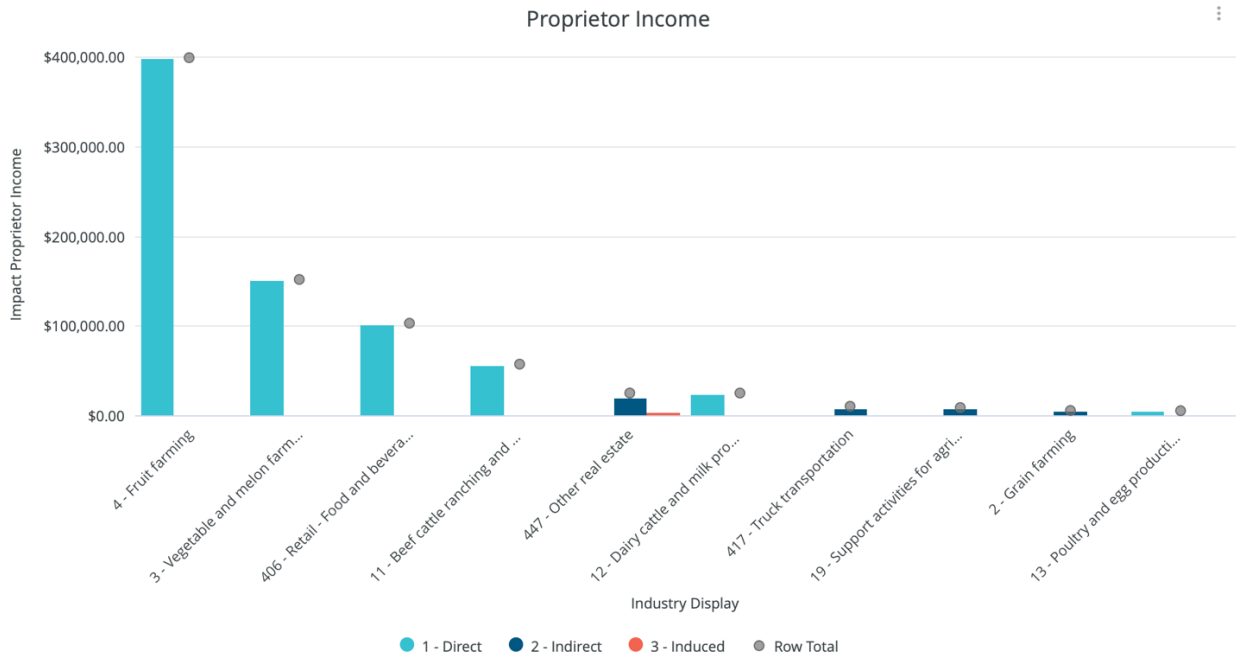


Importantly, the very modest $5.4 million increase in sales directly creates nearly 38 full-time equivalent (FTE) jobs while indirectly adding another 17 FTEs. These induced and indirect jobs are higher-wage earners with average earnings over $57,000. Similarly, these sales leverage an additional $1.6 million in Value Added, $982,000 in additional wages, and $2.9 million in output (sales value) for an output multiplier of 1.51.

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	37.84	$1,798,363.61	$2,744,104.37	$5,589,839.67
2 - Indirect	8.47	$517,765.32	$797,068.16	$1,503,710.82
3 - Induced	8.31	$464,452.35	$821,193.74	$1,387,419.28
Totals	54.62	$2,780,581.28	$4,362,366.27	$8,480,969.77

Other property income, which accounts for rents, royalties, interest, and dividends, was also significantly impacted, with most of the direct and induced effects accruing to local businesses outside of agriculture.

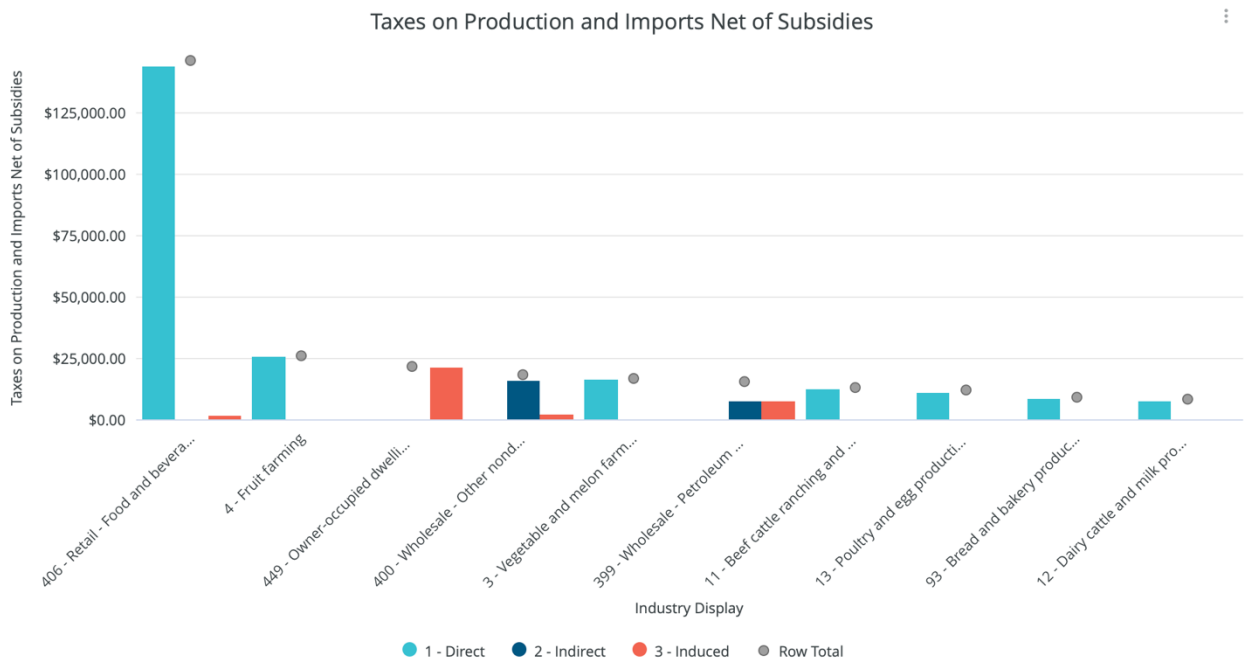
From a farm perspective, farm owners with the highest proprietor income gains were fruit and vegetable growers, followed by other retailers and beef producers. Interestingly, the real estate operators had higher income impacts than other farmers.



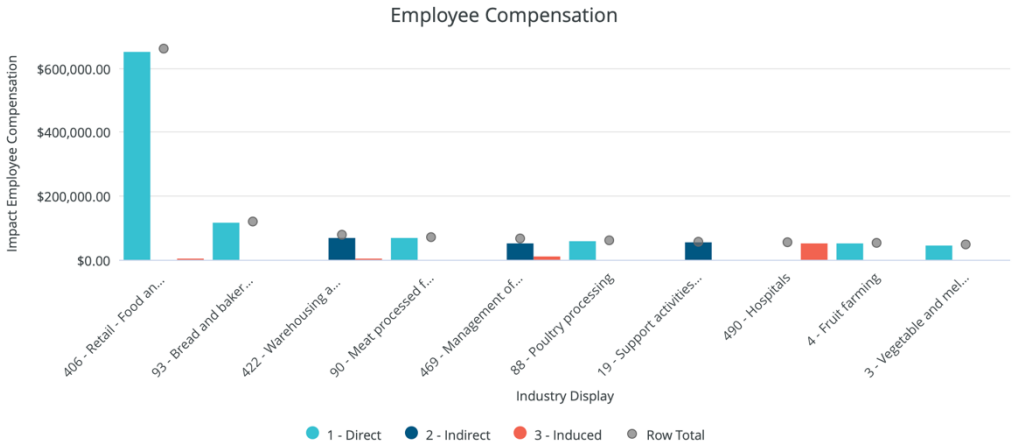
Value Added and income tax effects were also significant with the total tax contribution of 19.6% of the new income generated. The bulk of these taxes are assessed at the retail level.

Tax Results

Impact	Sub County General	Sub County Special Districts	County	State	Federal	Total
1 - Direct	$23,068.01	$86,304.52	$18,576.57	$158,163.13	$384,465.41	$670,577.63
2 - Indirect	$6,088.13	$22,887.77	$4,933.89	$42,383.80	$114,169.29	$190,462.88
3 - Induced	$6,828.95	$27,217.81	$5,971.02	$48,688.36	$107,325.84	$196,031.97
Totals	$35,985.09	$136,410.09	$29,481.48	$249,235.29	$605,960.54	$1,057,072.49



In addition to the net gain of nearly 55 new employees, or one new job for every $98,000 in sales, there are significant gains in employee compensation. The greatest compensation gains come from the retail sector itself which is allocating more hours generally within existing labor categories. After these, distribution and manufacturing see the largest sectoral gains whether direct, indirect, or induced.



Shock Model 2 - Summary

The second shock model assumes that a new, year-round fruit and vegetable market opens in a food desert area of Reading. The market is expected to operate as a value-oriented fruit and vegetable retailer with average sales of $3.06 million and 15 employees. The comparative NAICS code for this shock analysis is code 445230, Fruit and Vegetable Markets. It was selected because of the potential to build a strong relationship between the plain sect's ethnic specialty vegetable producers and the lower-income and lower-access ethnic specialty markets in and around Reading.

Introduction to the NAICS sector structure

Industry Overview

The Fruit & Vegetable Markets industry in the US consists of vendors selling produce, meats, dairy, and other items through stands, farmers' markets, and retail locations. This industry is characterized by small, individually owned businesses providing fresh products directly to consumers. These businesses tend to be small and quite customer focused.

Market Performance

- Revenue Growth: The industry revenue grew at an annualized rate of 3.2% from 2018 to 2023, reaching $6.5 billion in 2023. It is expected to grow at an annualized rate of 2.5% from 2023 to 2028, reaching $7.6 billion by 2029.
- Employment: The industry employs about 31,832 people, with employment growing at 1.9% annually from 2018 to 2023 and expected to grow at 2.2% annually from 2023 to 2028.
- Profit Margins: Profit margins have remained stable at around 2.9%.

Key Drivers and Trends

- Rising Prices: The prices of fruits and vegetables have increased, driving revenue growth. However, this has been partially offset by a slight decline in per capita consumption.
- Health Consciousness: Increasing health awareness has boosted demand for organic and locally sourced produce.
- COVID-19 Impact: Farmers' markets performed well during the pandemic due to their suitability for social distancing and the closure of restaurants, which drove more consumers to purchase fresh produce directly.

Market Segmentation

- Demographic demand: Cultural and ethnic consumers increasingly seek authentic products and experiences.

- Age influences urban vegetable and fruit market purchasing trends.
    - Consumers over 50 tend to be value-driven and purchase smaller amounts for fresh consumption. A subset will purchase larger amounts for home food preservation.
    - The 31 to 50 are the largest market segment, driven by higher disposable incomes and health-conscious behavior.
    - The 19 to 30 age group is also significant, as they shift towards healthier diets.
    - The 18-and-under demographic accounts for a smaller yet important portion of the market, primarily influenced by parents purchasing healthy food for their children.

Future Outlook

- Economic Conditions: Rising disposable incomes are expected to drive demand for higher-quality produce.
- Competitive Pressure: Supermarkets and grocery stores continue to pose a significant threat due to their convenience and competitive pricing.
- Technology and Innovation: The adoption of electronic point-of-sale systems and other technologies is expected to enhance operational efficiency and customer service.

Geographic Breakdown

- **Regional Concentration**: The highest concentration of industry establishments is in the Mid-Atlantic and Southeast regions, driven by population density and favorable agricultural conditions.
- Pennsylvania has the second highest direct-to-consumer sales in the US, behind California at $600 million.

Industry Challenges

- Regulations: Compliance with food safety and health regulations is essential for operation.
- Competition: Intense competition from farm markets, larger retailers, and the convenience of online grocery shopping pose ongoing challenges.

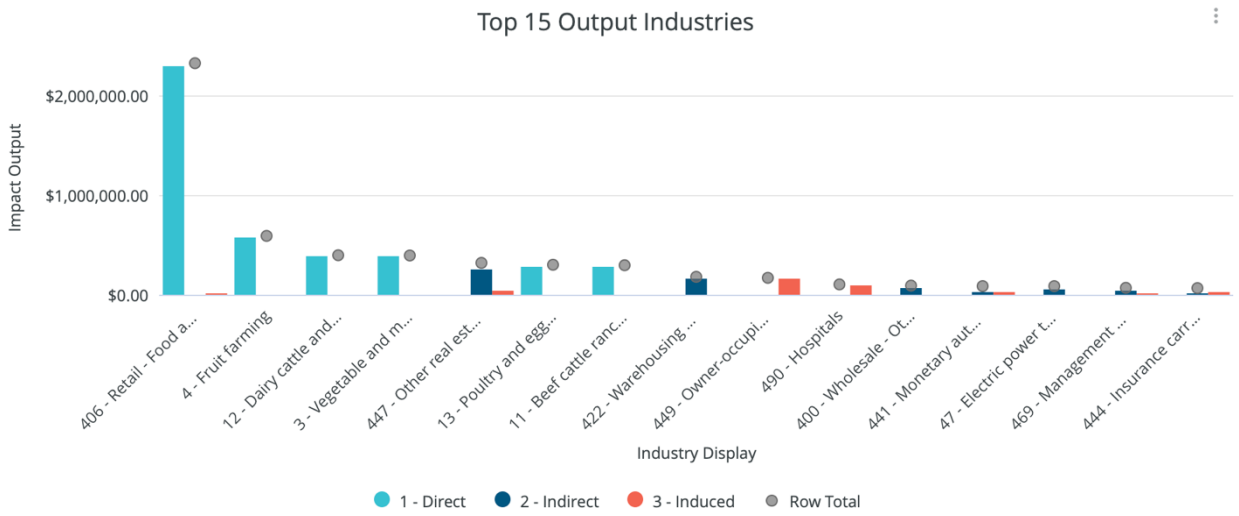
Financial Benchmarks

- Cost Structure: Inventory purchases represent the largest cost component, accounting for 65.5% of revenue. Wages are another significant expense.
- Profit Stability: Despite fluctuations in prices and consumer habits, profit margins have remained relatively stable due to the essential nature of the industry's products.

Shock Model 2 – Results Summary

Filling a market void in the ethnically diverse urban neighborhoods of Berks offers the potential to build lasting connections between underserved consumers and both urban and rural farmers. Even a small store with 15 employees and $3.06 million in sales can have a meaningful, countywide impact.

Much like the results in Model 1, direct, indirect, and induced impacts have large and predictable results. The retail sectors as well as fruit, vegetable and dairy industries make up the top 4 impacted industries by output. Industries with the greatest induced and indirect effects were real estate related activities, healthcare, hospitals, warehousing and distribution. The top 15 industries affected can be seen in the following chart.

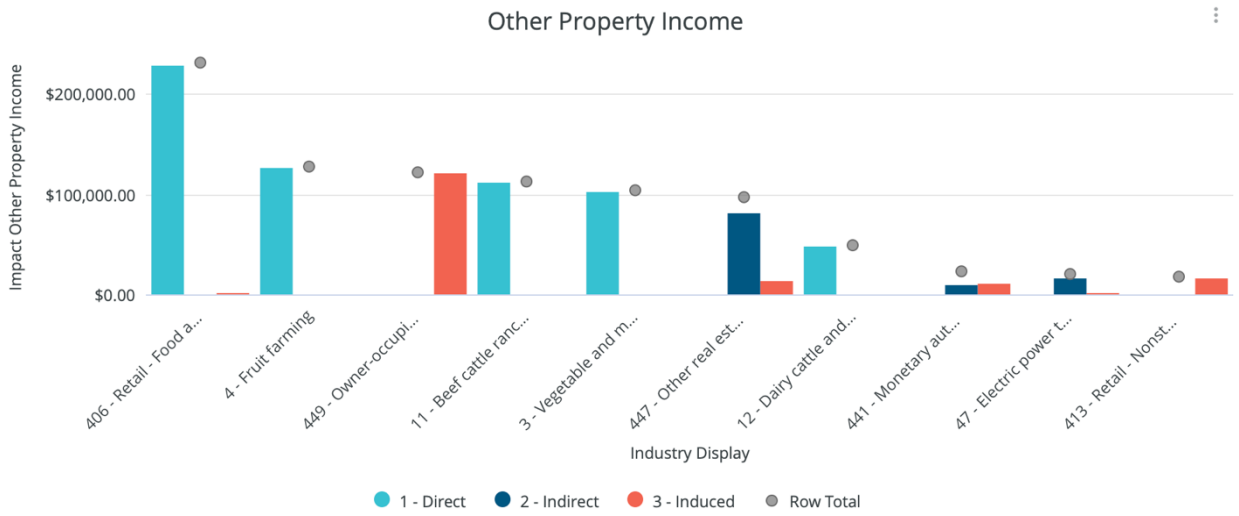


Model 2 has even more significant employment effects than Model 1. A $3.06 million increase in sales directly creates nearly 37 full-time equivalent (FTE) jobs while adding another 15 FTEs. These induced and indirect jobs are higher wage earners with average earnings over $57,200. Similarly, these sales leverage an additional $1.43 million in Value Added, $859,000 in additional wages, and $2.55 million in output (sales value) for an output multiplier of 1.83.

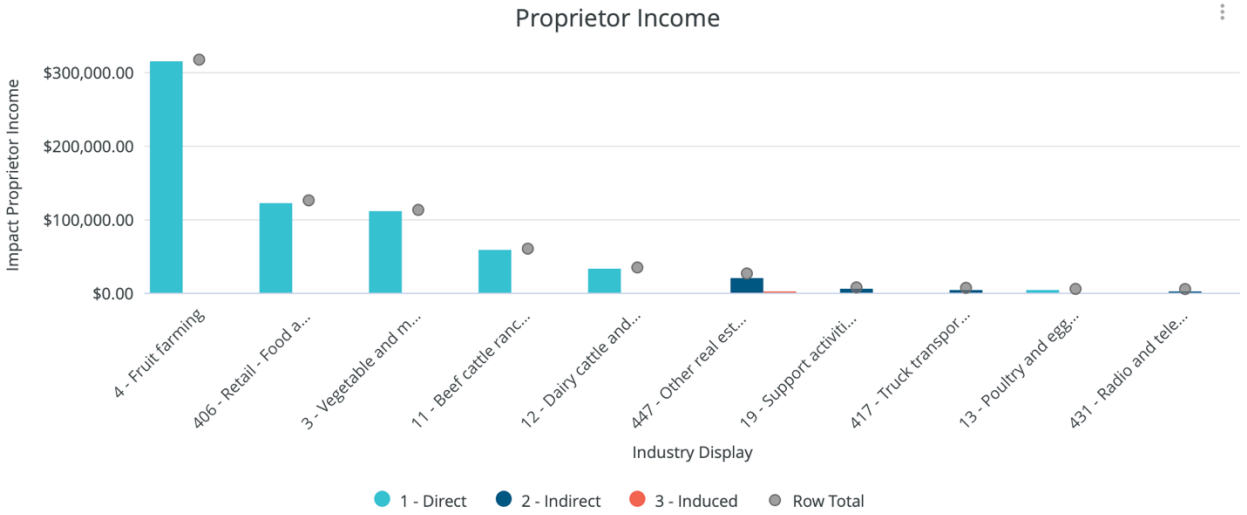
Economic Indicators by Impact

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	36.83	$1,560,949.55	$2,442,672.84	$4,277,614.33
2 - Indirect	7.85	$452,606.56	$707,769.24	$1,342,021.66
3 - Induced	7.26	$405,650.00	$717,246.81	$1,211,789.79
Totals	51.94	$2,419,206.11	$3,867,688.88	$6,831,425.78

Other property income, which accounts for rents, royalties, interest, and dividends, was also significantly impacted, with most of the direct and induced effects accruing to local businesses outside of agriculture.



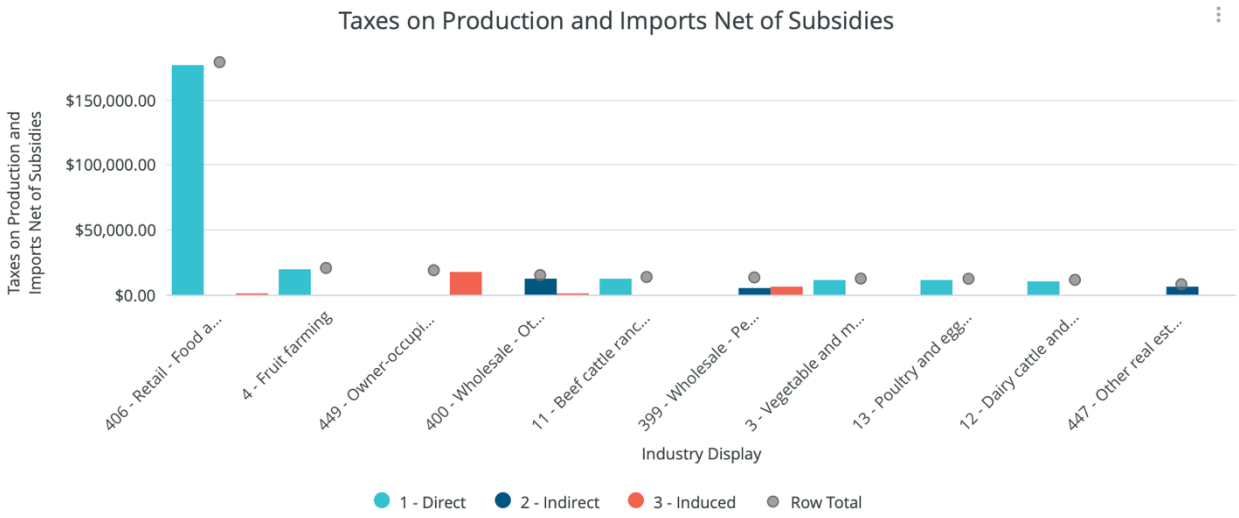
From a farm perspective, farm owners with the highest proprietor income gains were fruit and vegetable growers, followed by other retailers, dairy operators, and beef producers. Interestingly, the real estate operations had higher income impacts than other farmers.



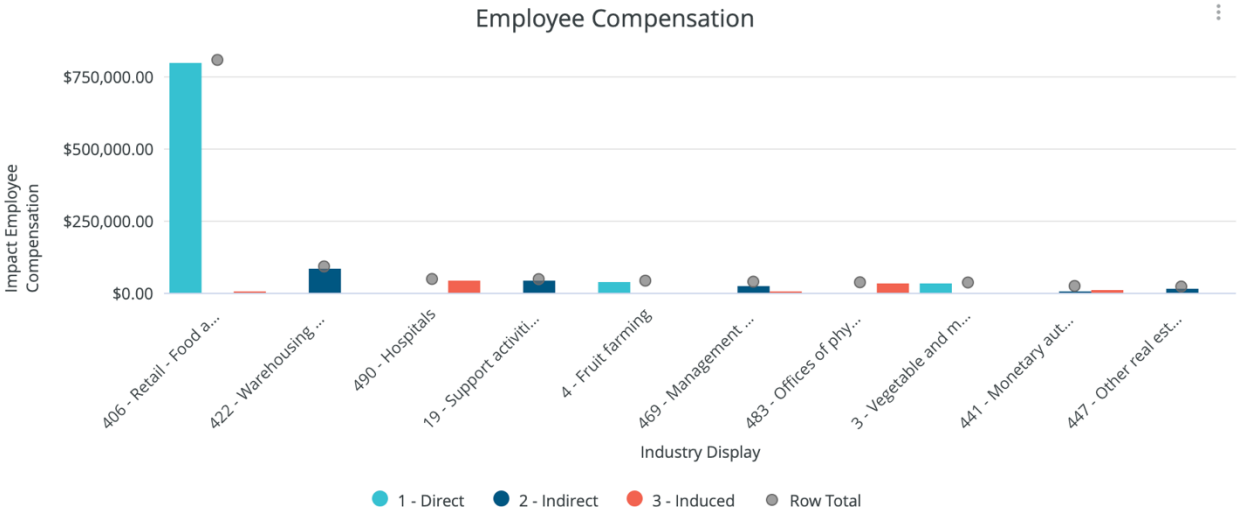
Value Added and income tax effects were also significant, with the total tax contribution of 20.1 percent of the new income generated. The bulk of these taxes are assessed at the retail level.

Tax Results

Impact	Sub County General	Sub County Special Districts	County	State	Federal	Total
1 - Direct	$16,004.47	$65,422.76	$14,455.90	$106,219.57	$204,633.56	$406,736.26
2 - Indirect	$3,197.11	$11,588.48	$2,469.20	$22,641.51	$68,069.59	$107,965.89
3 - Induced	$3,552.89	$14,158.33	$3,105.90	$25,323.09	$55,859.74	$101,999.95
Totals	$22,754.47	$91,169.57	$20,031.00	$154,184.16	$328,562.89	$616,702.10



Wages of $2,419,200 are paid out of the economic output created by $3,060,000. With the net gain of nearly 52 new employees, or one new job for every $46,525 in sales, there are significant gains in employee compensation. The greatest compensation gains come from the retail sector, after which distribution and manufacturing see the largest sectoral gains, whether direct, indirect, or induced.



Conclusion

Model 1 demonstrates that programs like cross-marketing and cross-promotional efforts can create significant business and community-level returns without the need for substantial investment in capital programs. These strategies leverage existing resources and partnerships to enhance visibility, drive customer engagement, and stimulate economic activity within the community. By focusing on collaborative marketing initiatives, businesses can achieve mutual benefits and strengthen their market presence, contributing to overall economic growth and sustainability.

Model 2 highlights the strong positive returns associated with solving food access through a low-cost farmers market model, particularly when linked to local farms. This approach not only addresses food security issues but also generates a high economic multiplier effect by supporting local agriculture and keeping money circulating within the community. Integrating such a model into a broader food hub project could amplify these benefits, creating a robust system that promotes local food production, improves access to fresh produce, and fosters economic resilience. Supporting these efforts could play a crucial role in enhancing community well-being and driving long-term economic development.

Appendix E: Bioeconomy

Agriculture Sector & the Bioeconomy

Berks Region | 2024

Bioeconomy and Its Relationship with Agriculture

The U.S. bioeconomy refers to the portion of the economy based on products, services, and processes derived from biological resources. As a rapidly growing sector, the bioeconomy encompasses a wide range of activities including agriculture, biotechnology, renewable energy, and the production of bio-based products. The Congressional Research Service categorizes the bioeconomy into three primary visions: Biotechnology, Bioresource, and Bioecology, each of which is integrally linked to agricultural practices. This appendix examines the bioeconomy's reliance on agriculture and provides specific examples of agriculture's contribution to the bioeconomy through hemp, grains, and mushrooms, which serve as critical inputs for sustainable growth, renewable products, and environmental solutions and represent existing research and production efforts in Berks County.

Background

The bioeconomy is centered on creating economic value from biological resources while addressing key challenges such as climate change, energy sustainability, and food security. By leveraging biological processes, the bioeconomy aims to develop solutions that are both economically viable and environmentally sustainable. Agriculture plays a crucial role, providing more than 60% of the inputs to the bioeconomy, according to industry reports.

The Congressional Research Service outlines three visions of the bioeconomy:
1. **Biotechnology Vision**: Focuses on scientific advancements through DNA manipulation, synthetic biology, and biomedicine.
2. **Bioresource Vision**: Emphasizes the use of biological resources, linking closely with agriculture and the production of bio-based products.
3. **Bioecology Vision**: Concentrates on ecosystem management, fostering biodiversity while supporting economic activity.

These visions collectively demonstrate the bioeconomy's capacity to harness biological innovation for economic growth and environmental resilience by replacing most of the petroleum derived products in the economy.

Agriculture's Role in the Bioeconomy

Agriculture is a foundational element of the bioeconomy, supplying nearly 60% of the raw materials that fuel various bio-based industries. As the primary source of renewable biological inputs, agriculture contributes significantly to sectors such as bioenergy, pharmaceuticals, and bioplastics. The integration of agricultural products into the bioeconomy not only drives demand for renewable resources but also stimulates

innovation in sustainable agricultural practices.

In the U.S., farmers are adapting to meet the bioeconomy's needs by cultivating crops specifically for bio-based products and implementing sustainable practices that align with environmental goals. Agriculture's contributions are seen in the development of renewable materials, low-emission biofuels, and eco-friendly consumer products, thereby reinforcing the sector's commitment to both economic and environmental goals.

Examples of Agriculture's Relationship with the Bioeconomy

Hemp

Hemp has gained prominence as a versatile crop in the bioeconomy, capable of being transformed into a variety of bio-based products. From textiles and construction materials to biofuel and bioplastics, hemp serves as a renewable resource that aligns with the bioeconomy's goals of sustainability and waste reduction. The agricultural production of hemp provides a profitable alternative for farmers, while its industrial uses contribute to reducing dependency on petroleum-based products. Furthermore, Research at the Rodale Institute indicated that hemp may be an ideal rotational crop for grain producers in the region yielding significant externalities such as improved weed control.

Counties across the U.S. have supported hemp cultivation as part of regional bioeconomy strategies. States like Kentucky and Colorado have invested in processing facilities for hemp, helping to create bio-based products such as biodegradable packaging, hempcrete, and textile fibers, which are environmentally friendly alternatives to conventional materials such as lumber and geotextiles. The Pennsylvania Industrial Hemp Processing Center, which partners with local farmers to turn hemp fibers into eco-friendly materials, such as bioplastics, textiles, and building materials like hempcrete. These products are sustainable alternatives to traditional resources, supporting the bioeconomy by reducing dependence on fossil fuels and promoting renewable materials.

Grains

Grains such as corn, wheat, and barley are crucial for the bioeconomy, providing inputs for biofuels, animal feed, and bioplastics. Corn, for instance, is used in the production of ethanol, a biofuel that reduces greenhouse gas emissions compared to traditional fossil fuels. In addition, corn-based bioplastics serve as renewable alternatives to petroleum-derived plastics, reducing environmental impact.

The integration of grain crops into bio-based industries has fostered partnerships between agricultural producers, biofuel companies, and government agencies. This collaboration supports the expansion of biofuel infrastructure and drives research into more efficient methods of converting grain to biofuel, benefiting both farmers and the environment.

Mushrooms

Mushrooms are another example of agriculture's role in the bioeconomy, with applications that range from food production to bio-based materials. Fungi are used to produce mycelium-based packaging, a biodegradable alternative to styrofoam and plastic which is a focus of research at Universities in the region. Mycelium also serves as a sustainable material for textiles and building materials.

In Pennsylvania, for example, mushroom farming has evolved into a bioeconomy model where waste from the mushroom production process is repurposed to create eco-friendly products. This approach demonstrates how agricultural waste streams can be leveraged to produce valuable bio-based materials that reduce reliance on non-renewable resources.

Conclusion

The U.S. bioeconomy is a vital sector that drives sustainable economic growth by transforming biological resources into a diverse range of products. Agriculture is at the heart of this transformation, providing essential inputs that support the development of renewable materials, biofuels, and biodegradable products. The examples of hemp, grains, and mushrooms illustrate how agricultural products contribute to the bioeconomy by offering renewable alternatives to traditional materials and promoting environmental sustainability.

As the bioeconomy continues to expand, the relationship between agriculture and bio-based industries is expected to grow, creating new opportunities for farmers, reducing environmental impact, and strengthening the U.S. economy. By supporting innovations in agriculture, public and private sectors can collaborate to achieve a bioeconomy that balances economic goals with ecological responsibility.

Appendix F: Value Added Agriculture

Value Added Agriculture

Berks Region | 2024

Value-Added Agriculture in Pennsylvania and Berks County

Value-added agriculture is a growing sector that allows farmers to increase the value of raw agricultural products by transforming them into goods with enhanced market potential. Through processing, packaging, branding, and agritourism, value-added agriculture offers farmers a way to diversify income and respond to specific consumer demands.

In Berks County Pennsylvania, value-added agriculture has become an essential component of the agricultural economy, fostering rural economic growth and sustainability. This appendix defines value-added agriculture, examines specific examples of on-farm innovation, and highlights how Berks County has leveraged these practices to support local agricultural development.

Understanding Value-Added Agriculture in Pennsylvania

Value-added agriculture encompasses a variety of practices designed to increase the value of primary agricultural products. Examples include developing products for ethnic consumers, converting raw milk into artisanal dairy products, creating specialty fruit preserves, or incorporating organic and sustainable certifications to appeal to environmentally conscious consumers. These practices allow farmers to retain more of the retail value of their products, enhancing profitability and promoting regional branding.

Pennsylvania's diverse agricultural landscape supports a wide range of value-added products, from dairy and meat to fruit and grains. By leveraging Pennsylvania's strong agricultural traditions, value-added agriculture has grown to include agritourism, organic certification, on farm retailing, cannabinoid products, and small-scale food processing. This not only benefits farmers but also strengthens local economies by creating jobs and fostering consumer loyalty towards locally sourced products.

Examples of Value-Added Agriculture in Pennsylvania

Dairy and Artisanal Dairy Production

One of the most prominent examples of value-added agriculture in Pennsylvania is artisanal cheese production. Dairy farmers have diversified their offerings by transforming raw milk into specialty cheeses, yogurt, and other dairy products that command higher market prices. Artisanal products, often branded with local or regional identifiers, attract consumers looking for unique, high-quality products and allow farmers to tap into niche markets.

By producing artisanal products, dairy farms in Pennsylvania can market their products at

premium prices and attract buyers interested in locally sourced dairy. This practice not only improves profitability for dairy farmers but also helps establish Pennsylvania as a hub for specialty dairy products, encouraging tourism and fostering consumer trust in regional goods by brining specialty and ethnic products to market.

Agritourism and Farm Experiences

Agritourism has become an increasingly popular form of value-added agriculture in Pennsylvania. By offering tours, on-farm experiences, and direct sales, farms can increase revenue while connecting directly with consumers. Agritourism activities include pumpkin picking, corn mazes, vineyard tours, and farm-to-table events, which provide an immersive experience and foster brand loyalty.

Pennsylvania farms that engage in agritourism benefit from additional income streams and enhanced consumer engagement. The state has supported these efforts by promoting agritourism as a way to boost rural economies, encouraging both residents and tourists to participate in local agricultural activities. This creates a unique value proposition, especially for family-run farms looking to diversify income without substantial processing infrastructure.

Value-Added Agriculture in Berks County

In Berks County, value-added agriculture is thriving as local farmers adopt innovative practices to enhance the value of their products. Known for its rich agricultural history and proximity to urban markets, Berks County offers a fertile environment for value-added products that appeal to local and regional consumers. Farmers in Berks County have embraced on-farm processing, direct-to-consumer sales, and other methods to capture additional revenue.

Examples of value-added agriculture in Berks County include farm-made jams, honey, and organic produce sold at farmers' markets. The county also has a strong presence of farms offering agritourism experiences, such as hayrides, farm tours, self-directed meat processing, and seasonal events that attract visitors from nearby cities. These practices allow Berks County farmers to establish stronger customer relationships and create a brand identity associated with quality and sustainability.

On-Farm Innovation in Berks County

Organic and Sustainable Practices

Many farms in Berks County have embraced organic and sustainable farming practices as part of their value-added strategies. This is driven by a commitment to meeting customer needs as well as the presence of Rodale Institute, the nation’s largest private organic research institution, and a large organic poultry processing operation, Bell & Evans. By obtaining organic certification, farmers can market their products to a premium audience willing to pay more for organic, environmentally friendly produce. This practice not only increases the product's value but also promotes sustainability, aligning with the bioecology

vision of the bioeconomy.

Through innovative approaches, such as crop rotation, integrated pest management, and soil health initiatives, Berks County farmers demonstrate a commitment to sustainable practices that resonate with modern consumers. These methods help farmers build a loyal customer base, which values the environmental benefits associated with organic agriculture.

Farm-to-Table and Direct Sales Models

Farm-to-table sales models have become increasingly popular in Berks County, allowing farmers to bypass traditional supply chains and sell directly to consumers. By marketing directly to customers at local markets or through on-farm stores, farmers capture more of the retail value, enhancing profitability. This model often includes a dedication to developing products that serve narrowly defined ethnic customer segments. Additionally, Berks County farmers collaborate with local restaurants and co-ops, creating a farm-to-table network that promotes fresh, local food while supporting the regional economy by working with organizations like the Philadelphia Economy Project.

These direct sales models reduce dependency on commodity markets and provide farmers with greater control over their pricing and branding. As a result, they enable Berks County producers to retain more of the revenue generated from their products, ensuring economic stability for local farms and promoting food security within the county. It is important to note, that many of the farms interviewed felt like the sales from this sector are significantly underreported.

Conclusion

Value-added agriculture is an essential strategy for farmers looking to diversify income, increase profitability, and establish a unique market presence. In Pennsylvania, value-added agriculture includes practices like artisanal cheese production, agritourism, and organic farming, which have become valuable components of the agricultural economy. In Berks County specifically, farmers have demonstrated innovation through organic practices, farm-to-table networks, and direct sales, contributing to the county's agricultural identity and economic resilience.

As consumer demand for unique, sustainable, and locally produced goods grows, value-added agriculture will continue to play a critical role in supporting Pennsylvania's agricultural sector. With supportive policies and ongoing consumer interest, Berks County's efforts exemplify how value-added agriculture can drive economic growth, strengthen rural communities, and promote sustainable farming practices.