Chester County Agricultural Economic Development Strategic Plan

January 2022

LABOR AND WORKFORCE

ZONING AND LAND USE

LAND ACCESS

EDUCATION AND OUTREACH

BUSINESS AND FINANCING

AGRICULTURAL MARKETS

THE COUNTY OF CHESTER
COMMONWEALTH OF PENNSYLVANIA
RESOLUTION No. 12-22

RESOLUTION OF THE CHESTER COUNTY COMMISSIONERS ADOPTING THE CHESTER COUNTY AGRICULTURAL ECONOMIC DEVELOPMENT STRATEGIC PLAN

WHEREAS, the agricultural industry is critically important to the local economy of Chester County; is a significant part of Chester County's heritage, culture, and landscape; and is an important source of environmental and social benefits; and

WHEREAS, Chester County possesses some of the best non-irrigated soils in the world and one of the most uniquely diverse agricultural industries in the country; and

WHEREAS, increasing development and growth pressure continues to impact all agricultural sectors, and the cost of land can be prohibitive for new and beginning farmers to enter the industry; and

WHEREAS, *Landscapes3*, Chester County's comprehensive plan, supports agricultural economic development through the innovation and evolution of agricultural business operations; and

WHEREAS, the Board of County Commissioners of Chester County continues to be committed to having a strong and vibrant agricultural industry in Chester County; and

WHEREAS, the Agricultural Development Council has prepared an Agricultural Economic Development Strategic Plan; and

WHEREAS, this plan has identified ways to collaboratively support the on-going and new agricultural sectors through leveraging existing regional assets and attracting new businesses so that the county will remain a top agricultural producer in the Commonwealth; and

WHEREAS, the Agricultural Development Council recommended adoption of the plan at their regular Council meeting held March 2, 2022, and the Chester County Planning Commission Board recommended adoption of the plan at their regular Board meeting held March 9, 2022.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Commissioners of the County of Chester does hereby adopt the Chester County Agricultural Economic Development Strategic Plan.

THIS RESOLUTION, adopted this 22nd day of March, 2022, by the Board of Chester County Commissioners.

COMMISSIONERS:

Marian Moskowitz

Marian D. Moskowitz, Chair

Josh Maxwell, Commissioner

Michelle Kichline

Michelle Kichline, Commissioner

ATTEST:

Robert J. Kagel

Robert J. Kagel, Chief Clerk

We would like to thank the following for their financial support of this project:

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Mushroom Farmers of Pennsylvania

MidAtlantic Farm Credit

Chester County Economic Development Council

Kimberton Whole Foods

Chester Delaware County Farm Bureau

Morrissey Insurance

CHESTER COUNTY AGRICULTURAL ECONOMIC DEVELOPMENT STRATEGIC PLAN

January 2022

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Photos used in this report were provided by the Chester County Ag Council and the Chester County Planning Commission

This report was prepared by Agricultural and Community Development Services (ACDS), LLC.

Contents

Introduction

Introduces the Chester County agricultural plan, as well as how it will be implemented across various sectors.

Objectives, Recommendations, and Strategies

Presents the recommendations to strengthen and sustain agriculture and industry in the county. Chapter 4 provides specific strategies for each sector.

The County Today

Provides background on the current state of agriculture and economy in the county.

Appendices

Includes additional information and tools.

Executive Summary

Agriculture is a significant part of Chester County's heritage, culture, and landscape. It is also part of the county's identity and sense of place. Despite intensifying competition for land uses over the years, agriculture has continued to be vibrant and strong. It not only is a major contributor to the local economy but provides environmental and social benefits.

With the county becoming even more developed over the last decade, agriculture faces continued growth pressures and new challenges. These issues include a lack of understanding or support from the public, difficult municipal regulatory environments, lack of a ready workforce, high costs of doing business, limited access to agricultural land, and more.

At the same time, there are opportunities that can spur growth and innovation. These opportunities leverage the county's existing assets and competitive advantages to strengthen the workforce, modernize infrastructure, attract and grow new businesses, and increase access to agricultural markets.

Some of the exciting ideas include creating a culinary center that draws tourists and the public to learn about food and agriculture through experiences; developing industrial hemp products through partnerships with universities and farmers; exploring opportunities for timber and biochar; helping farms prepare for ESG (Environmental, Social, and Governance) mandates and enhancing their ability to sell carbon credits; and forming collaborations between farms, land trusts, and environmental groups to demonstrate agriculture's positive environmental contributions.

Whether it is mitigating concerns or making the most of opportunities, the county needs a plan to guide its agricultural economy into the future. The Chester County Agricultural Economic Development Strategic Plan (AEDSP) is that guide. It is a comprehensive plan that outlines how to sustain and grow a successful agricultural economy in the face of growth pressures, industry challenges, and limited resources.

This plan focuses on six strategic areas: Agricultural Markets, Business & Financing, Education & Outreach, Labor & Workforce, Land Access, and Zoning & Land Use. While each strategic area is distinct, there are overlaps among the 33 total recommendations. Altogether, these encompass a holistic and integrated approach that reflect what matters to farmers and agribusinesses. The strategies also align with several fundamental goals:

- Mitigate issues that limit industry growth.
- Harness opportunities that grow the agricultural economy.
- Increase employment opportunities at all skill levels.
- Remain a top agricultural-producing county in PA for years to come.
- Maximize county, local, and regional resources to support industry growth.

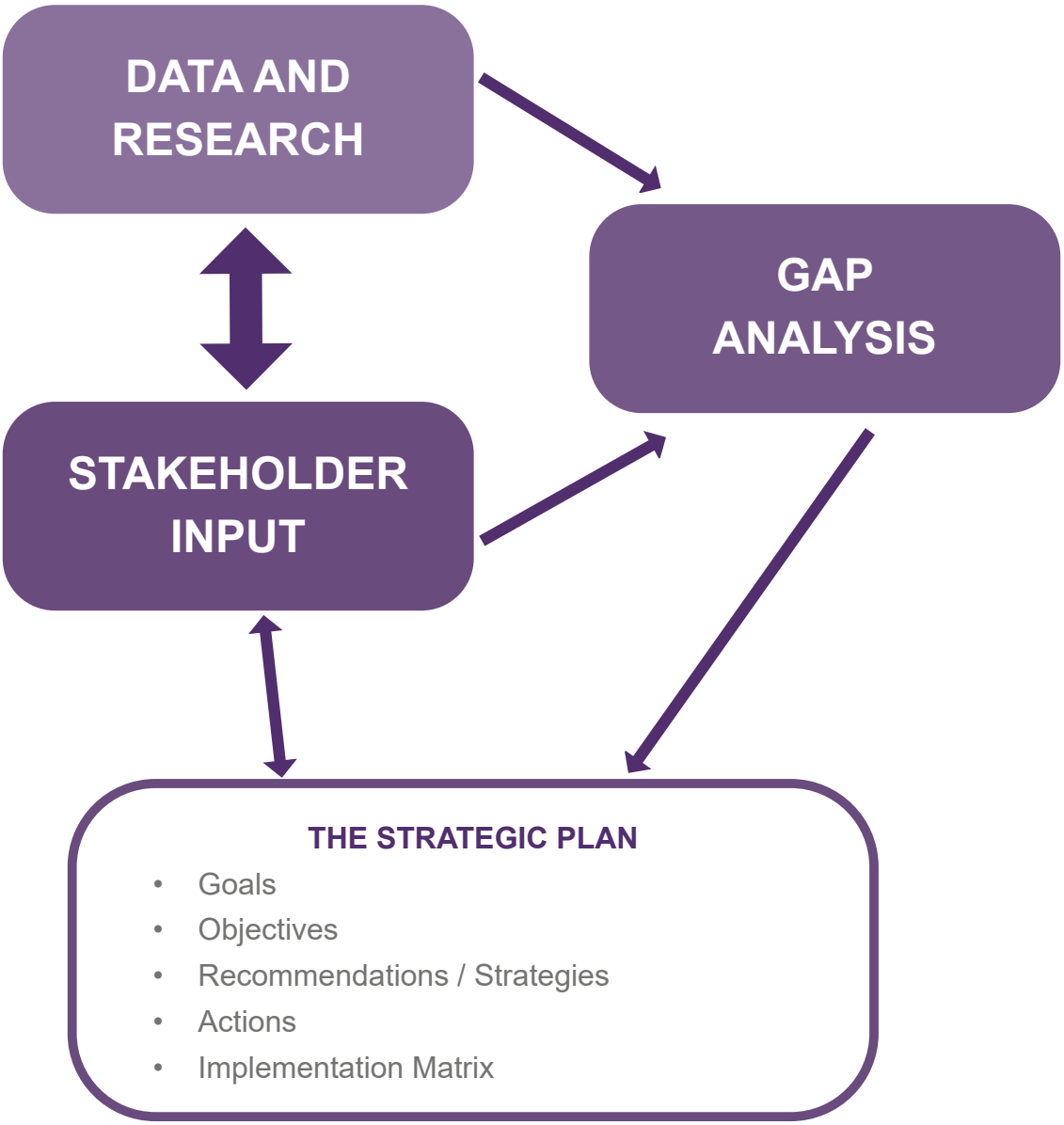
It is important to note that partnerships, collaborations, and leadership in addition to county government are essential for the successful implementation of the plan. Farms, private businesses, industry associations, non-governmental organizations, and research institutions all have significant roles to play.

Moreover, several recommendations will create impacts that go well beyond the county's borders. As such, the plan proposes the notion of developing a new entity that will have greater flexibility to coordinate implementation.

After reading this plan, we hope the reader will better understand the issues and challenges that affect agriculture, appreciate its multifaceted contributions, and recognize why it needs to be supported. Finally, we hope the opportunities and recommendations inspire action to ensure agriculture remains a leading sector in Chester County for years to come.

THIS PLAN

This plan is the culmunination of months of research around the needs of Chester County residents and local industry sectors. This plan was designed with input from interviews, market research, surveys, and insights from county officials.



This plan was carried out in the following stages and made use of 57 interviews with a variety of stakeholders, including farmers, agritourism, service providers, members of the Plain Sect Community, and town supervisors.

Stages of This Plan

1. Project Kickoff
2. Evaluation of Agricultural Economy
3. Other Data Analysis
4. Conducting Interviews
5. Designing Strategy Sections & Implementation Plan
6. Presentation of Final Strategic Plan

Implementing the Recommendations

OVERVIEW

Spurring economic growth in Chester County's agricultural sector requires a diverse approach that addresses market opportunities, labor challenges, the business environment, financing options, education, community engagement, and land use issues.

This plan focuses on the following six strategic areas:

Agricultural Markets	Recommendations to increase access to existing and new markets.
Business & Financing	Recommendations to increase the success and profitability of farms and agribusinesses, as well as ways to build an innovation culture.
Education & Outreach	Recommendations to educate, engage, and market to consumers as well as keep public officials informed.
Labor & Workforce	Recommendations that improve workforce opportunities, capacity, availability, and readiness in the agricultural sector.
Land Access	Recommendations that connect, maintain, and expand the land available for agricultural sectors.
Zoning & Land Use	Recommendations that address challenges associated with active agriculture, the impacts of local regulations, and the conflicts between agricultural and non-agricultural land uses.

Each strategic area includes a set of recommendations with an overview of priorities and metrics. Each recommendation also includes details on the key actions, partners, and funding sources.

Implementation

These recommendations are the key component of the strategic plan. Many of these are complex, require dedicated leadership, and involve collaborations that go beyond Chester County. Discussion with industry representatives, both inside and outside of the state, suggest that creating a new organization is necessary to coordinate and implement the strategic plan.

Creating the Implementing Entity

The organization would be modeled on the Southern Maryland Agriculture Development Commission (SMADC) or Hudson Valley Agribusiness Development Corporation (HVADC), and act as the independent entity that supports the initiatives and actions of this strategic plan. It includes the following components.

1. Appropriate charter to provide the governance, leadership, and sustained staff talent required to support the industry.
2. Expertise from agency, political, and industry players.
3. Reliable revenues from private and public sources.
4. Legally sanctioned political action to influence policy making and maintain an active lobbying presence.

Creating this organization becomes “Job One” in the implementation process. This step alone will take at least a year to complete, given the needed effort. It will require development of a corporate charter, creation of bylaws, identification of leadership, establishment of a funding stream, and the development of industry support.

The effort needed for this key step is reflects the work necessary to implement the entire strategy and cannot be minimized. Once created and properly authorized, this new organization will be able to:

- Develop a common vision for the Agriculture, Food, and Beverage (AFB) sector in Chester County.
- Facilitate communication and public outreach to support AFB’s common vision.
- Implement programs and develop projects.
- Engage the private sector in collaborative development projects.
- Address the equity and diversity components of the plan.
- Support evaluation and updates for the plan.
- Raise funds to support operations and program development.

Private Sector Engagement

This strategic plan is designed to improve the economic and operating conditions for farms, agribusinesses, as well as food and beverage companies in Chester County. As such, many of the recommendations require private sector engagement.

When implementing the recommendations, it is beneficial to leverage the private sector's capacities. This includes innovation, expertise, market-based solutions, distribution networks, investments, financial resources, and even policy influence.

The private sector engagement strategy has the following core objectives:

1. Mobilize private funding, investments, and resources.
2. Expand markets, increase income, and create job opportunities.

The implementing entity is advised to take a coordinated approach to private sector engagement that includes the following components:

Engage Multiple Stakeholders Throughout the Supply Chain

Achieving a transformative change requires engagement beyond one company, sector, or industry group. It will require partnerships with multiple businesses across an entire value chain. Accomplishing this will require multi-stakeholder platforms that could involve forums, conferences, campaigns, alliances, private-sector coalitions or networks, and knowledge-sharing platforms.

Create Multiple Entry Points for Participation

Several awareness campaigns will need to be conducted to inform the private sector about the coalition's efforts. Given the geographic scope, a virtual conference should be used to engage the initial group of private sector partners. However, during the implementation phase, a website should be created to contain information about the strategic plan.

plan, key partners, stakeholders, progress, resources, and contacts.

Use Systemic Approach to Integrate The Private Sector

Ensure that the private sector is integrated into the relevant recommendations so that efforts are more collaborative. This is accomplished by identifying a pipeline of businesses, farms, and entrepreneurs in the AFB sectors that need support with regards to financing, R&D, workforce development, technical assistance, and risk management. Once identified, the implementing entity can connect the private sector entity with the appropriate project leads and support networks.

Updating the Plan

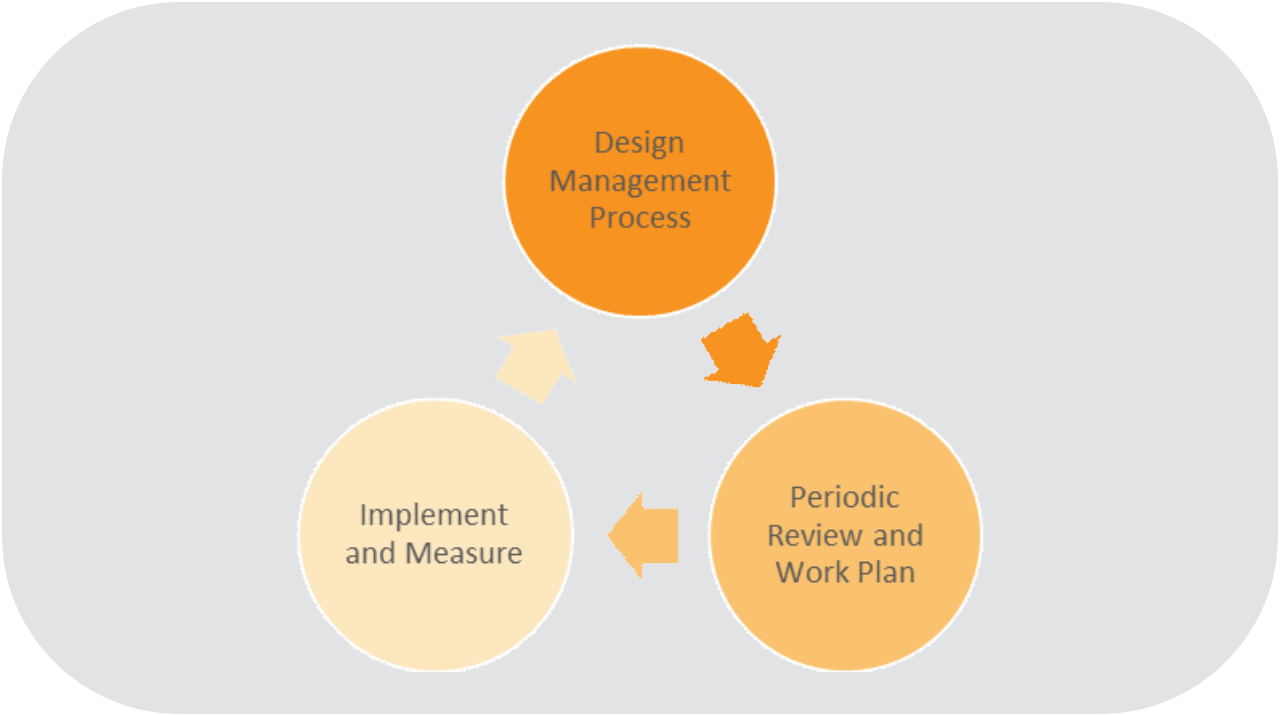
The agricultural industry is dynamic and is influenced by broader economic conditions, consumer trends, and policy direction. As circumstances evolve, the strategic plan will need to be updated. Developing a process to accommodate ongoing changes while keeping the strategic plan relevant is critical to its success.

The implementing entity described above or the Agriculture Council, if the implementing entity is not created, should form a committee of AFB stakeholders to update the strategy, develop annual work plans, and coordinate implementation. The entity should perform the following:

1. Produce a bi-annual work plan that includes specific actions, metrics, a budget note, staffing requirements, and other information as needed.
2. Review the full strategic plan on a three-year schedule.

The graphic below summarizes the update process. It is imperative that the steering committee spend time establishing a thorough set of process guidelines to:

- Establish standard processes for collecting and reviewing implementation metrics and determining the points at which action is required.
- Develop policies and processes for regional and industry-led reviews, and a format for the work plan.
- Engage partners to design an effective way to implement the work plan.



Addressing Equity

As the recommendations are implemented, evaluated, and updated it is important to have diverse representation from the private sector. This ensures that strategies reflect the needs of all stakeholders, and that the benefits also accrue to all relevant parties. This includes all affected communities, both urban and rural, as well as historically excluded populations, racial and ethnic minorities, and women.

Equity Roundtable

This strategic plan proposes to address equity through an Equity Roundtable. This proposed Equity Roundtable, managed in collaboration with the county through the Ag Development Council, will will lead to several outcomes that include, but are not limited to, the following:

- Organize and develop specific equity strategies.
- Elevate and demonstrate commitment to equity.
- Provide a model for expanded collaboration on issues and needs involving diversity.

This roundtable will be composed of leaders representing the diverse array of stakeholders. Through this planning process, the participating leaders will have a deeper understanding and definition of “diversity and equity” for their farm, business, or organization. These could include inherent differences like ability, race, ethnicity, gender identity, age, and sexual orientation as well as acquired forms such as veteran status, religious affiliation, or educational and sector background.

Moreover, each leader will have the tools to develop a holistic strategic action plan for equity that includes immediate, short- and long-term goals. The key strategy is to develop existing capacity, build new institutional capacity, or to form new partnerships to address inequities. Ultimately, these entities must be able to engage diverse actors in decision making and drive long-run, multi-sector commitments toward a shared vision and goals.

Outcomes

The Equity Roundtable will lead to several outcomes that include, but not limited to:

- Strategic Plan to increase advocacy capacity to address agriculture and other policy issues to make them more equitable (statewide or at the local level).
- Identify ESG (Environmental, Social, Governance) investment opportunities for roundtable participants, their boards, their donors, and communities.
- Identify and provide opportunities for diverse communities to develop agricultural knowledge, skills and/or abilities to build effective partnerships, coalitions, and alliances to increase local agricultural market demand and operation and effectiveness in response to equitable practices.
- Provide community education on their own community’s equitable agricultural history, present (threats and opportunities), and future goals.

The Matrix

Recommendations Matrix

This section is intended to serve as guiding document regarding recommended actions to enhance agriculture in Chester County. Each section contains the recommendation, it's purpose, the actions needed to carry out the recommendation, and the main actors who will be involved.

AGRICULTURAL MARKETS

Recommendation	Purpose	Actions	Lead Partners
Support the Center for Sustainable Agriculture and Food Security	Create an educational platform for students and community members to learn novel techniques in sustainable agriculture. Incorporate research in fields such as soil remediation, microbiome, permaculture, and multi-species production systems to improve farm productivity and profitability while continuing to protect the environment.	Conduct a feasibility study for the concept. Engage in an engineering study and perform a site analysis. Develop a donor pipeline.	UPenn School of Veterinary Science
Support Expansion of Pasture-Raised and Grass-Fed Operations	Use education, technical assistance, and collaborative efforts to expand opportunities for pasture and grazing operations.	Increase awareness of livestock management trainings provided by Penn State Extension and PASA. Provide ongoing technical assistance for livestock management. Demonstration of enhanced soil carbon sequestration through regenerative practices. Engage conservation groups, land trusts, and farmers on land access challenges and opportunities.	Ag Council Penn State Extension UPenn School of Veterinary Science
Enhance Marketing Infrastructure	Augment the capacity and efficiency of the supply chain through enhancing logistics and cold-chain infrastructure as well as exploring collaborative marketing and distribution efforts/	Enhance last-mile distribution and cold chain infrastructure. Engage in wholesale market development. Explore multi-stakeholder cooperatives. Explore transportation efficiency and backhaul opportunities.	CCEDC / AgConnect CCIDA
Catalyze the Industrial Hemp Sector	Catalyze the industrial hemp sector in Chester County through research, feasibility	Create task force to explore opportunities for hemp bedding and hemp animal feed.	CCEDC / AgConnect + CCIDA Penn State Extension

Recommendation	Purpose	Actions	Lead Partners
	studies, and financing.	Conduct a feasibility study for hemp processing. Support grants for hemp processing infrastructure and R&D.	
Prepare Farms for Traceability and Carbon Credit Markets	Help farms integrate best practices and technologies needed to incorporate traceability or access markets involving carbon credits. This also means engaging businesses launching ESG (Environmental, Social, and Governance) initiatives to support local agriculture and forestry as part of those efforts.	Analyze development of an ESG values-based brand for Chester County. Work towards identifying partnerships to help farms work together on marketing carbon credits. Provide trainings on best practices and technologies required for traceability. Develop an accreditation system for the mushroom industry.	AMI
Develop Biomass Energy and Biochar Use	Help local farms, landowners, and communities to use low-quality and waste wood for the purpose of creating energy through biomass CHP projects. Promote the agricultural and environmental uses for the ash and biochar by-products.	Educating the public regarding woody biomass as a renewable fuel and the benefits of by-products. Promote the use of biochar as a soil amendment and for environmental mitigation. Pilot biomass CHP projects to demonstrate efficacy. Encourage greater utilization of urban wood waste as a fuel source. Improve renewable energy policies and incentives to support woody biomass energy.	CCEDC / AgConnect + CCIDA Penn State Extension
Support Growth of Urban Agriculture	Support the growth of urban agriculture through infrastructure, technical assistance, workforce development, and cooperative efforts. In particular, there should be a focus on urban	Create a local version of PDA's Urban Agriculture Infrastructure Grant Program. Modify zoning codes to allow for urban agriculture in existing zones or as an overlay	CCEDC / AgConnect + CCIDA CC Planning Commission and Ag Council CCIU Municipalities

Recommendation	Purpose	Actions	Lead Partners
	farms engaged in hydroponics, aquaponics, horticulture, beekeeping, mushrooms, small livestock, and composting.	zone. Modify comprehensive plan to incorporate urban agriculture as part of the landscape and mixed-use development. Develop curriculum and trainings to prepare skilled workers for the urban agriculture sector.	Chester County Workforce Development Board
Augment Agritourism Activity	Increase Chester County's agritourism sales and foster a collaborative and modern strategy for accessing more consumers.	Expand and promote multi-sector food and ag trail. Pilot use of mobile tourism apps. Develop strategy to target pass-through travelers. Promote partnerships with existing tourism assets.	CC Visitors Bureau Municipalities Ag Council

BUSINESS & FINANCING

Recommendation	Purpose	Actions	Lead Partners
Expand and Enhance Business Technical Assistance	Encourage individual business success through curated business technical assistance.	Develop tools to assist with siting and transition. Curate and deliver business assistance. Create a welcome package for new farms and agribusinesses. Provide best practices for neighbor relations. Prepare industry for automation and process and improvement. Promote operational efficiency in energy, inventory, and workforce management.	CCEDC / AgConnect CCIDA Penn State Extension SCORE (Service Corps of Retired Executives)

Recommendation	Purpose	Actions	Lead Partners
Support Development of Food System Infrastructure	Encourage collaborative development of opportunities to benefit the agricultural sector through attracting, financing, or developing infrastructure.	Support development of last mile, first mile, and cold chain capability. Help businesses adopt food safety and supply chain visibility technologies and processes. Encourage collaborative purchasing options. Attract co-packing and light processing capacity. Conduct feasibility analysis for building local slaughterhouse capacity.	CCEDC / AgConnect CCIDA
Create Funding, Incentives, and Financing Targeted at AFB Sectors	Spur entrepreneurship and innovation as well as help existing businesses expand and adapt.	Develop ag innovation fund. Develop a working capital support fund. Develop bridge funds. Provide financing to adopt automation.	CCEDC / AgConnect CCIDA Reinvestment Fund
Support Municipal-Level Agribusiness Retention, Expansion, and Recruitment	Ensure cluster of support services are available for farms and to build an attractive business environment.	Improve local traffic conditions. Conduct targeted outreach to firms within key NAICS sectors to encourage relocation or expansion. Market workforce development programs and collaborative efforts to help businesses have more confidence in the labor market. Streamline zoning, permitting, and licensing processes to expedite project development. Identify suitable locations for siting processing, distribution, and logistics infrastructure.	CCEDC / AgConnect CC Planning Commission Municipalities

Recommendation	Purpose	Actions	Lead Partners
		Conduct analysis to determine strategic locations for infrastructure.	
Develop an Agricultural Innovation Center	Develop a facility dedicated to supporting agricultural businesses and food manufacturing. Centralize processing, manufacturing, technical assistance, research and development, product testing, as well as farm equipment or technology development. Develop a culture of innovation by supporting startups in the agriculture, food, and beverage sectors.	Conduct analysis on the need, costs, and design. Launch programming to support the Agricultural Innovation Center.	CCEDC / AgConnect CCIDA Chester County Farm Bureau Penn State Extension

EDUCATION & OUTREACH

Recommendation	Purpose	Actions	Lead Partners
Educate the Public About Agriculture	Help communities understand and appreciate agriculture as an economic and community asset. Help mitigate neighbor conflicts.	Coordinate an annual series of farm tours to promote agriculture and educate county residents. Use town hall event(s) to engage farmers and community members on key topics or issues. Support educational exhibits about agriculture. Provide youth engagement activities.	Ag Council Penn State Extension
Educate Public Officials About Agriculture	Lead to good policies and initiatives that impact agriculture.	Use farm tours to inform public officials. Provide information on the positive impacts of agriculture. Create an information kit on agriculture for newly elected officials. Provide technical assistance for public officials on topics such as planning for farming,	Ag Council CC Planning Commission Penn State Extension

Recommendation	Purpose	Actions	Lead Partners
		farmland conservation, and farm viability. Develop an organized training program for understanding needs of the agricultural sector. Develop shared set of tools and guidelines to address agritourism and neighbor relations.	
Create Opportunities for Engagement Around Local Food	Build relationships with consumers through education and outreach activities around food, culinary arts, nutrition, and agriculture. Use the feedback to inform product development and drive innovation.	Conduct analysis on the need, costs, and design for a Culinary Center. Work with the Center for Sustainable Agriculture and Food Security to explore new dairy/ livestock products focused on local underserved populations. Build relationship with consumers in nearby urban centers. Expand opportunities for food-related events and festivals and create individualized tour experiences for the region.	CCEDC / AgConnect CC Visitors Bureau UPenn School of Veterinary Medicine AMI
Increase Awareness of Local Foods and Agricultural Products	Increase consumer demand for local food in direct-to-consumer and intermediated marketing systems by creating awareness.	Partner with corporate health programs to encourage local food purchasing. Increase the number of year-round marketing opportunities. Analyze development of an ESG values-based brand for Chester County's AFB sector. Increase awareness of the Oxford Auction to potential buyers. Develop a marketing campaign to increase local food consumption. Promote local horticultural products.	Ag Council Chester County Health Department CC Visitors Bureau

LABOR & WORKFORCE

Recommendation	Purpose	Actions	Lead Partners
Prepare Industry for Future Workforce Needs	Build workforce pipelines that address skills gaps in agriculture and related sectors. Train, retain, and recruit a ready workforce.	Adopt WorkKeys for agriculture within primary and secondary educational institutions. Develop or enhance CTE programs and apprenticeships for trades needed in agriculture. Enhance training programs on livestock management. Enhance training for organic farming. Enhance training and certification of modern food safety practices. Continue AgConnect programs to engage the youth and promote agricultural careers.	Chester County Workforce Development Board Ag Council Penn State Extension CCIU Chester County Health Department
Enhance Owner-Operator Capacity	Prepare farmers to operate and build successful businesses, adapt to changing technology, and improve outcomes.	Enhance training programs on livestock management. Enhance training for organic farming. Enhance training and certification of modern food safety practices. Expand one-on-one Business Technical Assistance (BTA).	Penn State Extension CCEDC / AgConnect
Develop Jobs in Key Support Service Sectors	Address the workforce shortage and skills gaps in support services that farms rely on.	Support job creation in farm equipment repair, ag-related legal, and ag-related financial services. Enhance training programs to improve skills in butchering and meat cutting.	Chester County Workforce Development Board Penn State Extension CCEDC / AgConnect

Recommendation	Purpose	Actions	Lead Partners
		Develop a recruitment strategy that is supported by the industry. Support emerging models to cross-train professional and technical fields. Explore opportunities to share labor resources.	
Prepare Industry for Adopting Automation	Prepare the agricultural industry for adopting automation through demonstrations, finance, trainings, and workforce development.	Develop series of trainings on automation, technology, and best practices. Provide financing for modernizing equipment and processes. Ensure agricultural education curriculum includes topics such as robotics, data, programming, and IT. Launch a conference on automation in agriculture, food, and beverage.	CCEDC / AgConnect CCIU Penn State
Address Agricultural Labor Availability	Improve conditions of chronic labor shortages by addressing issues related to labor housing, transportation, recruitment, and resource sharing.	Simplify process or offer exemptions for developing housing for agricultural labor. Improve transportation accessibility. Collaborate on workforce recruitment across industry. Explore the use of a labor and resource sharing app/portal,	Chester County Workforce Development Board Delaware Valley Regional Planning Commission CC Planning Commission SEPTA CCEDC / AgConnect TMACC

LAND ACCESS

Recommendation	Purpose	Actions	Lead Partners
Support Access to Farm and Forest Land	Increase land access for agricultural operations, particularly those with limited resources as well as new and beginning farmers.	Focus conservation on working lands access. Build upon programs to support young and beginning farmer access. Develop tools to assist with siting and transition. Create mentor-protégé program. Encourage participation in Farm Link; use tools to match farmers with landowners.	Ag Council CC Planning Commission Farm Bureau Penn State Extension
Develop Tools to Assist Municipal Officials and Land Management Goals	Increase the capacity of municipalities and other public to manage farmland through guidance and digital tools.	Provide resources for municipalities on agricultural land use issues. Develop guidance documents to align land use policies with modern agricultural activities and practices. Develop GIS planning and recruiting tools to identify lands for productive agriculture. Create model farm guidance.	CC Planning Commission and Ag Council CCATO
Demonstrate Positive Environmental Externalities of Agriculture	Educate landowners and the public to support agriculture as a land use. Can lead to monetizing the positive externalities through mechanisms such as carbon credits.	Explore carbon credit markets. Implement sensor technology, environmental dashboard. Updating BMPs for environmental management under certain production systems. Enhance the utilization of Penn State Programming on the role of food systems in carbon sequestration.	Stroud Water Research Center (SWRC) UPenn School of Veterinary Medicine Penn State Extension Master Watershed Stewards AMI SWCD
Examine Innovative Financial Options for Land Access	Identify innovative financing mechanisms to help farmers compete	Reinvigorate Aggie-bond program.	CC Parks + Preservation

Recommendation	Purpose	Actions	Lead Partners
	with non-farming interests when acquiring farmland.	Explore funding options for Option to Purchase at Agriculture Value (OPAV). Examine alternative private finance options such as REIT's and AIMO models.	Agricultural Land Preservation Board (ALPB)
Shift Land Management Toward Higher-Value Uses	Provide incentives and management information to encourage better whole farm income generation.	Create incentives for long-term investment. Develop case studies for value enhancement. Explore options for value chain integration and alternative income generation. Fully integrate forest management planning into conservation easements. Encourage greater flexibility in agricultural easements.	Center for Sustainable Ag and Food Security Penn State Extension Land Trusts

ZONING & LAND USE

Recommendation	Purpose	Actions	Lead Partners
Encourage Ag-Friendly Development Policies	Minimize development pressure on highly productive agricultural soils, reduce farmland fragmentation, and support farming as an important part of the landscape.	Encourage high-density along designated growth and urban areas. Encourage cluster development that leaves agriculturally productive parcels. Encourage greater mixed-use zoning.	CC Planning Commission and Ag Council CCATO
Encourage Ag-Friendly Zoning Appropriate for the Community Context	Support flexible and appropriate zoning at the community-level that also accommodates current and future needs of agriculture.	Expand definition of agriculture. Encourage expanded allowed uses and accessory uses (processing, bioenergy, agritourism, labor housing, retail, etc.). Support greater right-to-farm protections. Encourage greater use	CC Planning Commission and Ag Council CCATO Municipalities

Recommendation	Purpose	Actions	Lead Partners
		allowances for CEA, indoor agriculture, and urban agriculture. Minimize process for standard agricultural infrastructure. Simplify process for developing agricultural labor housing. Identify NAOs (normal agriculture operations). Cooperate with home builders and the agriculture industry.	
Incentivize Inter-Jurisdictional Collaboration	Induce inter-jurisdictional collaboration using economic incentives to reduce conflicting land-use regulations and improve the use of agribusiness retention, expansion, and attraction tools.	Encourage inter-jurisdictional agricultural overlay zones. Collaborate with Bay programs to increase plain sect participation. Develop shared tools and guidelines to assist with agritourism and neighbor relations. Collaborate to improve equine trail access.	CC Planning Commission and Ag Council CCATO CC Parks + Preservation Municipalities SWCD
Recognize Managed Forests as an Agricultural Land Use	Promote active forest management to enhance forest ecology, improve water quality, increase income opportunities, and manage pests. Educate public on how managed forests accomplish ecosystem, economic, and social outcomes.	Highlight forestry as an agricultural activity. Support township officials with farm and forestland planning issues. Support science-based forest practice and logging regulations.	CC Planning Commission and Ag Council CCATO
Improve Road Conditions	Enable a safer road environment for both agricultural and non-agricultural vehicles.	Collaborate with municipalities on road design. Develop standards for accommodating modern agricultural equipment and needs of the plain sect community.	CC Planning Commission and Ag Council CCATO Municipalities PennDOT

Recommendation Strategies

The Strategies

This section expands on what is included in the matrix to provide information on purpose, timing, and methodology for each recommendation section. Additionally, supporting partners are listed, as are funding sources. The strategies outline a comprehensive guide to accomplishing the specific goals of the county and offer guidelines on who to involve and how to carry out action items in that pursuit.

Each strategic area also ranks the recommendations according to priority and includes specific metrics with which to measure success.

AGRICULTURAL MARKETS strategy

The Agricultural Markets Strategy identifies recommendations that help increase access to existing and new markets. This strategy section focuses on the following recommendations:

1. Support the Center for Sustainable Agriculture and Food Security (High Priority)
2. Support Expansion of Pasture-Raised and Grass-Fed Operations (High Priority)
3. Enhance Marketing Infrastructure (High Priority)
4. Catalyze the Industrial Hemp Sector (High Priority)
5. Prepare Farms for Traceability and Carbon Credit Markets (High Priority)
6. Develop Biomass Energy and Biochar Use (Moderate Priority)
7. Support Growth of Urban Agriculture (Moderate Priority)
8. Augment Agritourism Activity (Moderate Priority)

Metrics to measure success

- ☑ **Gross Agricultural Revenue**
- ☑ **Number of Firms in AFB Sectors and Subsectors**
- ☑ **Per Firm Revenues**
- ☑ **Share of AFB Sector Revenue Relative to All Private Sector Contributors**
- ☑ **Five-year Shift in The Share of AFB Sector Revenue Relative To All Private Sector Contributions**
- ☑ **Industrial Value Added, or Similar, Ratio Compared to National Average by Sector**
- ☑ **Increase in Visitors Through Agritourism**

1. Support The Center for Sustainable Agriculture and Food Security

Purpose:

Create an educational platform for students and community members to learn novel techniques in sustainable agriculture. Incorporate research in fields such as soil remediation, microbiome, permaculture, and multi-species production systems to improve farm productivity and profitability while continuing to protect the environment.

Why Now:

Agricultural research since World War Two has been singularly focused on increased efficiency. This is particularly true of animal agriculture and has often come at the expense of the type of small and midsized farmer that makes up the base of agriculture in the region. Adapting research to be more responsive to specialized markets, climate change, and sustainability may now provide multiple benefits from increased profitability to improved supply chain resilience and improved social equity. This project is about adapting research to facilitate these and other changes.

How and Who:

The vision for the Center for Sustainable Agriculture and Food Security is a concept being developed by University of Pennsylvania's School of Veterinary Medicine. Penn Vet already has partnerships in both the public and private sectors. However, it will benefit from support through the Ag Council, Stroud Water Research Center (SWRC), and other local organizations.

KEY ACTIONS

- **Conduct a feasibility study for the concept.**
- **Engage in an engineering study and perform a site analysis.**
- **Develop a donor pipeline.**

Lead Partners	Supporting Partners
UPenn School of Veterinary Medicine	Ag Council
	Stroud Water Research Center (SWRC)

Funding Sources	
UPenn School of Veterinary Medicine	Private and philanthropic funding

2. Support Expansion of Pasture-Raised and Grass-Fed Operations

Purpose:

Use education, technical assistance, and collaborative efforts to expand opportunities for pasture and grazing operations.

Why Now:

Demand for grass-fed or pasture-raised products is growing, which opens opportunities for livestock operations to diversify or pivot.[1] If done right, these farms can generate revenues from carbon credits. Indeed, there is a growing body of research that shows how sustainably managed grazing operations can contribute to improved soil health and carbon sequestration.

From a local perspective, Chester County is primed to help expand these types of production systems. Currently, there is an initiative that would involve beginning farmers, the Center for Sustainable Agriculture and Food Security, and research support from the Stroud Water Research Center (SWRC). This collaboration would demonstrate that regenerative livestock management practices can meet the triple bottom line.[2]

To catalyze this movement, more will need to be done to train a new generation of operators on livestock management. In addition, there is a need to engage conservation and land trusts. These entities own a lot of preserved land. Some of this land is suitable for livestock grazing. Demonstrating the positive environmental impacts of grazing production systems could help expand land access.

How and Who:

The actions include a combination of promotional activities, technical assistance, demonstration projects, and collaborations. The Ag Council will play a key role in facilitating conversations between land trusts, conservation groups, and farms. Penn State Extension, Penn Vet's Center for Sustainable Agriculture and Food Security, and PASA will address actions related to trainings, technical assistance, and demonstration projects.

KEY ACTIONS

- **Increase awareness of livestock management trainings provided by Penn State Extension and PASA.**
- **Provide ongoing technical assistance for livestock management.**
- **Demonstration of enhanced soil carbon sequestration through regenerative practices.**
- **Engage conservation groups, land trusts, and farmers on land access challenges and opportunities.**

Lead Partners	Supporting Partners
Ag Council	CCEDC / AgConnect + CCIDA
Penn State Extension	PDA
UPenn School of Veterinary Medicine	SWRC
	Land Trusts
	PASA

1. Beef + Lamb New Zealand, "Beef + Lamb New Zealand Sees Growing U.S. Appetite for Grass-Fed and Sustainably Raised Meat"; Lowrey, "Pandemic Increases Demand for Locally Grown Foods but Small S.D. Producers Can't Keep up."
2. Sadowski, "How Regenerative Land and Livestock Management Practices Can Sequester Carbon"; Nargi, "Can Cows Help Mitigate Climate Change?"

Funding Sources	
Local EDC/IDA funding	USDA, FSMIP
PDA, Organic Certification Cost Share	USDA, LFPP

3. Enhance Marketing Infrastructure

Purpose:

Augment the capacity and efficiency of the supply chain through enhancing logistics and cold-chain infrastructure as well as exploring collaborative marketing and distribution efforts.

Why Now:

Consumer demand and supply chain trends are putting pressure on the agricultural industry to innovate, modernize, and collaborate on ways to reach consumers while reducing costs.

Consumer demand for e-commerce, instant gratification, convenience, and delivery options have undoubtedly changed the way businesses market and distribute. Some of the most important trends in this space involves last-mile delivery as well as cold-chain infrastructure.

Last-mile delivery is the transportation of goods from a distribution hub to the final delivery destination. It is the last leg of the logistics journey. Today, solutions and technologies are built to help companies deliver products affordably, quickly, and accurately. Examples range from technology such as Starship's delivery robot to delivery services such as DoorDash and UberEats.

Since the food supply chain deals with perishables, cold-chain infrastructure becomes an important part of the distribution logistics. As such, there are companies developing temperature-controlled delivery vehicles and refrigerated locker systems (e.g., T4 Solutions, Parcel Pending, Penguin Lockers). Additionally, this creates demand for cold storage warehouse facilities in urban and peri-urban areas. Additionally, farms and agribusinesses are recognizing the need to collaborate on regional logistics by identifying backhaul opportunities. Backhaul opportunities occur when trucks deliver goods and would otherwise return empty. Although challenging, there are opportunities to ensure that trucks can pick up backhauls to improve transportation efficiency and reduce costs. Moreover, the rise in e-commerce and the trucker shortages are putting a crunch on Less-Than-Truckload (LTL) freight, which means more coordination is required to make use of available trucking capacity.

Finally, concepts such as multi-stakeholder cooperatives can facilitate coordinated marketing and procurement to support the local or regional economy. These cooperatives are owned and controlled by more than one type of member. Members can include consumer, farmers, workers, organizations, agribusinesses, government agencies, and even other cooperatives. These types of cooperative efforts can also lead to creating contract specifications, GroupGAP programs, and other resources that help with supply chain coordination and accessing wholesale markets.

How and Who:

While the CCEDC and CCIDA will help start conversations around these actions, the agricultural sector will need to be involved every step of the way. For some of these actions, industry associations and existing organizations may take leading roles. For instance, the Chester County Food Bank has the resources to develop a last-mile distribution program focused on food access. Meanwhile, AMI has the capability to address backhaul opportunities with regards to mushroom compost and byproducts from other sectors such as poultry and forestry.

KEY ACTIONS

- **Enhance last-mile distribution and cold chain infrastructure.**
- **Engage in wholesale market development.**
- **Explore multi-stakeholder cooperatives.**
- **Explore transportation efficiency and backhaul opportunities.**

Lead Partners	Supporting Partners
CCEDC / AgConnect + CCIDA	Chester County Food Bank
	PDA
	AMI
	Penn State Extension
	Industry Associations

Funding Sources

Private and philanthropic funding	EDA: PWEAA
USDA: LFPP, FMPP	Local EDC/IDA funding
USDA Value Chain	Seedcopa
USDA Urban Agriculture and Innovation Grants	
USDA Rural Economic Development Grant	

4. Catalyze the Industrial Hemp Sector

Purpose:

Catalyze the industrial hemp sector in Chester County through research, feasibility studies, and financing.

Why Now:

Currently, Chester County has 40 licensed hemp operations. Only four of these are currently engaged in hemp fiber and hemp grain production. However, the industry shifting away from CBD production. As growers shift away from CBD production towards hemp fiber and grain, there will be ample room for growth. Since hemp is a fast-growing crop, it can be incorporated into the crop rotation as a cover crop. This will be beneficial for livestock, grain, and hay farms.

The projected wholesale value of processed U.S. hemp fiber is expected to grow at 10.5% CAGR from 2020 to 2025 and reach $77.7 million by 2025. Similarly, the U.S. hemp grain wholesale market is expected to grow at 16.5% CAGR from 2020 to 2025 and reach $57.6 million in domestic sales. But the hemp industry faces significant bottlenecks that require investments to overcome. In particular, processing capacity is a major limiting factor. This capacity is needed to process hemp into intermediary components used by other manufacturers. However, investing in or attracting processing capacity necessitates having well-identified end markets. This is where more research into product development is needed. Industrial hemp has many uses, but efforts are needed to identify niche products and establish quality standards.

How and Who:

The CCEDC, CCIDA, and Penn State Extension will spearhead the research and feasibility efforts. However, implementation will also require participation from farms and other universities and research institutions engaged in industrial hemp.

KEY ACTIONS

- **Create task force to explore opportunities for hemp bedding and hemp animal feed.**
- **Conduct a feasibility study for hemp processing.**
- **Support grants for hemp processing infrastructure and R&D.**

Lead Partners	Supporting Partners
CCEDC / AgConnect + CCIDA	PA Industrial Hemp Steering Committee
Penn State Extension	PDA
	SWRC
	Thomas Jefferson University
	Cheyney University
	Industry Associations

3. New Frontier Data, “The U.S. Hemp Market Landscape.”

Funding Sources	
EDA – PWEAA	Local EDA/IDA funding
EDA – Good Jobs Challenge	

5. Prepare Farms for Traceability and Carbon Credit Market

Purpose:

Help farms integrate best practices and technologies needed to incorporate traceability or access markets involving carbon credits. This also means engaging businesses launching ESG initiatives to support local agriculture and forestry as part of those efforts.

Why Now:

Today's consumers demand information on sourcing, food safety, and sustainability metrics. At the same time, companies are feeling the pressure of the ESG (Environmental, Social, and Governance) movement. Increasingly, companies are being asked to demonstrate a commitment to addressing environmental and social issues while providing data for evaluation and marketing purposes. As large consumer-facing companies make this shift, entire supply chains will be affected. In the food industry, issues around sourcing, production practices, labor, wages, and carbon emissions will be evaluated. There is growing recognition that agriculture plays a positive role in carbon sequestration through soil health and soil carbon. Thus, it is also important to help farms monetize on best practices and capitalize on carbon markets.

How and Who:

Successful implementation will include a wide-ranging collaborative partnership with AMI at the lead. The first step is to analyze what is needed for developing a brand, standard, or protocol that is linked to ESG objectives. At the same time, there is a need for engaging the scientific and research community to properly value soil carbon and carbon credits. Next, industry associations and farms need to be engaged to determine the best practices and technologies needed for traceability and data tracking.

One of the ways to jump start this recommendation is through an existing effort being pursued by the mushroom industry. AMI is looking to develop an accreditation system that would inform consumers through a digital platform about how the industry is meeting objectives around sustainability, farming practices, equity, and more. Ultimately, this project would expand beyond the mushroom industry and link other sectors such as equine, dairy, industrial hemp, and forestry.

KEY ACTIONS

- **Analyze development of an ESG values-based brand for Chester County.**
- **Work towards identifying partnerships to help farms work together on marketing carbon credits.**
- **Provide trainings on best practices and technologies required for traceability.**
- **Develop an accreditation system for the mushroom industry.**

Lead Partners	Supporting Partners
AMI	Land Trusts
	Penn State Extension
	SWRC
	Ag Council

Funding Sources	
AMI / Mushroom Council	Local EDC/IDA Funding
EDA	Private and philanthropic funding

6. Develop Biomass Energy and Biochar Use

Purpose:

Help local farms, landowners, and communities to use low-quality and waste wood for the purpose of creating energy through biomass CHP projects. Promote the agricultural and environmental uses for the ash and biochar by-products.

Why Now:

Forestry is often an overlooked component of agriculture. However, many farms own forestland. About 13,000 acres or 9% of the total agricultural land in Chester County is woodland. This forestland serves many purposes including recreation, conservation, timber sales, and non-timber forest products sales.

There are also 97,277 acres of forestland in Chester County, which represents 20% of the county's total land area. Due to reduced timber harvesting, the county's forest has a growth-to-removal ratio of 10.2. As communities limit timber harvesting, problems with high-grading, pests, and disease can arise.

The practice of high-grading to remove a smaller number of high-value trees from timber stands is becoming the commonplace strategy for harvests. Over time, high-grading leads to forest stands with lower timber quality. This reduces the ability to produce quality sawtimber and non-timber forest products. It also negatively impacts activities such as hunting, wildlife watching, or hiking.

The lack of active timber harvest management can also lead to tree stock harboring pests and disease, which leads to unhealthy forests and disease pressure for farms. Pests such as the emerald ash borer or the spotted lantern fly are problems for trees, orchards, vineyards, and produce farms.

Thus, there is a good opportunity to take low-grade wood from farms to generate biomass energy through CHP. As a by-product, biomass CHP operations generate biochar, which has agricultural and stormwater mitigation applications. Some of its benefits include increased nutrient and water retention, improved soil structure and biology, and decontaminated soil and water.

Additionally, biochar can be used for environmental mitigation by utilizing alternative organic feedstocks, such as mushroom compost and manure. These 'manure' based chars also have some very unique characteristics not found in the wood based chars; particularly their ability to attract heavy metals and potentially PFAS. Their potential to be used on remediation projects is significant.

How and Who:

Penn State Extension will work with PDA and other organizations engaged in forestry to engage the public, work with farmers and landowners, and affect change in policies. Meanwhile, CCEDC and CCIDA will help create funding and incentives to support pilot projects.

KEY ACTIONS

- **Educating the public regarding woody biomass as a renewable fuel and the benefits of by-products.**
- **Promote the use of biochar as a soil amendment and for environmental mitigation.**
- **Pilot biomass CHP projects to demonstrate efficacy.**
- **Encourage greater utilization of urban wood waste as a fuel source.**
- **Improve renewable energy policies and incentives to support woody biomass energy.**

Lead Partners	Supporting Partners
CCEDC / AgConnect + CCIDA	PDA
Penn State Extension	PA Forest Products Assn. (PFPA)
	PA Bureau of Forestry (DCNR)
	Pennsylvania Hardwood Council

Funding Sources	
Wood Innovations Grant	USDA Renewable Energy Development Assistance Grants
Business Energy Investment Tax Credit	
Local EDC/IDA Funding	

7. Support Growth of Urban Agriculture

Purpose:

Support the growth of urban agriculture through infrastructure, technical assistance, workforce development, and cooperative efforts. In particular, there should be a focus on urban farms engaged in hydroponics, aquaponics, horticulture, beekeeping, mushrooms, small livestock, and composting.

Why Now:

Urban agriculture, indoor farming, and vertical farming are expected to be important parts of the urban food system in the future. Indeed, interviews indicate that there is interest from large indoor farming operations that are looking to locate in Chester County. There are also existing urban farms that are looking to expand. Attracting and keeping these businesses will require ensuring that zoning codes and incentives are aligned. Moreover, there is a need for workforce development programs that prepare people for work in these operations.

How and Who:

These actions focus on aligning incentives, workforce development, and municipal planning to encourage urban agriculture. This requires close collaboration between CCEDC, CCIDA, the Planning Commission, CCIU, Workforce Development Board, and municipalities.

KEY ACTIONS

- **Create a local version of PDA's Urban Agriculture Infrastructure Grant Program.**
- **Modify zoning codes to allow for urban agriculture in existing zones or as an overlay zone.**[4]
- **Modify comprehensive plan to incorporate urban agriculture as part of the landscape and mixed-use development.**
- **Develop curriculum and trainings to prepare skilled workers for the urban agriculture sector.**

Lead Partners	Supporting Partners
CCEDC / AgConnect + CCIDA	Penn State Extension
Chester County Workforce Development Board	PDA
Municipalities	CCATO
CC Planning Commission and Ag Council	
Chester County Intermediate Unit (CCIU)	

Funding Sources	
USDA Urban Agriculture and Innovation Grants	Seedcopa
Local EDC/IDA funding	TeamPA

4 . Urban Agriculture - A Guide for Municipalities.pdf (pitt.edu)

8. Augment Agritourism Activity

Purpose:

Increase Chester County's agritourism sales and foster a collaborative and modern strategy for accessing more consumers.

Why Now:

Tourism is among the top 5 industries in Chester County. Being near major population centers and affluent consumers allows businesses to draw tourists to dine, shop, visit, and experience all types of activities. The county's beautiful rural landscapes and diversity of farms attract people to connect with farmers and to enjoy local food.

Increasingly, farms are using agritourism as way to diversify revenues. However, there is a need for new strategies, tools, and partnerships that help expand the reach. This calls for a tourism strategy that encompasses agriculture and explores ideas such as multi-sector food and agricultural trails, mobile technology that helps visitors plan trips, and cross-marketing with other tourism activities.

How and Who:

Agritourism efforts need to be coordinated with the county's broader tourism strategy. As such, the Visitors Bureau and Ag Council will work closely to implement the following actions with municipalities and other key supporting partners.

KEY ACTIONS

- **Expand and promote multi-sector food and ag trail.**
- **Pilot use of mobile tourism apps.**
- **Develop strategy to target pass-through travelers.**
- **Promote partnerships with existing tourism assets.**

Lead Partners	Supporting Partners
CC Visitors Bureau	Industry Associations
Municipalities	Penn State Extension
Ag Council	Regional Tourism Association
	Longwood Gardens
	Hospitality Companies
	Brandywine Battlefield Task Force

Funding Sources	
UPenn School of Veterinary Medicine	Private and philanthropic funding

BUSINESS AND FINANCING strategy

The Business and Financing Strategy focuses on recommendations that help increase the success and profitability of farms and agribusinesses, as well as ways to build an innovation culture. This strategy section focuses on the following recommendations:

1. Expand and Enhance Business Technical Assistance (High Priority)
2. Support Development of Food System Infrastructure (High Priority)
3. Create Funding, Incentives, and Financing Targeted at AFB Sectors (High Priority)
4. Support Municipal-Level Agribusiness Retention, Expansion, and Recruitment (Moderate Priority)
5. Develop an Agricultural Innovation Center (Moderate Priority)

Metrics to measure success

- ☑ Total farm asset values
- ☑ Average return on assets
- ☑ Participation in publicly supported loan and grant programs
- ☑ Changes to Debt-to-Equity ratios by sector
- ☑ Changes to return on invested capital by sector
- ☑ Changes to economic value added
- ☑ Default rate by sector
- ☑ Number of equity-financed deals
- ☑ Number of shovel-ready projects
- ☑ Reported instances of road and traffic conflict with agricultural activity
- ☑ Number of new AFB businesses financed through alternative finance programs
- ☑ AFB sector sentiment on access to project finance and working capital

1. Expand and Enhance Business Technical Assistance

Purpose:

Encourage individual business success through curated business technical assistance.

Why Now:

Both startup and existing farm and food businesses need support with navigating workforce challenges, adapting to evolving customer demand, and many other business decisions. Some of the issues such as neighbor relations or the growing use of automation necessitate concerted and collaborative efforts to help the industry thrive.

How and Who:

Business technical assistance will come from a variety of partners in the private and public sector. These efforts may be led by the CCEDC newly formed AgConnect program in collaboration with existing service providers such as Penn State Extension, The New Bolton Center, CCIDA, the Soil Conservation District, and others.

KEY ACTIONS

- **Develop tools to assist with siting and transition.**
- **Curate and deliver business assistance.**
- **Create a welcome package for new farms and agribusinesses.**
- **Provide best practices for neighbor relations.**
- **Prepare industry for automation and process and improvement.**
- **Promote operational efficiency in energy, inventory, and workforce management.**

Lead Partners	Supporting Partners
CCEDC / AgConnect	PASA
CCIDA	PDA
Penn State Extension	Industry Associations
SCORE	Small Business Development Center

Funding Sources	
PDA Grants • Farm Vitality Planning Grant • Beginning Farmer Tax Credit Program • Pennsylvania Dairy Investment Program (PDIP)	CCEDC / AgConnect
	PIDA: Working capital loans
	EDA: PWEAA

2. Support Development of Food System Infrastructure

Purpose:

Encourage collaborative development of opportunities to benefit the agricultural sector through attracting, financing, or developing infrastructure.

Why Now:

Capitalizing on emerging markets and future opportunities requires having the right infrastructure to facilitate development. There are also clear needs for processing infrastructure such as co-packing and light processing. Moreover, major trends in e-commerce, grocery, specialty warehousing, and last-mile logistics will require new facilities and technology infrastructures. This can involve supporting the development of peri-urban cold storage sites, high-cube warehouses, truck depots, refrigerated lockers, drone depots, and more.

How and Who:

This recommendation will be led by the CCEDC and CCIDA, as these organizations have the capacity to provide and manage funds for the development of infrastructure.

KEY ACTIONS

- **Support development of last mile, first mile, and cold chain capability.**
- **Help businesses adopt food safety and supply chain visibility technologies and processes.**
- **Encourage collaborative purchasing options.**
- **Attract co-packing and light processing capacity.**
- **Conduct feasibility analysis for building local slaughterhouse capacity.**

Lead Partners	Supporting Partners
CCEDC / AgConnect	Penn State Extension
CCIDA	PDA
	Industry Associations
	Chester County Food Bank

Funding Sources	
CCEDA	USDA Urban Agriculture and Innovation Grants
Private and philanthropic funding	USDA Rural Economic Development Grant
EDA: BBB; PWEAA	USDA Rural Development B&I Program
USDA: LFPP, FMPP (LAMP); Value Chain	

3. Create Funding, Incentives, and Financing Targeted at AFB Sectors

Purpose:

Spur entrepreneurship and innovation as well as to help existing businesses expand and adapt.

Why Now:

There are opportunities to spur innovation and entrepreneurship in the agricultural, food, and beverage (AFB) sectors through financial means. Some of these opportunities need startup or working capital grants, while others may benefit from loans and other financing mechanisms. Also, providing dedicated funding can help those in the AFB sector that may not always be eligible for traditional commercial loans from financial institutions that may not understand the risk profiles for these industries.

How and Who:

CCEDC and CCIDA will spearhead the efforts to create new funding and financing tools that support the AFB sectors. Currently, there is interest to explore the creation of a CDFI fund. Ultimately, these activities will require coordination with industry as well as financial institutions (e.g., banks, credit unions).

KEY ACTIONS

- **Develop an agriculture innovation fund.**
- **Develop a working capital support fund.**
- **Develop bridge funds.**
- **Provide financing to adopt automation.**

Lead Partners	Supporting Partners
CCEDC / AgConnect	Municipalities
CCIDA	PDA
Reinvestment Fund	Industry Associations
	CCATO

Funding Sources	
Government Funds	
Private and Philanthropic Funding	

4. Support Municipal-Level Agribusiness Retention, Expansion, and Recruitment

Purpose:

Ensure cluster of support services are available for farms and to build an attractive business environment.

Why Now:

It is important to retain and attract businesses that provide support services for farms. This includes tractor dealerships, farm equipment repair, farm supply stores, food processors, and logistics services. This can be accomplished by creating an attractive local business environment through the following action items.

How and Who:

These activities are under the purview of the Planning Commission and CCEDC. Activities around road conditions, zoning, and permitting are specific for the Planning Commission and will involve the Ag Council, CCATO, and municipalities. Meanwhile, outreach activities, workforce development, and siting analysis will primarily involve CCEDC.

KEY ACTIONS

- **Support the improvement of local traffic conditions through:**
  - **Traffic alerts for agricultural activity.**
  - **Large farm equipment escorts.**
  - **Road and parking solutions.**
- **Conduct targeted outreach to firms withing key NAICS sectors to encourage relocation or expansion.**
- **Market workforce development programs and collaborative efforts to help businesses have more confidence in the labor market.**
- **Streamline zoning, permitting, and licensing processes to expedite project development.**
- **Identify suitable locations for siting processing, distribution, and logistics infrastructure.**
- **Conduct analysis to determine strategic locations for infrastructure.**

Lead Partners	Supporting Partners
CCEDC / AgConnect	Municipalities
CC Planning Commission	PDA
	Ag Council
	Industry Associations
	CCATO

Funding Sources	
County Funds	
Private and Philanthropic Funding	

5. Develop an Agricultural Innovation Center

Purpose:

Develop a facility dedicated to supporting agricultural businesses and food manufacturing. Centralize processing, manufacturing, technical assistance, research and development, product testing, as well as farm equipment or technology development. Develop a culture of innovation by supporting startups in the agriculture, food, and beverage.

Why Now:

Chester County has three Innovation Centers that are focused on early-stage life science and technology companies. While some agribusinesses may be able to take advantage of these programs and facilities, there is not a dedicated facility, training center, or incubator space tailored for the agricultural, food, and beverage sectors.

Moreover, as more farms rely on value-added processing to diversify revenue, it will be important to have the necessary facilities to support these activities. There is also a lack of co-packing capacity within the produce sector and a need for additional meat slaughtering and processing capacity. Providing capacity for these functions would help spur innovation and growth.

How and Who:

The concept of the Agricultural Innovation Center should be explored by the CCEDC, CCIDA, Penn State Extension, and Chester County Farm Bureau in conjunction with key players in the agricultural sector. Stakeholder engagement and industry engagement will be critical for designing a facility that meets both current and future needs.

KEY ACTIONS

- **Conduct analysis on the need, costs, and design.**
- **Launch programming to support the Agricultural Innovation Center.**

Lead Partners	Supporting Partners
CCEDC / AgConnect	AMI
CCIDA	UPenn School of Veterinary Medicine
Penn State Extension	Farms and Agribusinesses
Chester County Farm Bureau	Industry Associations

Funding Sources	
Private and philanthropic funding	EDA: PWEAA
USDA Rural Economic Development Grant	Local EDC/IDA funding
USDA Value Added Producer Grants	Seedcopa
USDA Agriculture Innovation Center Program	PennTAP

EDUCATION AND OUTREACH strategy

The Education and Outreach Strategy focuses on ways to educate, engage, and market to consumers as well as keeping public officials informed. This strategy section focuses on the following recommendations:

1. Educate the Public About Agriculture (High Priority)
2. Educate Public Officials About Agriculture (High Priority)
3. Create Opportunities for Engagement Around Local Food (Moderate Priority)
4. Increase Awareness of Local Foods and Agricultural Products (Moderate Priority)

Metrics to measure success

- ☑ Student enrollment in secondary school agricultural programs
- ☑ Student enrollment in secondary school AFB programs
- ☑ Student enrollment in higher education AFB programs
- ☑ Investment in AFB related curricula and teaching labs
- ☑ Enrollment in AFB adult education courses
- ☑ Private investment in training
- ☑ Social media tracking of AFB educational material
- ☑ Attendance at public training and outreach events for AFB sectors
- ☑ Fundraising tracking for public training and outreach events for AFB sectors
- ☑ Measures of web traffic
- ☑ Community sentiment regarding agriculture's impact on, and role in, the community as determined by survey

1. Educate the Public About Agriculture

Purpose:

Help communities understand and appreciate agriculture as an economic and community asset. Help mitigate neighbor conflicts.

Why Now:

Interviews with farms and industry stakeholders clearly indicate challenges with managing neighbor relations and communicating about critical issues that impact agriculture. There is a recognition that education, marketing, and engagement are key components to gain community support and to ensure policies or regulations are supportive of industry success.

Educating and engaging the community can help dispel myths and cultivate relationships between consumers and the local or regional food system. For example, consumers may have misunderstandings regarding the application of inputs, pesticides, and other chemicals. Education on the best practices being implemented, the progress that has been made, and the positive environmental contributions can lead to more amicable conditions.

Finally, creating platforms for communication helps build relationships that would not have otherwise occurred. Using town halls, farm tours, and other events can allow civil discourse, nuance, and more balance when discussing topics or issues that are often misunderstood or misrepresented.

How and Who:

These activities will be led by the Ag Council and Penn State Exension. Since agricultural education touches on a variety of topics and issues, it will be important to engage other organizations involved in these subject areas.

KEY ACTIONS

- **Coordinate an annual series of farm tours to promote agriculture and educate county residents.**
- **Use town hall event(s) to engage farmers and community members on key topics or issues.**
- **Support educational exhibits about agriculture.**
- **Provide youth engagement activities.**

Lead Partners	Supporting Partners
Ag Council	Industry Associations
Penn State Extension	UPenn School of Veterinary Medicine
	SWRC
	PDA
	Pennsylvania Hardwood Council
	Land Trusts
	Chesapeake Bay Program
	CC Visitors Bureau
	CCEDC / AgConnect + CCIDA
	Chester County Food Bank

Funding Sources	
Government funds	
Private and Philanthropic Funding	

2. Educate Public Officials About Agriculture

Purpose:

Educate public officials on key topics to help lead to good policies and initiatives that impact agriculture. Some of these topics include:

- Agricultural practices.
- Economic impact of agriculture.
- Benefits of actively managed forests.
- Misunderstandings on environmental impact of livestock production.
- Importance and needs of agritourism, on-farm events, and on-farm processing.
- Land management goals.

Why Now:

Public officials can play an important role in supporting the growth and development of the agricultural sector. However, there are challenges with addressing nuanced issues and policies that affect agriculture. Thus, there is a need for initiatives that help decision makers understand the role and importance of agriculture, as well as ways to support it.

How and Who:

The Ag Council, the Chester County Planning Commission, and Penn State Extension will work closely with municipalities to improve outcomes for the agricultural community. Other organizations in the county and the region will also play a role in providing the information, resources, and technical assistance needed to affect change.

KEY ACTIONS

- **Use farm tours to inform public officials.**
- **Provide information on the positive impacts of agriculture.**
- **Create an information kit on agriculture for newly elected officials.**
- **Provide technical assistance for public officials on topics such as planning for farming, farmland conservation, and farm viability.**
- **Develop a organized training program for understanding needs of the agricultural sector.**
- **Develop shared set of tools and guidelines to address agritourism and neighbor relations.**

Lead Partners	Supporting Partners
Ag Council	CC Visitors Bureau
Penn State Extension	CCATO
CC Planning Commission	Center for Sustainable Agriculture and Food Development
	Industry Associations
	Stroud Water Research Center
	PDA
	Pennsylvania Hardwood Council
	Land Trusts
	Chesapeake Bay Program
	SWRC
	CCEDC / AgConnect + CCIDA

Funding Sources	
Government funds	
Private and Philanthropic Funding	

3. Create Opportunities for Engagement Around Local Food

Purpose:

Build relationships with consumers through education and outreach activities around food, culinary arts, nutrition, and agriculture. Use the feedback to inform product development and drive innovation.

Why Now:

Tourism is among the top five industries in Chester County. Being near major population centers and affluent consumers allows businesses to draw tourists to dine, shop, visit, and experience all types of activities. Pairing tourism with agricultural activities can promote the great products produced by the county's mushroom, grape, dairy, horticulture and floral, fruit and vegetable, Christmas tree, and livestock farms. It also provides consumer education and engagement.

These activities also meet consumers' growing demand for experiences.[5] Experiences include destinations, events, and other intangible benefits derived from a product or service. Increasingly, consumers want experiences that offer a sense of community, exclusive access, authenticity, and positive mood. They also want to reconnect through local and natural experiences, while being able to share those experiences through social channels. The ability to offer both physical and digital interfaces is also key to building a seamless experience.

How and Who:

A key focus of this recommendation is the Culinary Center, which will be a place to promote information on agriculture, mushrooms, wine, and food from Chester County or the Commonwealth of Pennsylvania. It will be a place that welcomes visitors for cooking classes, lectures, demonstrations, tastings, dining experiences, local food, and other events.

The creation of the Culinary Center along with activities that engage consumers will be led by the CCEDC, Visitors Bureau, the Center for Sustainable Agriculture and Food Security, and AMI. Other organizations involved in tourism, agritourism, agricultural education, and hospitality will also be important for implementing these actions.

KEY ACTIONS

- **Conduct analysis on the need, costs, and design for a Culinary Center.**
- **Work with the Center for Sustainable Agriculture and Food Security to explore new dairy/livestock products focused on local underserved populations.**
- **Build relationship with consumers in nearby urban centers.**
- **Expand opportunities for food-related events and festivals and create individualized tour experiences for the region.**

Lead Partners	Supporting Partners
CCEDC / AgConnect	Penn State Extension
AMI	Regional tourism Association
CC Visitors Bureau	Longwood Gardens
Center for Sustainable Agriculture and Food Security	Hospitality companies
	Restaurant Association

Funding Sources	
Private and philanthropic funding	EDA: PWEAA
USDA: LFPP, FMPP	Local EDC/IDA funding
USDA Value Chain	PA Farm Vitality Planning Grant
USDA Urban Agriculture and Innovation Grants	Seedcopa
USDA Rural Econmic Development Grant	

5. Bremner and Boumphrey, "Experiences Are Overtaking Things"; Schultz, "Not Just Millennials: Consumers Want Experiences, Not Things."

4. Increase Awareness of Local Foods and Agricultural Products

Purpose:

Increase consumer demand for local food in direct-to-consumer and intermediated marketing systems by creating awareness.

Why Now:

Local promotion is important for many fruit, vegetable, cut flower, dairy, and livestock farms. Many of these operations sell through the 10 farmers markets in the county, offer CSAs or pick-your-own, or sell through roadside farm stands. Others also sell directly to retail, to wholesalers, or through the Oxford Auction.

There is also strong demand for local food options within major urban markets in the region. Psychographic data for the region indicates that 1-in-3 households care about buying American, which is a proxy for buying local.[6]

Research also shows that offering local products can be more important than other attributes. For example, a recent survey determined that consumers would purchase local produce over organic produce if quality and price are equal.[7] Even when the price is differentiated, consumers still choose local over organic. While consumers choose organic produce primarily for health and environmental reasons, the desire for local produce is centered on community, the local economy, and product freshness.

How and Who:

Many of these activities will be under the purview of the Ag Council and in coordination with the Health Department and Visitors Bureau. However, the Ag Council will need support from PDA, Penn State Extension, industry associations, and agribusinesses.

KEY ACTIONS

- **Partner with corporate health programs to encourage local food purchasing.**
- **Increase the number of year-round marketing opportunities.**
- **Analyze development of an ESG values-based brand for Chester County's AFB sector.**
- **Increase awareness of the Oxford Auction to potential buyers.**
- **Develop a marketing campaign to increase local food consumption.**
- **Promote local horticultural products.**

Lead Partners	Supporting Partners
Ag Council	PDA
Chester County Health Department	Penn State Extension
CC Visitors Bureau	Industry Associations
	Marketing programs at local colleges
	Restaurant Association
	Brewers and Distillers

6. Source is from ESRI Business Analyst.
7. Stein, "The Power of Produce 2017."

Funding Sources	
Private and philanthropic funding	USDA Rural Economic Development Grant
USDA: LFPP, FMPP	USDA Urban Agriculture and Innovation Grants
USDA Value Chain	

LABOR AND WORKFORCE strategy

The Labor and Workforce Strategy includes recommendations that improve workforce opportunities, capacity, availability, and readiness in the agricultural sector. This strategy section focuses on the following recommendations:

1. Prepare Industry for Future Workforce Needs (High Priority)
2. Enhance Owner-Operator Capacity (High Priority)
3. Develop Jobs in Key Support Service Sectors (High Priority)
4. Prepare Industry for Adopting Automation (Moderate Priority)
5. Address Agricultural Labor Availability (Moderate Priority)

Metrics to measure success

- ☑ Number of employees
- ☑ Average number of employees per firm
- ☑ Average wage
- ☑ Average wage by category comparison to all industries
- ☑ Revenue per employee
- ☑ Capital investment per employee
- ☑ Degree and certificate program enrollment
- ☑ Degree and certificate achievement
- ☑ Business sentiment regarding workforce readiness as determined by survey

1. Prepare Industry for Future Workforce Needs

Purpose:

Build workforce pipelines that address skills gaps in agriculture and related sectors. Train, retain, and recruit a ready workforce. Train, retain, and recruit a ready workforce.

Why Now:

Interviews with farms indicate that there is a clear need for a workforce that has both work ethic and experience with farm work. In particular, there are skill gaps involving livestock management, pest management, horticulture, organic farming, precision agriculture, food safety, and general management.

All of this points to a need for programs that help close the skills gaps and encourage careers in these sectors. In the past, the AgConnect initiative promoted agriculture as a viable career option to 3,900 students through career exploration showcases, career fairs, and events. This is something that should be continued. In addition, initiatives should encourage both youth and adults to engage in mentorship programs. Some programs such as the Pennsylvania Women's Agricultural Network (WAgN) are important for fostering diversity in these sectors.

It is worth noting that workforce development programs alone will not completely solve the labor availability issue. It will, however, mitigate the decline and help both students and workers see opportunities in agriculture, food, or beverage.

How and Who:

This recommendation requires extensive coordination between the industry and educational institutions. The Workforce Development Board will work with CCEDC, Penn State Extension, and CCIU to coordinate with farms and industry to develop curriculum and programs that address skills gaps. These efforts will also rely on work being done by organizations such as PASA, the National Young Farmers Association, and the Center for Sustainable Agriculture and Food Security.

KEY ACTIONS

- **Adopt WorkKeys for agriculture within primary and secondary educational institutions.**
- **Develop or enhance CTE programs and apprenticeships for trades needed in agriculture.**
- **Enhance training programs on livestock management.**
- **Enhance training for organic farming.**
- **Enhance training and certification of modern food safety practices.**
- **Continue AgConnect programs to engage the youth and promote agricultural careers.**

Lead Partners	Supporting Partners
Chester County Workforce Development Board	Ag Council
CCEDC / AgConnect	Industry Associations
Penn State Extension	PA Farm Bureau
Chester County Intermediate Unit (CCIU)	PASA
Chester County Health Department	National Young Farmers Association
	Center for Sustainable Agriculture and Food Security

Funding Sources	
Private and philanthropic funding	State Apprenticeship Expansion, Equity and Innovation Grants
Workforce Opportunity for Rural Communities (WORC)	PA Strategic Innovation Grant
Youth Build Grants	PA Smart Grants

2. Enhance Owner-Operator Capacity

Purpose:

Prepare farmers to operate and build successful businesses, adapt to changing technology, and improve outcomes.

Why Now:

With rapid changes in industry structure, regulatory frameworks, industry certification requirements, and technology requirements, it is essential for operators to keep up with best practice strategies to succeed.

How and Who:

A collaboration led by Penn State Extension and the CCEDC to identify emerging training needs and create programmatic responses. In addition, significant support will be required from organizations such as PASA, National Young Farmers Association, Farm Bureau, the Ag Council, and SBDC.

KEY ACTIONS

- **Enhance training programs on livestock management.**
- **Enhance training for organic farming.**
- **Enhance training and certification of modern food safety practices.**
- **Expand one-on-one Business Technical Assistance (BTA).**

Lead Partners	Supporting Partners
CCEDC / AgConnect	SBDC
Penn State Extension	PASA
	National Young Farmers Association
	Farm Bureau
	Ag Council

Funding Sources	
SBA Management and Technical Assistance Grants	USDA Farmer Business Technical Assistance Grants
USDA Urban Agriculture and Innovation Grants	PennTAP
USDA Rural Economic Development Grant	
PA Farm Vitality Planning Grant	

3. Develop Jobs in Key Support Service Sectors

Purpose:

Address the workforce shortage and skills gaps in support services that farms rely on.

Why Now:

Farms are also affected by the labor problems affecting support services such as farm equipment dealers, logistics, and meat processors. Often, these businesses are competing in the same labor pool. Thus, it is important to address current workforce need and to find collaborative ways to recruit, train, and in some cases share labor. Finally, many farms require business technical assistance, so there is an opportunity to create a pipeline of jobs for ag-related legal, financial, and business support services.

How and Who:

A collaboration led by the Workforce Development Board, Penn State Extension, and CCEDC will work with schools and industry to conduct periodic studies to determine the support and service sector development needs.

KEY ACTIONS

- **Support job creation in farm equipment repair, ag-related legal, and ag-related financial services.**
- **Enhance training programs to improve skills in butchering and meat cutting.**
- **Develop a recruitment strategy that is supported by the industry.**
- **Support emerging models to cross-train professional and technical fields.**
- **Explore opportunities to share labor resources.**

Lead Partners	Supporting Partners
Chester County Workforce Development Board	School Districts
Penn State Extension	Industrustry Associations
CCEDC / AgConnect	Farm Bureau
	Ag Council

Funding Sources	
Private and philanthropic funding	PA Strategic Innovation Grant
Youth Build Grants	PA Business Education Partnership Grant
Workforce Opportunity for Rural Communities (WORC)	

4. Prepare Industry for Adopting Automation

Purpose:

Prepare the agricultural industry for adopting automation through demonstrations, finance, trainings, and workforce development.

Why Now:

The domestic supply of agricultural labor continues to be very low. Interviews with farms consistently indicated the difficulties of hiring labor in agriculture. Technology, culture, and demands for higher wages have made it challenging to hire workers engaged in monotonous, low-skill, or hard labor. This issue has also affected related industries involved in processing, farm equipment, and transportation logistics.

Without a reliable source of low-skill and skilled labor, there is increasing pressure to maintain or increase production through automation and technology. Today, technological advances and better IT and communication infrastructure are leading to a new generation of automation solutions that can help agriculture accomplish this.

Indeed, there is a 53% potential for automation across all agricultural work.[8] This automation will most likely affect routine activities on the farm such as predictable physical labor, collecting data, and processing data. While 90% of predictable physical activities in agriculture can be automated, about 50% of unpredictable physical activities can also be automated.[9]

The most important factor to consider is that the industry is likely at a tipping point. When the cost of labor and automation reach parity, automation adoption becomes significantly more compelling. Moore's Law suggests that the continued decline in the cost of computing power will lead to lower development and deployment costs. When agricultural labor costs increase along with a declining labor supply, it is only a matter of time before adoption of automation accelerates.

The following table lists some of the key activities that will be targeted for automation.

Planning	Production	Marketing
• Fertility planning • Livestock records and management • Weather modeling • Microclimate modeling • Yield monitoring	• Robotic milking • Mastitis detection • Unmanned herding • Precision feeding • Audio and visual facility monitoring	• Storage monitoring • Automated sorting • Traceability • Carbon credits

8. McKinsey Global Institute, "A Future That Works: Automation, Employment, and Productivity."
9. McKinsey Global Institute.

• Data analytics • Food safety records and management • Carbon planning and monitoring	• Algorithmic diagnosis • Variable rate application • Precision seeding • Real-time sensing • Field scouting • Pest prevention and monitoring • Automated or robotic harvesting • Frost detection • Smart irrigation	

How and Who:

This effort will involve economic development agencies, workforce development programs, the private sector, as well as educational institutions to address trends in automation, technology, and innovative practices. The collaborative will work to create programmatic responses in workforce development, business technical assistance, and curriculum.

KEY ACTIONS

- **Develop series of trainings on automation, technology, and best practices.**
- **Provide financing for modernizing equipment and processes.**
- **Ensure agricultural education curriculum includes topics such as robotics, data, programming, and IT.**
- **Launch a conference on automation in agriculture, food, and beverage.**

Lead Partners	Supporting Partners
CCEDC / AgConnect	Industry Associations
CCIU	School Districts
Penn State Extension	Penn State Extension
	FFA
	PASA

Funding Sources	
USDA Urban Agriculture and Innovation Grants	Private and philanthropic funding
USDA Rural Economic Development Grant	PA Farm Vitality Planning Grant
PA Strategic Innovation Grant	Youth Build Grants
EDA: PWEAA	State Apprenticeship Expansion, Equity and Innovation Grants
PennTAP	
Workforce Opportunity for Rural Communities (WORC)	

5. Address Agricultural Labor Availability

Purpose:

Improve conditions of chronic labor shortages by addressing issues related to labor housing, transportation, recruitment, and resource sharing.

Why Now:

The cost of housing and renting in the region is high. This is another factor that makes it difficult to attract agricultural workers. In addition, those that hire H-2A workers may have trouble providing housing, which can limit the number of seasonal workers. For some sectors, this leads to workers living farther away from the place of work. Unfortunately, some of these places have few public transit routes, which can increase commuting costs. As such, strategies should be employed to make it easier to establish temporary housing, increase access to agricultural labor housing, or improve transportation options.

How and Who:

A collaboration led by the Chester County Workforce Development Board, the Delaware Valley Regional Planning Commission, the Chester County Planning Commission, SEPTA, CCEDC, and TMACC. Changes will be made through county and municipal plans, and initiatives will be launches to drive conservation and actions towards sharing labor and resources.

KEY ACTIONS

- **Simplify process or offer exemptions for developing housing for agricultural labor.**
- **Improve transportation accessibility.**
- **Collaborate on workforce recruitment across industry.**
- **Explore the use of a labor and resource sharing app/portal.**

Lead Partners	Supporting Partners
Chester County Workforce Development Board	Municipalities
Delaware Valley Regional Planning Commission	CCATO
CC Planning Commission	PDA
SEPTA	Farm Bureau
CCEDC / AgConnect	
TMACC	

Funding Sources	
Private and philanthropic funding	USDA Farm Labor Housing Direct Loans and Grants
USDA Rural Economic Development Grant	
EDA: PWEAA	

LAND ACCESS strategy

The Land Access Strategy focuses on recommendations that connect, maintain, and expand the land available for agricultural sectors. This strategy section focuses on the following recommendations:

1. Support Access to Affordable Farm and Forest Land (High Priority)
2. Develop Tools to Assist Municipal Officials with Land Management Goals (High Priority)
3. Demonstrate Positive Environmental Externalities of Agriculture (High Priority)
4. Examine Innovative Financial Options for Land Access (High Priority)
5. Shift Land Management Toward Higher Value Uses (Moderate Priority)

Metrics to measure success

- ☑ **Creation of a mentor-protégé program**
- ☑ **Number of participants in mentor-protégé program**
- ☑ **Diversity of participants in mentor-protégé program**
- ☑ **Number of open space acres that allow agricultural activities**
- ☑ **Creation of an environmental dashboard**
- ☑ **Creation of digital tools for siting and identifying farmland for protection**
- ☑ **Amount of funding for financing land access**
- ☑ **Revenue generated through carbon credit market participation**

1. Support Access to Farm and Forest Land

Purpose:

Increase land access for agricultural operations, particularly those with limited resources as well as new and beginning farmers.

Why Now:

Land is expensive in Chester County. This makes it difficult for farms to purchase agricultural land. As a result, many rely on leasing such property. Unfortunately, a lot of this leased land has been lost to development in recent years. To complicate matters, there is a lot of competition between farms to purchase or lease farmland, which increases the cost. Ultimately, development pressure will continue to reduce the amount of available agricultural land over time. Measures should be put in place to safeguard the best agricultural land, ensure a wide variety of agricultural uses, and help both new and existing farmers gain access.

How and Who:

This recommendation is intended to be carried out by a collaborative of land conservation organizations, agricultural associations, and financial institutions. These organizations will explore the use of agricultural land conservation, mentor-protégé programs, and long-term commercial leases for young and beginning farmers to address farm transition and succession.

KEY ACTIONS

- **Focus conservation on working lands access.**
- **Build upon programs to support young and beginning farmer access.**
- **Develop tools to assist with siting and transition.**
- **Create a mentor-protégé program.**
- **Encourage participation in Farm Link; use tools to match farmers with landowners.**

Lead Partners	Supporting Partners
CC Planning Commission and Ag Council	Penn State Extension
Penn State Extension	PDA
Farm Bureau	CCEDC / AgConnect
	PA Farm Link
	Land Trusts
	PASA

Funding Sources	
Private and philanthropic funding	PA Farmland Preservation Program
USDA Farm and ranchland protection grants	

2. Develop Tools to Assist Municipal Officials and Land Management Goals

Purpose:

Increase the capacity of municipalities and other public to manage farmland through guidance and digital tools.

Why Now:

Chester County is home to good agricultural land and soils. It is important for municipalities to recognize agricultural land assets and the economic benefits of maintaining land in agricultural production.

It is important to have the tools that help municipalities and prospective farmers identify land that is suitable for certain types of crop or livestock production. For instance, a GIS tool could use data on soil type, slope, and microclimate to identify land parcels best suited for wine grape production versus livestock grazing.

How and Who:

The Planning Commission and Ag Council will work together to develop tools for municipal officials and to reach out to municipalities and partners.

KEY ACTIONS

- **Provide resources for municipalities on agricultural land use issues.**
- **Develop guidance documents to align land use policies with modern agricultural activities and practices.**
- **Develop GIS planning and recruiting tools to identify lands for productive agriculture.**
- **Create model farm guidance.**

Lead Partners	Supporting Partners
CC Planning Commission and Ag Council	Penn State Extension
CCATO	Land trusts
	Conservation District

Funding Sources
County Funds
Private and Philanthropic Funding

3. Demonstrate Positive Environmental Extrenalties of Agriculture

Purpose:

Educate landowners and the public to support agriculture as a land use. Can lead to monetizing the positive externalities through mechanisms such as carbon credits.

Why Now:

Residents and consumers care about how agriculture impacts the environment. Unfortunately, misunderstandings and misinformation can lead to negative views towards agricultural production. Thus, it is critical to help farms continue to adopt best management practices, while educating the public about what has been done and the impact of those practices. In particular, the use of carbon credit markets, sensor technologies, and an environmental dashboard are a few of the ways that use data and metrics to communicate agriculture's positive impacts.

How and Who:

This effort will be spearheaded by research institutions and organizations involved in environmental research and management. The agricultural industry will also be involved to ensure that data tracking and reporting practices are feasible and implementable.

KEY ACTIONS

- **Explore carbon credit markets.**
- **Implement sensor technology and an environmental dashboard.**
- **Update BMPs for environmental management under certain production systems.**
- **Enhance utilization of Penn State Programming on the role of food systems in carbon sequestration.**

Lead Partners	Supporting Partners
Stroud Water Research Center (SWRC)	PDA
Center for Sustainable Agriculture and Food Security	Ag Council
Penn State Extension Master Watershed Stewards	Penn State Extension
AMI	Land Trusts
Conservation District	Chesapeake Bay Program

Funding Sources	
Government funds	PA Conservation Excellence Grants
Private and philanthropic funding	Chesapeake Bay Program

4. Examine Innovative Financial Options for Land Access

Purpose:

Identify innovative financing mechanisms to help farmers compete with non-farming interests when acquiring farmland.

Why Now:

Land prices are rapidly increasing with the average prices of farmland at $35,000 per acre in rural portions of the county and in excess of $200,000 per acre in more urban areas. Even preserved agricultural parcels are selling for values in excess of agricultural value, which is pressuring owner-operators particularly in the livestock, grain, and oilseed sectors. There is a clear need to reinvigorate or explore ways to finance farmland access.

How and Who:

A partnership of economic development officials, Agricultural Land Preservation Board, and the Chester County Parks + Preservation will be formed to create new and expanded capacity to finance land access.

KEY ACTIONS

- **Reinvigorate the Aggie-bond program.**
- **Explore funding for Option to Purchase at Agriculture Value (OPAV).**
- **Examine alternative private finance options such as REIT's and AIMO models.**

Lead Partners	Supporting Partners
CC Parks + Preservation	Ag Council
Agricultural Land Preservation Board (ALPB)	Penn State Extension
CCEDC / AgConnect	Chesapeake Bay Program
	SWRC
	National Young Farmers Coalition
	American Farmland Trust
	Land Trusts

Funding Sources	
Private and philanthropic funding	EDA: PWEAA
USDA Rural Economic Development Grant	PA Farmland Preservation
USDA Business and Industry Program	

5. Shift Land Management Toward Higher-Value Uses

Purpose:

Provide incentives and management information to encourage better whole farm income generation.

Why Now:

As development pressure increases, there it is more difficult to find land available for productive agricultural uses. The competition for a shrinking agricultural land base also increases the cost to rent farmland. Solving this problem could involve protecting more farmland or even utilizing existing open space lands. It also points to a need for encouraging a shift in land management toward higher value uses, both for the farm and the community. Generating more value per acre is needed to cover the cost of owning or renting land.

In 2020, the total protected open space in the county was 151,095 acres. After accounting for some overlap in preservation or conservation programs, this value comes down to 144,246.5 acres, which represents about 29.7% of the county's 485,845 acres.

While much progress has been made, there remains challenges with balancing the demand for preserving land for agriculture versus other uses. Depending on the arrangements, some land may be limited to recreational or lower-value agricultural uses. In fact, most of the open space is dedicated to non-agricultural uses. Only about 27.7% of the 151,095 acres of protected open space are under an easement from the Agricultural Land Preservation Board (ALPB).

Interviews suggest that there may be opportunities to identify land in trusts that is currently used for hay production but is ideal for wine grapes or other high-value agricultural products. There are also organizations working together to use open space for pasture-raised production systems. Moreover, farms should be encouraged to explore crops or production systems that yield multiple revenue streams. For example, industrial hemp can be integrated into a crop rotation with grains as a cover crop and be processed for various end use markets.

Finally, it should be noted that new production systems and even active forest management can lead to environmentally beneficial outcomes such as increased carbon sequestration. Trends involving ESG and volunteer carbon markets indicate that farms can increase the value of their land and operations through the right measures.

How and Who:

The recommendation will be led by the The Center for Sustainable Ag, Penn State Extension, and land trusts. It will also require support from Parks + Preservation, the Agricultural Land Preservation Board, and organizations with an interest in the financial success of land-based agriculture.

The basis of this recommendation will be the creation of a business technical assistance program that builds a library of production, financial, and marketing information to support management and operating changes at the farm level. It will also include collaborations that encourage the increased use of open space for higher-value agricultural uses.

KEY ACTIONS

- **Create incentives for long-term investment.**
- **Develop case studies for value enhancement.**
- **Explore options for value chain integration and alternative income generation.**
- **Fully integrate forest management planning into conservation easements.**
- **Encourage greater flexibility in agricultural easements.**

Lead Partners	Supporting Partners
Center for Sustainable Ag and Food Security	CC Parks + Preservation
Penn State Extension	Agricultural Land Preservation Board (ALPB)
Land Trusts	PASA
	National Young Farmers Coalition

Funding Sources

Private and philanthropic funding	PA Strategic Innovation Grant
USDA Rural Economic Development Grant	EDA: PWEAA
USDA Urban Agriculture and Innovation Grants	PennTAP

ZONING AND LAND USE strategy

The Zoning and Land Use Strategy provides recommendations that address challenges associated with active agriculture, the impacts of local regulations, and the conflicts between agricultural and non-agricultural land uses. This strategy section focuses on the following recommendations:

1. Encourage Ag-Friendly Development Policies (High Priority)
2. Encourage Ag-Friendly Zoning Appropriate for the Community Context (High Priority)
3. Incentivize Inter-Jurisdictional Collaboration (High Priority)
4. Recognize Managed Forests as an Agricultural Land Use (High Priority)
5. Improve Road Conditions (Moderate Priority)

Metrics to measure success

- ☑ Number of jurisdictions using the harmonized definition of agriculture
- ☑ Number of municipalities participating in working land overlay zones
- ☑ Number of municipalities participating in multi-jurisdictional working land overlay zones
- ☑ Landowners participating in outreach and training events include DEI measures
- ☑ Farmers satisfaction with road conditions as measured by survey
- ☑ Number of accidents involving automobiles and farm animals
- ☑ Number of accidents involving automobiles and farm equipment
- ☑ Number of bridges and roads closed to farm traffic
- ☑ Satisfaction with broadband and cellular access as measured by survey
- ☑ Number of acres covered by forest management plans

1. Encourage Ag-Friendly Development Policies

Purpose:

Minimize development pressure on highly productive agricultural soils, reduce farmland fragmentation, and support farming as an important part of the landscape.

Why Now:

The amount of farmland is in decline. The situation is driven by economics, business decisions to close, and development pressure. Between 2002 and 2017 there was a 14% decrease in the number of farms and a 10% drop in farmland acres. As available farmland decreases, it becomes increasingly difficult to find land for expansion or for rent.

As such, there is a need for policies that help preserve highly productive agricultural soils and reduce farmland fragmentation. For example, high-density zoning is a way to help limit sprawl. While high-density zoning is viewed as good, farmers want to see these zones supported by better public transit routes. Public transit is an important way to reduce development pressure, while helping the workforce have better transportation options.

How and Who:

These actions require the county and municipalities to align planning documents, policies, and regulations to support development policies that are favorable for agricultural activities to thrive even as other development activities continue.

KEY ACTIONS

- **Encourage high-density along designated growth and urban areas.**
- **Encourage cluster development that leaves agriculturally productive parcels.**
- **Encourage greater mixed-use zoning.**

Lead Partners	Supporting Partners
CC Planning Commission and Ag Council	Agricultural Land Preservation Board (ALPB)
Municipalities	Penn State Extension
CCATO	Land Trusts
	Chesapeake Bay Program
	SWRC

Funding Sources	
County Vision Partnership Program Funds	
County Open Space Funds	
Private and Philanthropic Funding	

2. Encourage Ag-Friendly Zoning Appropriate for the Community Context

Purpose:

Support flexible and appropriate zoning at the community level that also accommodates current and future needs of agriculture.

Why Now:

Zoning can either create opportunities or place barriers to farming. When zoning ordinances are onerous and inflexible for agricultural operations, it makes it more difficult for these businesses to thrive or adapt.

Interviews with farms reveal some specific challenges. For example, if a farm wants to put in a well, some places force the farmer to have to submit and get approvals for building and construction plans though it is not a residential development. Similarly, some dairy and grain farms face challenges when looking to install grain bins. Regulators and inspectors who view this activity as a commercial or industrial use may subject the farm to unnecessary processes. Moreover, farms looking to engage in value-added processing or agritourism activity may be limited in places where farms are on a R or AR zone.

How and Who:

These actions require the county and municipalities to align planning documents, policies, and regulations to support zoning that is friendly for agricultural activities.

KEY ACTIONS

- **Expand the definition of agriculture.**
- **Encourage expanded allowed uses and accessory uses (e.g., processing, forestry, bioenergy, agritourism, labor housing, retail, etc.).**
- **Support greater right-to-farm protections.**
- **Encourage greater use allowances for CEA, indoor agriculture, and urban agriculture.**
- **Minimize process for standard agricultural infrastructure.**
- **Simplify process for developing agricultural labor housing.**
- **Identify NAOs (normal agriculture operations).**
- **Cooperate with home builders and the agriculture industry.**

Lead Partners	Supporting Partners
CC Planning Commission and Ag Council	Agricultural Land Preservation Board (ALPB)
Municipalities	Penn State Extension
CCATO	Land Trusts
	Chesapeake Bay Program
	SWRC

Funding Sources	
County Vision Partnership Program Funds	USDA Urban Ag Program
Private and philanthropic funding	

3. Incentivize Inter-Jurisdictional Collaboration

Purpose:

Induce inter-jurisdictional collaboration using economic incentives to reduce conflicting land-use regulations and improve the use of agribusiness retention, expansion, and attraction tools.

Why Now:

Land-use regulations, business support practices, and messaging about agricultural practices vary widely across municipalities. Since many farms operate in more than one township, these differences can cause significant disruption to both community relationships as well as farm operations. Multi-municipality planning has also proven to be effective in the region and is applicable in this setting.

How and Who:

The solutions can be found in expanding the level of collaboration and partnership among disparate groups with the goal of supporting a broad range of community outcomes while providing a framework of support for working lands and farmers. Given the elaborate tapestry of engaged communities and the variety of issues being addressed at the community level, involvement will include elected representatives, municipal officials, farming interests, land conservancies, environmental organizations, and community groups.

KEY ACTIONS

- **Encourage inter-jurisdictional agricultural overlay zones, pioneering the practice in the county.**
- **Collaborate with Bay programs to increase plain sect participation.**
- **Develop shared tools and guidelines to assist with agritourism and neighbor relations.**
- **Collaborate to improve equine trail access.**

Lead Partners	Supporting Partners
CC Parks + Preservation	Agricultural Land Preservation Board (ALPB)
CC Planning Commission	Penn State Extension
CCATO	Land Trusts
Municipalities	Chesapeake Bay Program
SWCD	SWRC

Funding Sources	
County Vision Partnership Program Funds	Special funds
Private and philanthropic funding	

4. Recognize Managed Forests as an Agricultural Land Use

Purpose:

Promote active forest management to enhance forest ecology, improve water quality, increase income opportunities, and manage pests. Educate the public on how managed forests accomplish ecosystem, economic, and social outcomes.

Why Now:

Forestry is often an overlooked component of agriculture. However, many farms own forestland. About 13,000 acres or 9% of the total agricultural land in Chester County is woodland. This forestland serves many purposes including recreation, conservation, timber sales, and non-timber forest products sales.

Farms that choose to sell their timber contribute to the larger forest products industry in the county. They also contribute to other agricultural sectors through the creation of wood chips, wood shavings, and sawdust that are used by the mushroom, livestock, and equine industries in the form of substrate or animal bedding.

There are many creative opportunities related to thermally modified wood, cross-laminated timber (CLT), biomass energy, biochar, and mobile wood processing that can spur economic growth. However, accessing these opportunities will require dealing with existing challenges such as the public perception of active forestry management, burdensome logging regulations, as well as pests and disease pressure.

How and Who:

Expanding value creation opportunities for forestry will require the county and municipalities to take a more expansive view of forestry to include forest products processing activities. This could be done in the same way communities have adapted to more expansive definitions of agriculture that incorporate on-farm marketing and manufacturing. Given the growth of mini-mills and an increasing awareness of the role of durable wood products in permanent carbon sequestration, this could open new markets for landowners and farm operators. Leveraging this opportunity will involve organizations such as PDA, Penn State Extension, DCNR, Alliance for the Chesapeake, and othe entities to encourage sustainable forestry management.

KEY ACTIONS

- **Highlight forestry as an agricultural activity.**
- **Support township officials with farm and forestland planning issues.**
- **Support science-based forest practice and logging regulations.**

Lead Partners	Supporting Partners
CC Planning Commission and Ag Council	PDA
CCATO	Pennsylvania Hardwood Council
	Penn State Extension
	Chesapeake Bay Program
	SWRC
	PA Forest Products Assn. (PFPA)
	PA Bureau of Forestry (DCNR)

Funding Sources	
County Vision Partnership Program Funds	USDA Forest Service Grants
Private and philanthropic funding	

5. Improve Road Conditions

Purpose:

Enable a safer road environment for both agricultural and non-agricultural vehicles.

Why Now:

Agriculture faces various challenges regarding road conditions. Narrow roads or turns, roadside trees, and solid curbsides make it difficult for farm equipment to maneuver safely. Also, when drivers do not understand or respect the nature of rural roads, accidents are prone to occur. Numerous interviews confirm that farms frequently deal with road issues, which will require concerted and collaborative efforts to resolve.

How and Who:

The county and municipalities will need to take the role of aligning planning documents, policies, and regulations to ensure that road conditions are supportive of agricultural activities. This may include providing support and advocacy for changes of state and federal road standards.

KEY ACTIONS

- **Collaborate with municipalities and PennDOT on road design.**
- **Develop standards for accommodating modern agricultural equipment and needs of the plain sect community.**

Lead Partners	Supporting Partners
PennDOT	Penn State Extension
CC Planning Commission and Ag Council	
CCATO	
Municipalities	

Funding Sources	
Private and philanthropic funding	DOT: Rural Opportunities to Use Transportation for Economic Success Program

Agricultural Economy

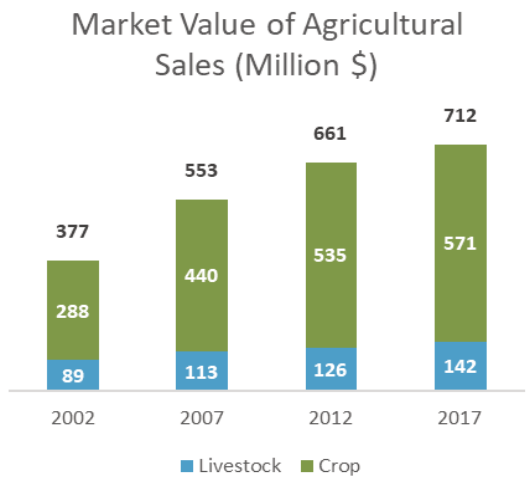
Agriculture in Chester County

Chester County is an important agricultural county with very diverse production sectors. It has good operators, fantastic soils, a supportive microclimate, access to 60% of the US population within a day's drive. As the Chester County Ag Council webpage notes “Chester County ranked 2nd among all 67 Pennsylvania counties and 53rd in the U.S. in the total value of agricultural products sold with annual sales of $712,468,000.” The assets in the county can support many new opportunities in value-added products, ag tourism, innovative solutions, and increased productivity.

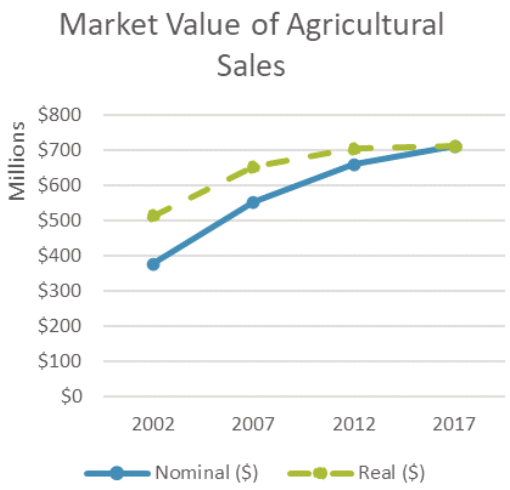
Table 1.1 Top 10 Commodities by Sales, 2017

Commodity	Sales (Million $)	% Change from 2012	State Ranking
Mushrooms	450.4	14%	1
Milk from cows	82.8	13%	5
Poultry & Eggs	25.7	53%	17
Corn	21.2	-21%	6
Cattle & Calves	16.8	-5%	9
Other crops and hay	10.2	17%	10
Hogs	9.1	-17%	18
Floriculture	8.7	25%	5
Soybeans	8.4	-10%	10
Bedding Plants	7.3	78%	5

Source: USDA Census of Agriculture



Source: USDA Census of Agriculture



Real: Inflation adjusted
Source: USDA Census of Agriculture

The following are detailed looks at the key sectors in Chester County's agriculture economy. These sectors do not match exactly with the commodities as described by the USDA but are addressed separately due to their importance in the county. The sections are as follows

- **Horticulture and Indoor Agriculture**
- **Mushrooms**
- **Produce**
- **Vineyards and Wineries**
- **Dairy**
- **Diversified Livestock**
- **Grains, Hay, and Other Field Crops**
- **Forestry**
- **Equine**
- **Agritourism**
- **Organic Farming**
- **Direct-to-Consumer and Value-Added**
- **Processing**

Horticulture and Indoor Agriculture

KEY STATS

197	16.2	1,077	$515.3
HORTICULTURE FARMS	UNDER PROTECTION (Million Sq. Ft.)	ACRES IN THE OPEN	SALES (Million $)

SWOT Analysis

Strengths	Weaknesses
• Competitive advantage in mushroom production. • Access to urban markets with high disposable income. • Existing indoor agriculture infrastructure. • Strong growth in floriculture production and sales.	• High land values. • Zoning and community issues. • Import pressure. • High labor costs.
Opportunities	**Threats**
• Interest from CEA operations looking for new locations. • Industrial hemp production. • Local demand for cut flowers. • Renting or sharing excess heated greenhouse space.	• Weather and climate variability • Supply chain and pricing challenges exacerbated by COVID-19. • Decline in truck drivers. • Declining demand from flower and nursery stock wholesaling.

Introduction

The horticulture sector in Chester County is tremendously important to the county's agricultural economy. Chester County's horticultural sales represent 51% of all agricultural sales in Pennsylvania, largely due to mushroom sales.[10] The remainder of the horticultural sector is represented primarily by floriculture and nursery. Growth in greenhouse and indoor agriculture is expected to drive future growth.

Current Conditions

Floriculture and Nurseries

Chester County has an industry specialization in greenhouse and nursery production. Proximity to affluent urban markets also offers opportunities for cut-flower operations selling direct-to-consumer, through events, or wholesale.

These industries appear to be experiencing consolidation and shifting towards increased automation. Between 2010 and 2019, employment in these sectors declined 26% while the number of firms decreased 4%. The difficulty of finding labor will continue to further this shift.

Table 1.2 Horticulture Sales, 2017

	Pennsylvania	Chester County
Horticulture Total[11]	$1,015,948,000	$515,267,000
Mushrooms & Mushroom Spawn	$612,168,271	$450,377,718
Floriculture[12]	$204,689,885	$8,724,974
Nursery[13]	$100,920,058	$6,239,916
Greenhouse Vegetables & Fruits	$21,735,905	$934,953
Cut Christmas Trees	$28,812,000	$605,000
Aquatic Plants	$419,699	$75,000
Propagative Material[14]	$24,169,101	(D)
Bulbs & Corms & Rhizomes & Tubers, Dry	$297,505	(D)
Sod	$4,837,726	--
Flower Seeds	(D)	--
Short Term Woody Crops	81,000	--

Source: USDA Census of Agriculture, 2017

Growth in Indoor Agriculture

There is a growing trend towards indoor production. Horticultural production in the open declined 26% between 2007 and 2017. Meanwhile, production of indoor agriculture increased 11% since 2007. Increasingly, greenhouse and indoor agricultural production are becoming popular. Sales of greenhouse produce more than doubled (+124%) since 2012 to just under $1 million.

10. Mushroom sales represent 87% of the horticultural sales. Due to the significance of the mushroom industry to the county, a separate section is dedicated to assessing it.
11. Excludes cut trees, vegetable seeds, and transplants.
12. Includes bedding plants, indoor flowering plants, indoor foliage plants, cut flowers, cut cultivated greens, and other floriculture plants.
13. Includes ornamentals, shrubs, trees, live Christmas trees, fruit and nut trees, decorative plants, vines, palms, and ornamental grasses.
14. Includes plants and flowers used for nursery and floriculture and production. Also includes plants used for agricultural production such as tomato and grape vines or strawberry plants.

Challenges

- **Land and Property Values:** Land values are very high in urban and suburban areas, which makes it harder for smaller farms to afford land for startup or expansion.
- **Weather and Climate:** Variability in the region creates challenges for horticultural operations that grow outdoors. These farms need to account for yield losses as an unavoidable part of production.
- **Zoning and Community Issues:** This is mainly a problem for floriculture farms looking to engage in agritourism and on-farm events. Zoning rules can limit occupancy and the addition of accessory buildings. Community members may also impede projects due to fears over noise and traffic.
- **COVID-19 Impact**: COVID-19 has revealed the vulnerabilities in a very efficient wholesale supply chain. The logistical impacts and a truck driver shortage have made it difficult to get products to buyers. As a result, prices have been rising at the retail level while they decline at the farm gate.

Opportunities

- **Demand for Products:** Being near large population centers and affluent demographics opens opportunities for direct-to-consumer and direct-to-retail sales of a wide variety of nursery and floriculture products. There are significant opportunities to increase sales of cut-flowers, engage in agritourism, and offer creative or educational experiences.
- **Cut-Flowers:** There has been tremendous growth in cut-flower sales in recent years within the county. The demand continues to far outweigh supply, and there is ample room to support new and existing operations. Nationally, the industry is expected to reach $16.8 billion in revenue by 2025, with demand for locally grown flowers and decorative flowers driving the growth.
- **Hydroponics:** The hydroponics industry is growing as a result of increased demand for high-quality and healthier foods. In particular, many producers can capitalize on the significant demand for organic produce, which currently represents 43% of total organic food sold in the country. Since hydroponic farming shields crops from the elements, this industry is important for filling gaps in the supply chain when bad weather reduces fresh produce supply.
- **Hemp Seeds and Transplants**: Industrial hemp is an emerging industry. Farms in the county can take a leading role in developing indoor CBD production, feminized seeds, and other innovations in seed genetics and production techniques.
- **Sharing Heated Greenhouse Space**: Due to the cold winters and weather variability, many small horticultural farms need heated greenhouse space to start their plants. This creates an opportunity for operations that have excess capacity to grow on a contract basis or to rent out space.

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Ensure zoning is favorable for CEA, indoor agriculture, and urban agriculture.
- Support development of last-mile distribution and cold-chain infrastructure.
- Increase access to affordable land.
- Support grants for research and development in industrial hemp genetics.
- Promote cut-flowers through agritourism initiatives.
- Engage in wholesale market development.
- Provide curated business assistance for new entrants, growing, and transitioning businesses.
- Offer creative financing to support growth and transition.
- Prepare the industry for adopting automation through demos, finance, and training.
- Improve access to agricultural services and farm supplies.

Mushrooms

KEY STATS

68	13.5	380 MM LBS	$450.4
MUSHROOM FARMS	PRODUCTION AREA (Million Sq. Ft.)	AGARICUS MUSHROOMS	SALES (Million $)

SWOT Analysis

Strengths	Weaknesses
• Competitive advantage in mushroom production. • Ability to pay wages that exceed the minimum wage. • Access to immigrant workers. • Increased production efficiencies. • Strong logistics network.	• Neighbor relations regarding composting. • Water management and gray water utilization. • Byproduct utilization and market development. • High housing costs make it difficult for housing H2A labor.
Opportunities	**Threats**
• Growing mushroom consumption. • Specialty mushrooms. • Value-added mushroom products. • Farm tours and educational events.	• Climate volatility. • Labor policies. • Growing transportation expenses. • Competition from other regions.

Introduction

The mushroom industry is the leading driver of Chester County's agricultural economy. Mushroom sales represent 63% of all agricultural sales in the county and 74% of all mushroom sales in Pennsylvania. The county also leads the U.S. in mushroom production and sales.

The industry also has strong interconnections with the poultry, equine, and forest products industries. Moreover, the high concentration of wholesale and distribution activity supports jobs in other industries. Communities should note the industry's significant positive impacts and ensure its success into the future.

Current Conditions

Industry Consolidation and Increased Efficiencies

In the U.S., the mushroom industry's farm numbers shrunk 32% between 2007 and 2017. In Chester County, mushroom farm numbers declined 18% since 2002; declined 11% since 2007. This is while the value of mushroom wholesale sales has increased 30% since 2007.

These trends indicate industry consolidation, where growers have purchased other operations or expanded their own. In addition, many businesses have built new facilities or made investments to improve operational efficiencies.

Table 1.3 Mushroom Production, Chester County, PA

	2002	2007	2012	2017	% Change (2002-2017)
Farms with Production	83	76	70	68	-18%
Sales ($)	--	345,915,268	396,756,578	450,377,718	30%
Production Area (sq. ft.)	(D)	13,796,600	11,574,610	13,453,166	-2%

Source: USDA Census of Agriculture

Table 1.4 Agaricus Mushroom Production, Chester County PA

	2016	2017	2018	2019	2020
Farms	56	50	47	--	--
Pounds (Million)	395	405	410	397	380
Sales (Million $)	384	391	407	397	398
Growing area (Million sq. ft.)	13.1	12.6	13.5	14.0	11.2
$ per pound	$0.97	$0.97	$0.99	$1.00	$1.05
Pounds per sq. ft.	30.2	32.1	30.4	28.4	33.9

Source: USDA NASS

Economic Impact

The industry generates an economic impact on other regions and sectors. In Pennsylvania, the industry has a direct impact of $764 million through sales of mushrooms, spawn, casings, and compost.[15] The total impact is $1.1 billion. The industry also supports 8,600 jobs and generates $16.4 million in tax revenues. Even more important is its role in supporting other agricultural and forestry sectors. In Pennsylvania, 20% of the economic impact affects other agricultural sectors.[16]

Mushroom Compost

Commercial mushroom production requires significant production or purchases of bedding-compost (or substrate). The process used to make this input relies on organic wastes and by-products such as straw, hay, corn cobs, and horse and poultry manure produced by other agricultural industries.

There are 10 mushroom compost operations in the county. Many of these businesses purchase poultry litter from the Delmarva broiler industry to make bedding-compost.

Additionally, these operations can use organic waste from food processors or sawdust from the forest products industry.

After mushroom harvests, the industry makes additional impacts through sales of mushroom compost. This material is nutrient-rich and can be sold to home gardeners, farms, and municipalities. Moreover, it can benefit the environment by being used for mine reclamation, stormwater management, and erosion control. However, the low value of the compost relative to its volume makes it challenging to profitably distribute as a retail product.

Packers, Distributors, and Support Services

Other parts of the mushroom industry cluster are also important. This includes packers, wholesalers, and distributors. Many mushroom farms work closely with these businesses or operate their own wholesale and distribution activities. For instance, Country Fresh Mushrooms packs and distributes across the country, while others such as South Mill Champs manufacture and distribute products to retailers and food service providers.

The industry is also supported by transportation companies such as Mushroom Express and suppliers of farm supplies such as Mushroom Supply Inc. Additionally, many in the industry rely on electricians, mechanics, and HVAC companies to maintain equipment, warehouses, and refrigeration.

15. Econsult Solutions, Inc., “The Economic and Fiscal Impacts of the Mushroom Industry.”
16. Econsult Solutions, Inc.

Challenges

- **High Housing Costs:** Rent is expensive in the county, which makes it hard for H2A labor to find places near work to live. Living further away can also be challenging. Current limited public transit options make it difficult for workers to get to places of work.
- **Neighbor Relations:** Some residents have concerns regarding composting and spent compost activity. Although much has been done to reduce odors, there is a need for educating the public and municipalities about the progress that has been done, the importance of the mushroom industry to the community, and the positive economic impacts that the industry brings in terms of job creation and the tax base.
- **Water Utilization**: Mushroom production is water-intensive and water recycling has become a focal point for decreasing the environmental footprint of the industry. There are numerous demonstration projects underway to explore technologies that would support the recovery and recycling of sanitary water supplies. To date, none have emerged as being technically or economically viable. More research and development are needed.

Opportunities

- **Growing Mushroom Consumption:** Demand for fresh mushrooms has increased over the years, with demand growing significantly during COVID-19. In 2018, the average American consumed 3.8 pounds of mushrooms. Growers can capitalize on this by increasing production.
- **Specialty Mushrooms:** Although it is a nascent market, the production and sales of specialty mushrooms such as Shiitake and Oyster mushrooms are growing.
- **Value-added Mushroom Products:** Growing consumption of mushrooms has sparked interest in other value-added mushroom products such as mushroom jerky, pickled mushroom, dried mushrooms, mushroom chips, and mushroom seasonings. Additionally, there are opportunities to blend meat with mushrooms to make pre-made and frozen blended patties.
- **Byproduct Markets:** Mushroom production by-products contain valuable components that can be monetized as alternative products rather than landfilled as waste. These products include biochar, soil amendments, nutrients, and compost.
- **Backhaul and Logistics:** Both the input and output sides of mushroom production require significant transportation resources that often have empty fronthaul or backhaul, which creates opportunities for improving both long haul and short haul logistics. On the refrigerated distribution side, this may help expand wholesale and direct-to-retail distribution opportunities for other commodity sectors.

17. Loria, “Demand for Mushrooms on the Rise during Pandemic.”

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Coordinate a “Farm Open House” weekend among mushroom farms to educate consumers and promote the industry.
- Offer creative financing to support growth and transition.
- Work with home builder to help make housing for agricultural labor more affordable.
- Prepare the industry for adopting automation through demos, finance, and training.
- Integrate with other agricultural and food sectors.
- Engage the industry as an anchor for a culinary center.
- Invest in product development and other uses of by-products and alternative energy.
- Provide support to explore backhaul opportunities.

Produce

KEY STATS

302	157	2,998	$8.1
VEGETABLE FARMS	FRUIT FARMS	PRODUCE ACRES	SALES (Million $)

SWOT Analysis

Strengths	Weaknesses
• Access to organic wastes from municipalities and townships. • A strong base of Amish growers. • Collaborative wholesale and distributor network. • Oxford Produce Auction. • Presence of national food brand (Herr's) in the region.	• Difficulty entering or exiting the tree fruit and nut industry. • Capital expenses are high for startups. • Shrinking land base for agriculture. • High land prices. • Challenges finding land for lease.
Opportunities	**Threats**
• Fresh-cut produce. • Produce-based snacks. • Plant-based proteins. • Organic and local produce. • Automation and technology.	• Changes in labor laws. • Consumer misunderstanding of agricultural practices. • Regulatory challenges.

Introduction

The produce sector is a diverse and important sector that generated $8.1 million in sales in 2017. Specialty crops allow for high margins on less acreage. In 2017, Chester County farms sold $6.3 million in vegetables on 2,516 acres. This equates to an average return of $2,500 per acre. Similarly, farms sold $1.8 million in fruits on 482 acres, which equates to an average return of $3,700 per acre. For many of these farms, selling direct-to-consumer, offering pick-your-own, or selling organic certified products are the key to maximizing returns. Of note, several farmers indicated that wholesaling opportunities may be greatly enhanced by creating collaborative marketing systems modeled after multi-stakeholder cooperatives or grower-shipper alliances.

Current Conditions

Chester County has around 3,000 acres of produce. The majority of produce is grown for the fresh market, with major crops including potatoes, sweet corn, pumpkins, apples, and grapes.

Since 2007, there has been a 15% decrease in fruit acres and an 8% increase in vegetable acres. During this period, the number of fruit farms increased 17% and the number of vegetable farms increased 44%. This indicates that the average acres of fruit grown on a farm is decreasing, while the average acres of vegetables grown on a farm has remained relatively stable.

Vegetable production is driving much of the growth in production and sales in the county. Since 2007, vegetable sales have doubled while fruit sales have declined by 25%. This shift could be attributed to very intensive vegetable production practices that allow some farms to make between $50,000 and $100,000 per acre. However, this is usually achieved through direct-to-market channels, where farms face stiff competition.

The Amish and Mennonite communities also contribute to produce production in the county. Many of these growers sell through roadside stands and produce auctions. In fact, the Oxford Produce Auction is owned by a group of approximately 40 Amish shareholders. Growing sales at the market are driving the expansion of produce production across the county.

Produce also contributes to other sectors. With more than 26,000 colonies working on over 1,100 operations, pollinators are an active part of supporting fruit, vegetable, horticulture and other operations. With honey sales at just over $2.6 million in revenue annually, it is also a direct contributor to farmgate sales.

Table 1.5 Produce Acreage by Category

	2002	2007	2012	2017	% Change (2002-2017)	% Change (2007-2017)
Fruits	619	568	393	482	-22%	-15%
Orchard	619	516	358	423	-32%	-18%
Non-Citrus	--	514	352	420	n/a	-18%
Tree Nut	--	2	6	3	n/a	-50%
Berries	--	52	35	59	n/a	13%
Vegetables & Melons	1,564	2,332	2,286	2,516	61%	8%

Source: USDA Census of Agriculture

Table 1.6 Produce Acreage by Category

Vegetable	Acres	Farms
Potato	566	48
Sweet Corn	269	42
Pumpkin	183	41
Tomato	25	53
Squash	23	33
Asparagus	12	16
Bell Peppers	11	33
Snap Beans	9	26
Broccoli	7	14
Carrots	7	15

Source: USDA Census of Agriculture, 2017

Table 1.7 Top Fruits by Reported Acreage

Fruit	Acres	Farms
Apple	178	54
Grape	157	25
Peach	70	41
Strawberry	26	23
Cantaloupe	16	21
Blackberry	13	15
Blueberry	12	34
Pear	8	22
Raspberry	6	12
Watermelon	4	14

Source: USDA Census of Agriculture, 2017

Produce Auctions

Produce auctions such as the Oxford Produce Auction have a strong historical basis in Pennsylvania and provide an important outlet for growers and consumers to purchase produce, seeds, flowers, and other horticultural products. The auctions serve as a central hub where growers can make wholesale transactions and are increasingly used to supply local and regional products for resale at roadside stands, farmers markets, and food retailers. The importance of these outlets can be seen in the consistent growth in sales as well as the expanding breadth of product offerings.

Challenges

- **Difficulty Entering or Exiting Tree Fruit and Nut Industry:** Farms producing tree fruits or tree nuts require significant commitments in time and land before being able to market a harvest. Thus, it is difficult to quickly enter or exit the industry. Also, it is challenging to switch between crop industries or even between different types of fruit. These operations also typically require specialized machinery for harvests. High capital expenses and the need for land for lease can pose as significant barriers for aspiring farmers.
- **Intensive Labor:** Produce farms are labor-intensive. Like other agricultural sectors, it is increasingly difficult to find and retain local labor.
- **H2A Labor and Housing:** There is a high reliance on seasonal labor. As such, H2A labor is an important part of the labor strategy. However, providing for housing can be a challenge, given the high costs of living in the area.
- **Processing Capacity:** There are few produce processors in Chester County. Those that exist specialize in making juice or making preserved products from mushrooms and onions. There are also a few notable co-packers in the area (e.g., Lancaster Fine Foods, Sunny Dell Foods). In general, most of the processing capacity is located in neighboring counties.
- **Consumer Perceptions:** Growers are often under pressure from consumers' misunderstanding of farming practices such as spraying. This is an issue that affects farms that use organic or non-organic practices. These misunderstandings can lead to conflicts and require significant consumer education to resolve.

Opportunities

- **Fresh-cut Produce:** Demand for fresh-cut produce is on the rise with households looking for healthy, on-the-go options.[18] This suggests there are opportunities for growers and processors to manufacture salad mixes, fresh-prepared meals, and other value-added items that are ready-to-eat.
- **Fruit Snacks:** Despite a decline in processed fruit consumption, consumers are choosing to buy more dried and frozen fruit products, which are typically sold as snacks. Consumers are also looking for food that has high fiber content, protein, antioxidants, vitamins, and minerals. Shelf-stable produce products fit many of these characteristics. In fact, fruit chips are among the fastest-growing categories of snacks.[19]
- **Vegetable Snacks:** Consumers are consuming less canned, frozen, and dried vegetable products. Instead, they are choosing savory, vegetable-based snacks made from snap peas, beets, sweet potatoes, nuts, and legumes. This comes at a time when many companies are developing various chip products based on beans, lentils, and pulses.
- **Plant-based Proteins:** Increased health and nutritional awareness along with vegan diets have driven demand for fresh produce and plant-based proteins. In particular, consumption of legumes such as beans has increased over the last several decades. Today, approximately 7.5 pounds of beans are consumed annually, per capita, in the U.S based on a five-year moving average. The top dry beans that are consumed include pinto, navy, red kidney, black, and garbanzo beans.
- **Organic Produce:** Organic produce represents 8 percent of fresh produce sales but is responsible for 30 percent of the growth in sales.[20] Based on U.S. consumer

18. Crawford, "Fresh-Cut Produce a Huge Draw in Age of Convenience."
19. Jennings, "Produce-Based Snack Foods on the Rise."
20. Stein, "The Power of Produce, 2017."

- demand the market size for organic fruits is $2.02 billion and the market for organic vegetables is $2.08 billion.
- **Locally Grown Produce:** Produce demand is also influenced by consumer desire for local food. A recent survey determined that consumers would purchase local produce over organic produce if quality and price are equal.[21] Even when the price is differentiated, consumers still choose local over organic. While consumers choose organic produce primarily for health and environmental reasons, the desire for local produce is centered on community, the local economy, and product freshness.
- **Automation and Precision Agriculture Technology:** Technology can play significant roles in automating pest and water management. Investing in these technologies can mitigate the lack of skilled and knowledgeable labor. It can also improve efficiencies, which is critical for farms in a highly competitive industry. Finally, it is worth noting that USDA's conservation programs and agencies such as the NRCS are exploring ways to help growers finance digital technology that improves water and soil management through tech trials, cost-sharing, grants, and loans.
- **Wholesale and Institutional Sales Development**: Multi-stakeholder cooperatives offer a means for growers, buyers, shippers, processors, and distributors to build robust and mutually supportive sales relationships. Businesses like Co-op Partners Warehouse in St. Paul Minnesota provide examples of successful implementation of such relationships.

21. Stein.

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Educate the public regarding agricultural practices and the economic impact of agriculture.
- Encourage farms to grow fruits that serve the strong base of snack manufacturers in the region.
- Attract co-packing and light processing capacity.
- Support development of last-mile delivery and cold-chain infrastructure.
- Increase access to affordable land.
- Work with home builders to help make housing for agricultural labor more affordable.
- Encourage better integration with ethnic and specialty buyers.
- Create or improve wholesale channels.
- Develop promotional messaging that equates local food purchasing with environmental conservation.
- Increase awareness of the Oxford Auction to potential buyers.
- Improve transportation, traceability, and purchasing options at the Oxford Auction.
- Offer creative financing to support growth and transition.
- Provide curated business assistance for new entrants, growing, and transitioning businesses.
- Improve access to agricultural services and farm supplies, especially properly scaled equipment.
- Use workforce development to increase labor availability.

Vineyards and Wineries

KEY STATS

25	157	628	$38.4
GRAPE VINEYARDS	GRAPE ACRES[22]	TONS OF GRAPES	SALES (Million $)

SWOT Analysis

Strengths	Weaknesses
• Very suitable climate for high-quality European wine grapes. • Proximity to large markets with high disposable incomes. • High volume of tourists. • Access to mobile bottling operations.	• Land is expensive and hard to obtain. • Labor shortage and costs. • Limited advocacy for promoting independent wineries. • Municipalities have little or no ordinances governing agritourism. • Municipalities lack a full understanding of the benefits and impacts of direct-to-consumer and agritourism activity.
Opportunities	**Threats**
• E-commerce and home delivery. • Diversification of products and events. • Educate municipalities and the public. • Collaborative marketing. • Collaborative planning. • Wine trails. • Identifying and preserving land ideal for vineyards.	• Tasting rooms from out-of-state wineries. • Competition from the PA Liquor Control Board (PLCB). • State and local regulations. • Climate change. • Spotted Lantern Fly.

22. Assumes a yield of 4 tons per acre on average. This is less than the average yield in the state, which is around 6 to 7 tons per acre.

Introduction

The wine and grape industry in Chester County has a great combination of characteristics that allows businesses in this industry to succeed. Only a few areas in Pennsylvania are suitable for growing high-quality European wine grapes. Due to the climate, Chester County is among the most suitable areas in the state. Moreover, the county is located close to major urban markets with affluent consumer populations. This allows vineyards and wineries to sell their wine and to attract tourists to visit the farm and tasting rooms.

Current Conditions

Most of the farms in this sector grow grapes for wine, and most are small businesses that are family-owned and operated. There is also far less demand for seasonal labor on the vineyard. Instead, most of the labor needs are related to manufacturing, retail, and tourism. Chester County vineyards and wineries are also highly dependent on direct-to-consumer sales, on-farm events, and tourism.

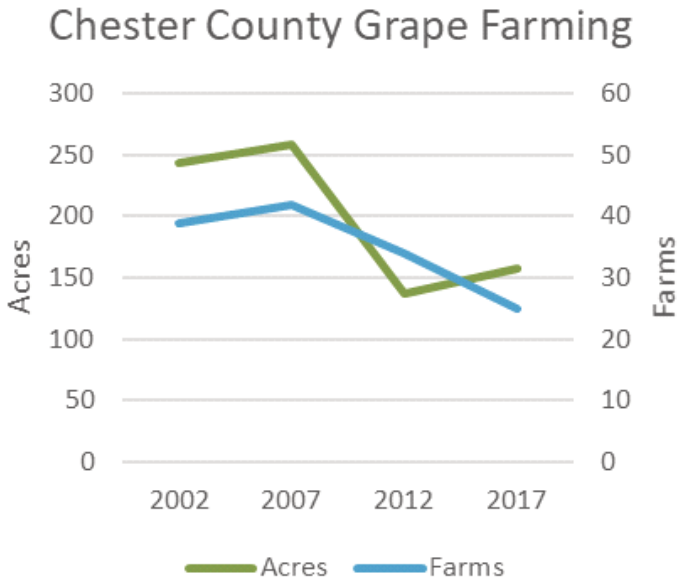
Production Trends

The county ranks 3rd in the state for grape acreage. However, the number of grape farms declined 40% and the grape acreage declined 39% since 2002. Despite these declines, the average vineyard size has remained stable.

Table 1.8 Top 10 PA Counties with Grape Production

County	Acres
Erie	11,915
Lehigh	267
Chester	157
Berks	149
Bucks	137
Lancaster	121
Adams	87
Northampton	67
Bradford	56
Dauphin	54

Source: USDA Census of Agriculture



Source: USDA Census of Agriculture

Economic Impact

According to the PWA, the wine and grape industry have significant economic impacts on the local economy. In 2018, it created a total impact of 400 jobs, $15.5 million in wages, and $69.0 million in revenue. When compared against the direct impact, it shows strong economic multipliers. For instance, every $1.00 generated by the industry leads to another $0.80 created elsewhere in the economy. That said, local wineries and vineyards have expressed concerns that this economic analysis undercounts the impact of the industry in Chester County.

Table 1.9 Economic Impact of the Wine & Grape Industry in Chester County

	Direct	Total	Multiplier
Jobs	213	400	1.9
Wages	$5.5	$15.5	2.8
Revenue	$38.4	$69.0	1.8

Source: 2018 Economic Impact Study of the Pennsylvania Wine & Grape Industries, PA Winery Assoc.

Sales Channels

Wine is typically sold through the three-tier system where producers sell to wholesalers, who then sell to retailers. PA is a control state and wine wholesaling is the exclusive purview of the PLCB. Thus, only a small portion of PA wine is sold wholesale. Most farms sell wine directly or self-distribute. Currently, the county has around 16 wineries and 17 tasting rooms. According to interviews, the industry estimates that 2020 direct market sales were only $11 million and were heavily impacted by COVID-related restrictions.

Challenges

- **Limited Understanding from Municipalities:** Lack of knowledge about the needs and impacts of agricultural business can lead to adverse policies and avoidable conflict. Some growers have noted that local governments need to better understand the importance of direct-to-consumer, events, and agritourism for wineries to survive. Like any retail business, there are positive economic and scenic impacts and potentially negative ones involving traffic and noise.
- **ACRE and Agritourism:** ACRE laws were enacted largely before the explosion of agritourism, and most municipalities have little or no ordinances governing this subject. This has created confusion and opportunities for the community to target the industry over a bad actor.
- **Neighbor Concerns:** The lack of unified guidelines allows for situations where neighbors may clash with farm businesses. These situations can involve weddings or concerts that are too big or loud, unwanted bus or limo traffic, pesticide spraying, and others.
- **Land Access:** Although the region is well-suited for vineyards, the land is expensive and hard to obtain.
- **Costs of Startup and Labor:** Developing a vineyard cost about $25-30k per acre. The high expenses are a significant barrier. With high labor wages, it also is difficult to remain profitable if a vineyard is not engaged in winemaking or other agritourism activities.
- **Climate Change:** The region is experiencing more frequent and intense rainfalls, which can lead to drought-deluge situations. The bigger challenge is the trend towards milder winters and early springs that trigger early budding but is followed by a cold snap caused by the polar vortex. These late frosts can lead to complete yield losses.
- **Out-of-State Wineries:** Changes in state law that have allowed out-of-state wineries to open a tasting facility in the state without having to have a winery or vineyard is a threat to the local industry. This allows other wine grape-growing regions to take market share.
- **Spotted Lantern Fly:** This is a regional problem that has already resulted in several vineyards being torn out. There are no easy solutions, and it has the potential to devastate the industry.

Opportunities

- **E-commerce:** COVID-19 demonstrated that online sales need to be part of any businesses' marketing and sales strategy. Wineries should ensure that their platforms are user-friendly and can take payments, manage inventory, schedule appointments, and provide varying pickup or delivery options.
- **Last-mile Delivery**: The majority of wine sales in PA are sold direct-to-consumer or are self-distributed. This means that investing and collaborating on technology and logistics that support last-mile delivery will be important for industry growth.
- **Wine Product Development:** Wineries should pay close attention to demographic trends to develop attractive products. For instance, younger demographics tend to prefer white wines, sweet wines, blended wines, and sparkling wines. Additionally, product packaging will also play an important role as consumers show increased interest in small-format wine bottles or cans.
- **Wine Trails and Promotion:** Wine trails and other local initiatives can help promote the region as a destination for fine wine. Efforts to expand the Brandywine Valley Wine Trail are underway.

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Educate the public regarding agricultural practices and the economic impact of agriculture.
- Use wine trails and collaborative marketing to elevate the reputation of fine wine in the region.
- Develop strategy to target pass-through travelers.
- Collaborate with municipalities and townships regarding road and parking solutions.
- Develop a shared set of tools and guidelines to address agritourism and neighbor relations.
- Shift the focus of land management and preservation towards higher-value agricultural uses.
- Engage conservation groups, land trusts, and farmers on land access challenges and opportunities.
- Develop tools to assist with siting and transition.
- Increase access to affordable land.
- Improve ability to attract agricultural labor.
- Integrate into a culinary center.
- Address spotted lantern fly problem through increased monitoring, reporting, and active timber harvest management.

Dairy

KEY STATS

333	21,602	515	$82.8
DAIRY FARMS	DAIRY COWS	MILLION LBS OF MILK	SALES (Million $)

SWOT Analysis

Strengths	Weaknesses
• Mid-sized dairies still exist. • Access to dairy cooperatives. • Access to New Bolton's veterinary services. • Growing group of local creameries.	• Limited access to large animal veterinarians in northern Chester County. • Expensive housing costs for labor. • Neighbor relations. • Road conditions.
Opportunities	**Threats**
• Full-fat and flavored dairy products. • Grass-fed and organic. • Changing tastes for ice cream and frozen desserts. • Promotion of creameries.	• Development pressure. • Declining fluid milk consumption. • Dairy alternatives and substitutes. • Consolidation among milk processors. • Federal policies incentivizing oversupply. • Low milk prices. • Increasing input costs.

Introduction

The dairy industry remains important to Chester County's agricultural economy. Dairy milk sales were the second leading category of agricultural sales in the county. The county is also ranked fifth among all counties in the state for milk sales. Chester County dairy farmers produced an estimated 515 million pounds of milk in 2017, which is enough to meet the dairy needs of around 820,000 people. This milk is primarily sold into Federal Milk Market Order 1 and is destined for consumers in the Philadelphia, Baltimore, Washington D.C., and New York City markets.

Current Conditions

Production Trends

Since 2002, there has been a 7% increase in the number of dairy farms and a 14% increase in dairy cows. These trends are different from trends at the national level, where declines are evident. The average cow in Chester County also produced about 23,855 pounds of milk in 2017. The yield per cow is greater than the state average of 20,749 pounds of milk per cow.

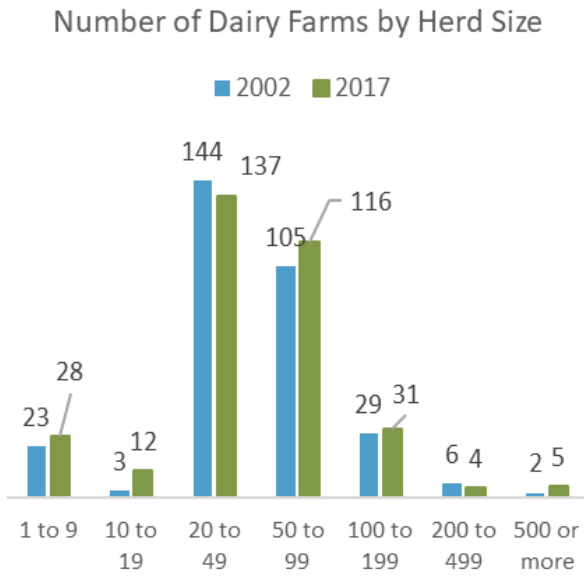
Table 1.10 Dairy Farms and Inventory

	2002	2007	2012	2017	% Change (2002-2017)
Dairy Farms	312	286	275	333	7%
Cow Inventory	18,966	19,341	18,444	21,602	14%
Cows per Farm	61	68	67	65	7%

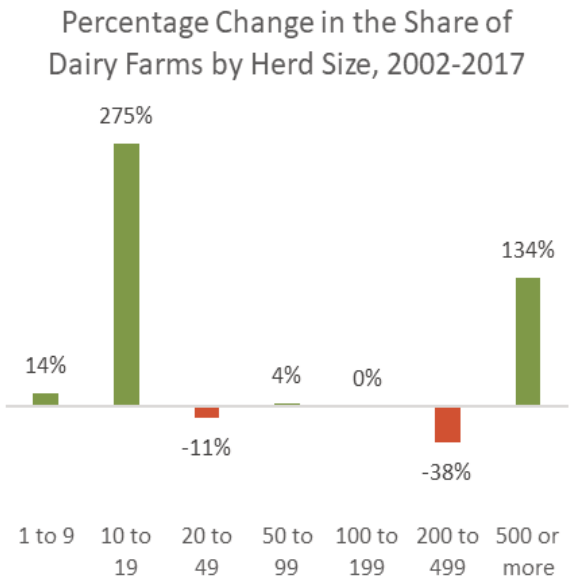
Source: USDA Census of Agriculture

Mid-Sized Dairies Still Remain

Across many agricultural sectors, there has been an increase in small-scale and large-scale operations, while mid-sized operations have declined. This trend is particularly pronounced in the dairy and cattle sectors. However, Chester County has been able to maintain its mid-sized dairies. The number of dairy farms with 50 to 199 cows increased 10% from 2002 to 2017.



Source: USDA Census of Agriculture



Source: USDA Census of Agriculture

Milk Sales and Prices

In 2017, the county's dairy farms generated $82.8 million in milk sales, representing 11.6% of the value of total agricultural products sold in the county. Milk sales rank 2nd among commodities sold within the county and rank 5th among Pennsylvania's counties for dairy revenue generation.

Value-Added Processing

Many dairies sell their fluid milk to cooperatives such as Land O'Lakes and Lanco-Pennland. Most of the dairy processing activity is also in adjacent counties. (e.g., Lancaster County) That said, the county has several dairy farms that focus on value-added products such as cheese, butter, yogurt, and ice cream. A few farms including Kolb's Dairy and Baily's Dairy also bottle and sell their milk.

Challenges

- **Declining Fluid Milk Consumption:** Trends indicate that Americans are drinking less fluid milk. This shift reduces the demand from fluid milk processors, which negatively affects dairy farms.
- **Dairy Alternatives and Substitutes:** Dairy products face significant competition from alternatives and substitutes. Consumers are increasingly turning to plant-based alternatives involving soy, almond, coconut, oat, barley, hemp, pea, flax, and quinoa.[23] As a beverage, fluid milk also competes with close substitutes such as juice.
- **Input Costs and Revenue Volatility:** Industry revenue is sensitive to the cost of animal feed and the price of milk. Based on the national average, the cost of feed is just over half of the total revenue within the industry. Meanwhile, the price of milk is affected by supply conditions, which are influenced by surpluses, imports, climate, disease, and dairy consumption. Often, these factors are unpredictable, which makes it hard for dairy farms to forecast financial performance. To maintain profit, many farms will likely merge, cut overhead, and reduce labor to reduce costs.
- **Labor Shortage and Costs:** Like other agricultural sectors, finding qualified labor is difficult. It is also expensive for workers to afford housing or for farms to provide housing.
- **Veterinarians:** Access to large animal veterinarians is primarily a challenge for dairy farms in the northern part of the county. Having access to vets is critical during emergencies.
- **Road Conditions:** Many dairies also own or rent land for growing animal feed. As such, they face issues when moving farm equipment regarding road widths, road clearance, and other drivers.
- **Land Access:** To support growth, or even to maintain herd sizes, farmers must have sufficient land to allow for proper nutrient management. As land becomes scarce and competition increases for its use, land access may become a primary determinant of industry sustainability.

Opportunities

- **Full-fat and Flavored Dairy Products:** Consumers are increasing their consumption of yogurt, butter, cream, and cheese. Consumers are also shifting back towards whole and flavored milk. Sales of full-fat flavored and whole milk were up 1.1 billion pounds between 2012 and 2016.[24] Reduced-fat flavored milk sales are also growing.
- **Grass-Fed Dairy:** Consumers are buying more grass-fed dairy products. Sales of grass-fed yogurt and kefir have increased by over 38% in 2017.[25]
- **Organic Milk:** Organic milk sales rank second among total organic food sales. Demand for organic milk has also grown during the pandemic.
- **Premium and Healthier Ice Cream:** Consumers are shifting towards premium, gourmet, and novelty flavors of ice cream. Consumers are also looking for healthier and more nutritious varieties. Healthier products mean low-fat, nonfat, low-sugar, and low-calorie.
- **Frozen Desserts:** Demand will increase for frozen yogurt and gelato.[26] These products are expected to outpace the growth of mainstream ice cream products.

23. Packaged Facts, “Dairy and Dairy Alternative Beverage Trends in the U.S., 3rd Edition: Market Research Report.”
24. Newton, “Trends in Beverage Milk Consumption.”
25. Matsumoto, “Why More Farmers Are Making the Switch to Grass-Fed Meat And Dairy.”
26. Jaura, “Dairy Product Production in the US.”

- **Agritourism:** The county can help support this sector by promoting local dairies and creameries through a dairy trail or other agritourism platforms.
- **Specialty Market Potential:** Chester County has uniquely strong access to specialty consumer groups of dairy products. These groups include Hispanic and Central Asian populations whose demand for specialized fluid, cheese, and cultured milk products go largely unsatisfied outside of narrow product categories.

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Simplify process or offer exemptions for developing housing for agricultural labor.
- Develop a food and beverage trail that includes creameries.
- Educate consumers on the dairy industry and agricultural practices.
- Encourage manure injection.
- Deploy temporary road alert signs around harvest time for animal feed.
- Develop or enhance CTE programs and apprenticeships for trades needed in agriculture.
- Update preservation and conservation policies to be flexible with allowable activities.
- Minimize the regulatory burden for placing farm structures such as grain bins.
- Support land access for proper manure management and feed production.
- Introduce plain sect communities to Chesapeake Bay incentives.
- Prepare the industry for adopting automation through demos, finance, and training.
- Explore new product development consistent with changing consumer demographics.
- Address lack of large animal veterinarians in the Northern part of the county.
- Expand value-added capacity for the dairy industry.

Diversified Livestock

KEY STATS[27]

1,243	529,431	2.7	$51.9
LIVESTOCK FARMS	LIVESTOCK INVENTORY	MILLION LIVESTOCK SOLD	SALES (Million $)

SWOT Analysis

Strengths	Weaknesses
• Diverse array of livestock operations. • Growth in this sector. • Access to inputs from Lancaster. • Proximity to the Center for Sustainable Agriculture and Food Security.	• Access to meat slaughterhouses and processors. • Weak livestock husbandry skills in both new entrants and small operators. • Lack of skilled management professionals. • Labor shortage.
Opportunities	**Threats**
• Pasture-raised and grass-fed trends. • Collaboration with land trusts and field crop farms. • Monetizing good farm practices.	• Development pressure. • Neighbor relations. • Road conditions. • Vulnerabilities in downstream supply chain. • Plant-based proteins as meat alternatives.

27. Excludes the dairy industry.

Introduction

The county is home to a diverse array of livestock operations that generate $51.9 million in sales and are highly dependent on the region's grain and hay production. Around 24% of the county's farms are diversified livestock farms that raise a variety of animals including cattle, hogs, sheep, goats, and poultry. Another 7% are solely beef cattle operations, 3% are sheep and goat farms, and 2.6% are poultry farms.

Current Conditions

Poultry and Eggs Production

Poultry and egg sales ranked 3rd in agricultural sales within the county in 2017. Most of the activity comes from sales of chicken broilers and replacement pullets. While there are a few large poultry operations, most of these farms are small-scale. For instance, 70% of broiler operations sell fewer than 2,000 chickens.

Table 1.11 Poultry Inventory

	2002	2007	2012	2017	% Change (2002-2017)
Broilers	108,024	284,164	272,026	297,852	176%
Layers	552,808	33,882	59,447	113,599	-79%
Turkey	36,129	39,404	52,213	67,372	86%
Ducks	(D)	(D)	(D)	(D)	n/a

Source: USDA Census of Agriculture

Table 1.12 Poultry Sales

	2002	2007	2012	2017	% Change
Farms with Broiler Sales	16	22	27	37	131%
Broilers Sold	1,778,099	1,599,206	1,528,239	1,664,133	-6%
Farms with Turkey Sales	8	12	19	18	125%
Turkeys Sold	104,872	182,275	199,015	256,752	145%
Farms with Duck Sales	7	6	4	3	-57%
Ducks Sold	(D)	(D)	(D)	(D)	n/a
Poultry & Eggs Sales ($1,000)	12,213	16,282	16,775	25,667	110%

Source: USDA Census of Agriculture

Cattle & Calves Production

Most of the cattle farms in Chester County are cow-calf, with some operations offering purebred cattle and backgrounding. They also tend to be smaller in size, with 80% of the farms selling fewer than 50 cattle per year. Sales of cattle from these operations have increased over the years. Farms in the county sold 9,702 calves, which is an 18% increase from 2002. Likewise, farms in the county sold 13,520 cattle that were over 500 pounds, which is a 26% increase from 2002.

Most of the beef cattle feedlots and finishing operations in the country are in the Midwest and Great Plains regions. The few existing Mid-Atlantic operations are proximate to Chester County. In 2017,16 farms in Chester County sold 1,174 cattle for slaughter.

Table 1.13 Cattle & Calves Inventory

	2002	2007	2012	2017	% Change (2002-2017)
Cattle & Calves	41,878	40,699	39,441	47,499	13%
Cows	22,845	21,279	20,236	25,002	9%
Dairy	18,966	19,341	18,444	21,602	14%
Beef	3,879	1,938	1,792	3,400	-12%
Other Cattle[28]	19,033	19,420	19,205	22,497	18%

Source: USDA Census of Agriculture

Table 1.14 Cattle & Calves Farms and Sales

Cattle & Calves	2002	2007	2012	2017	% Change
Farms	625	551	490	546	-13%
Inventory	41,878	40,699	39,441	47,499	13%
Farms with Sales	459	435	383	490	7%
Inventory Sold	18,896	16,315	21,413	23,222	23%
Value of Sales ($1,000)	9,262	9,886	17,712	16,848	82%

Source: USDA Census of Agriculture

Hog Production

There are 56 farms in the county that raise hogs. A handful of these sell over 1,000 hogs and are generally contract growers for processors such as Gwaltney. However, the hog farms are increasingly small-scale. In 2017, 80 percent of these farms were small operations that sold fewer than 25 hogs. Many of these farms also offer pasture-raised pork. That said, interviews reveal that some of the larger operations have made plans to expand.

28. This includes bulls, steers, heifers, and calves.

Table 1.15 Hog Farms and Sales

	2002	2007	2012	2017	% Change
Farms	46	48	47	56	22%
Inventory	12,860	18,329	27,452	21,550	68%
Farms with Sales	42	48	43	56	33%
Inventory Sold	28,605	68,661	141,317	88,470	209%
Value of Sales ($1,000)	2,408	4,659	10,973	9,127	279%

Source: USDA Census of Agriculture

Sheep & Goat Production

Sheep and goats provide milk, fiber, and meat. Over the years, production in the county has shifted away from sheep towards goats. For instance, the inventory of goats has increased 43% since 2002, while the inventory of sheep has declined 38%. The same trend exists for sales of these animals.

Most of the farms involved in this sector are small-scale and focus on marketing locally through farmers markets and specialty stores.

Table 1.16 Sheep & Goat Farm Sales

	2002	2007	2012	2017	% Change
Farms with Inventory					
Sheep	121	151	131	95	-21%
Goats	121	150	110	116	-4%
Inventory					
Sheep	2,856	3,032	2,723	1,771	-38%
Goats	971	1,325	1,070	1,390	43%
Farms with Sales					
Sheep	55	79	69	43	-22%
Goats	23	60	39	69	200%
Inventory Sold					
Sheep	1,343	1,330	1,242	447	-67%
Goats	390	597	475	572	47%
Value of Sales[29]	--	--	412,000	214,000	-48%

Source: USDA Census of Agriculture

Slaughter and Processing Capacity

There are 6 USDA inspected meat processors in Chester County and no meat slaughterhouses. These include Canopy Foods, Levan Bros., Sugartown Smoked Specialties, Sunny Dell Foods, Frank's Pork Products, and Universal Pasteurization. Most of these are small operations, except for Universal Pasteurization, which processes between 1 million and 10 million pounds per month.

Growers looking for slaughter facilities will need to go to other counties in the region such as Berks, Lancaster, Bucks, and Montgomery counties. In some cases, farmers will need to go to other states such as Delaware and New Jersey. Some of the slaughter facilities in the Southeastern PA region include Tyson, Smucker's Meats, Groff Meats, Belmont Meats, Leidys, Springfield Meat Company, Hatfield Quality Meats, and JBS Souderton. However, many of these are already booked with larger livestock operations. Smaller and mid-sized farms often have to search farther away for slaughterhouse capacity.

29. Includes sales of sheep, goats, wool, mohair, and milk.

Challenges

- **Limited Processing Capacity:** There is limited processing capacity in the county. Thus, many small and mid-sized livestock operations have to drive hours away for slaughtering and butchering services. This adds to costs and increases the risk of animal loss.
- **Neighbor Relations:** Some neighbors may be unfamiliar with standard agricultural practices and have misconceptions involving animal welfare, manure management, and other topics. This can lead to conflict or policies that are not ag-friendly.
- **Consolidation of purchasing power:** The beef, pork, and poultry processing and distribution sectors are highly concentrated in the hands of a few firms. This proved to be a weakness during the COVID-19 pandemic when large plant closures caused both meat shortages as well as the rapid decline in animal prices.
- **Livestock Management Skills:** A large number of both small operators and new entrants with limited experience means that pasture management and animal husbandry skills are limited. This can lead to inconsistent product output. With the regionalization of Penn State animal specialists, it may be more challenging for small operators to get the training and assistance required to build effective management skills.

Opportunities

- **Grass-fed or Pasture-raised:** Demand for grass-fed or pasture-raised products is growing, which opens up opportunities for livestock operations to diversify or pivot.
- **Collaboration with Land Trusts:** Land trusts and conservation groups own a lot of preserved land. Some of this land is suitable for livestock grazing. Engaging these organizations and demonstrating the positive environmental impacts of grazing production systems could help expand land access.
- **Monetizing Good Farm Practices:** The use of a certified brand and carbon credit program could help reward farms that use best management practices that lead to positive environmental and climate impacts.
- **Enhanced Processing Capacity:** Both slaughter and final processing capacity are critically limited in the region, and this is affecting both the direct marketing and commercial sale of livestock. Improving the situation by appreciably increasing slaughter and processing capacity will help to alleviate this condition as will better training of meat cutters and processors.

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Engage conservation groups, land trusts, and farmers on land access challenges and opportunities.
- Shift the focus of land management and preservation towards higher-value agricultural uses.
- Develop training programs on livestock management.
- Increase slaughtering capacity.
- Enhance training programs to improve skills in butchering and meat cutting.
- Educate consumers to improve beef utilization.
- Address misunderstandings on the environmental impact of livestock production.
- Support expansion of pasture and grazing operations.
- Help operations develop strategies on risk management, hedging, and diversification.
- Demonstrate positive environmental impacts, reward producers, and sell carbon credits through sensor technology for carbon tracking.

Grains, Hay, and Other Field Crops

KEY STATS

1,778	95,183	$32.4	$10.2
FIELD CROP FARMS	FIELD CROP ACRES	GRAIN SALES (Million $)	HAY & OTHER SALES (Million $)

SWOT Analysis

Strengths	Weaknesses
• Access to grain mills and grain elevators. • Access to ports for exports. • Located in a region with a generally good basis for corn and soybean. • Access to farm equipment and machinery repair through Lancaster County. • High quality soils.	• Low-margin industry. • Rising input costs. • High local taxes. • Labor costs are high in the region.
Opportunities	**Threats**
• Grass-fed and Organic. • Industrial hemp. • Plant-based beverage demand. • Ancient grains. • Collaboration with grazing operations and land trusts.	• Neighbor relations. • Road conditions. • Development pressure. • Inflation. • Consolidation in the farm equipment industry.

Introduction

Large-scale row crop production is a dominant feature of agriculture in the Western part of Chester County. These farms produce grains, hay, tobacco, and other field crops. Many of these crops are used as animal feed, which is needed by the county's livestock farms and equine industry. Meanwhile, wheat and other small grains are milled into flour, cereal, and other consumer products. Eventually, these products end up in bakeries and grocery stores.

Current Conditions

Grains, hay, and other field crops represent the majority of cropland harvested in Chester County. In 2017, the county sold $32.4 million worth of grain and $10.2 million in hay and other field crops.[30] The county also had $4.4 million in tobacco sales.

Grain and Oilseed Production

In 2017, there were around 58,805 acres of grains and oilseeds. Although the dedicated acreage has not changed much compared to 2002, there has been a slight decline (-6%) in acreage since 2007. Most of this decline was driven by losses in corn, corn silage, wheat, and barley acres. This is contrasted with increased acreage in soybean, oat, and rye.

Many grain operations lease land and are feeling the pressure of development. Some have reported losing thousands of acres to development in recent years. This has contributed to declining total production. That said, grain farms have continued to be more productive over the years. Yields have increased across the various grains except for barley and oats.

Table 1.17 Grain Crops, Acreage

	2002	2007	2012	2017	% Change
Corn	24,591	28,935	28,293	27,140	10%
Soybeans	13,206	14,836	14,990	15,567	18%
Corn Silage	13,701	10,597	10,396	8,323	-39%
Wheat	4,753	5,993	5,433	5,121	8%
Rye	219	266	171	1,504	587%
Barley	1,852	1,359	1,187	925	-50%
Oat	312	19	95	225	-28%
Sorghum Silage	81	(D)	34	--	-100%
Sorghum	--	241	(D)	(D)	n/a
Grains	**58,715**	**62,246**	**60,599**	**58,805**	**0%**

Source: USDA Census of Agriculture

Hay Production

Hay production is extremely important for the dairy, equine, and mushroom industries. Both cows and horses rely on hay, haylage, and other grasses for feed. Over the years, Chester County has seen a decrease in the number of farms growing hay and a decrease in hay acres. Despite this, the yield has continued to increase. Increased productivity can be attributed to mechanization and improved farming practices.

30. USDA defines the "other field crops and hay" category to include crops such as grass seed, hay and grass silage, haylage, greenchop, hops, maple syrup, mint for oil, peanuts, sugarcane, sugar beets, etc.

Table 1.18 Hay Production

	2002	2007	2012	2017	% Change
Farms	841	806	766	749	-11%
Acres	43,275	41,482	38,384	35,439	-18%
Dry Tons	118,058	138,414	118,193	126,905	7%
Yield (tons/ac)	2.73	3.34	3.08	3.58	31%

Source: USDA Census of Agriculture

Tobacco Production

In Chester County, most of the tobacco is grown by the Amish. This is largely the consequence of tobacco production shifting out of Maryland. Currently, the county has 953 acres of tobacco, which is more than double from 427 acres in 2002. The harvested acreage has also increased consistently over the last two decades corresponding with the decline in Maryland tobacco production.

Table 1.19 Tobacco Production

	2002	2007	2012	2017	% Change
Farms	87	114	122	106	22%
Acres	427	706	867	939	120%
Production (lbs)	838,831	1,735,079	2,200,270	2,147,364	156%
Yield	1,964	2,458	2,538	2,287	16%
Sales ($)	1,363,000	2,648,000	4,143,000	4,365,000	220%

Source: USDA Census of Agriculture

Industrial Hemp

There are 40 hemp permits in Chester County, with the overwhelming majority involved in CBD extracts. With market saturation and plummeting CBD prices, growers are now turning their attention to industrial hemp. Currently, only a few farms are exploring opportunities for hemp fiber and hemp grain.

Industrial hemp has different supply chain requirements, and many are taking a slower and more cautious approach. Until regulatory and infrastructure bottlenecks are resolved, industry growth will likely be slow. However, there is a significant opportunity with hemp fiber and grain markets expected to grow rapidly over the next 5 years.

Processing Capacity

Farms have many options for selling grain. They can access major grain and feed mills in adjacent counties. Some of these operations include Purina Mills, Brown's Sons Inc., Snavely's Mill, Nissin Foods, Ardent Mills, and ADM. The recent establishment of Perdue's crush facility in Marietta, PA has also been very helpful to growers in the region. Moreover, farms can export commodity grains through ports in New Jersey and Virginia while specialty grains and oilseeds move through the Port of Baltimore, MD.

Challenges

- **Neighbor Relations:** Confusion and misinformation have led to adversarial stances from residents. This is especially true regarding the use of pesticides.
- **Development Pressure:** Agricultural land is being lost to development. As a result, the land is expensive and increasingly harder to obtain.
- **Labor and Wages:** The labor pool for skilled or unskilled labor is scarce. In addition, the wage rate in the region is effectively $15/hour. Many farms are already paying at this rate or higher even without federally mandated minimum wage rates. Any increases would further hurt farm profitability.
- **Roads Condition:** Road safety with farm equipment is an issue. There is a need for wider roads and more height clearance from trees. There are also challenges with communities placing solid curbs along intersections, which makes it difficult for large farm equipment to maneuver.
- **Property Taxes:** Despite the benefit of Act 319, farms still experience high tax burdens. Some farms report that taxes can be as much as 2.5 times higher in Chester County compared to other counties in the state.
- **Declining Farm Equipment Options:** The tractor and farm equipment industry is heading the way of the construction equipment industry. The growing consolidation means less choice and less competition. This can make it difficult to find and support local businesses. That said, most farms go to Lancaster County for their farm equipment needs.
- **Inflation:** Inflation is a significant threat to commodity agriculture. Farms in the commodity business operate on low margins (2-3%). Farms can struggle if prices for equipment, supplies, fuel, feed, and other inputs increase while commodity prices stagnate or decline.
- **Land Competition:** Expanding or maintaining an operation's farmland base is proving challenging in a highly competitive land market. Farmers are not only competing against one another, but they are also competing against developers, conservation buyers, and municipalities for land. As a result, farmers are paying record-high prices to purchase or rent land.

Opportunities

- **Grass-fed and Organic:** Demand for both grass-fed beef and grass-fed dairy products is growing, and as such, it will encourage farms to keep land for pasture and hay. The growing demand for organic milk can also encourage farms to shift to organic grain production. Furthermore, restrictions due to the COVID-19 pandemic increased public interest in local and regional purchasing of these products after notable supply chain disruptions during the spring and summer of 2020.
- **Industrial Hemp:** The projected wholesale value of processed U.S. hemp fiber is expected to grow at 10.5% CAGR from 2020 to 2025 and reach $77.7 million by 2025.[31] Similarly, the U.S. hemp grain wholesale market is expected to grow at 16.5% CAGR from 2020 to 2025 and reach $57.6 million in domestic sales. As growers shift away from CBD production towards hemp fiber and grain, there will be ample room for growth. Since hemp is a fast-growing crop, it can be incorporated into the crop rotation as a cover crop. This will be beneficial for livestock, grain, and hay farms.

31. New Frontier Data, "The U.S. Hemp Market Landscape."

- **Plant-based Beverages:** Consumers are increasingly turning to plant-based alternatives especially with regards to dairy. This opens up niche opportunities for growing barley, hemp, pea, flax, and quinoa.[32]
- **Ancient Grains:** Consumers are increasingly replacing wheat with ancient grains such as quinoa, amaranth, spelt, sorghum, teff, millet, and Kamut.[33] Grain farms can diversify into specialty products and work with local bakeries to take advantage of these trends.
- **Collaborating with Land Trusts:** Land trusts and conservation groups own a lot of preserved land. Some of this land is suitable for livestock grazing. Engaging these organizations and demonstrating the positive environmental impacts of grazing production systems could help expand land access.

32. Packaged Facts, "Dairy and Dairy Alternative Beverage Trends in the U.S., 3rd Edition: Market Research Report."
33. Morgan, "Why Ancient Grains Are a Modern Trend."

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Educate the public regarding agricultural practices and the economic impact of agriculture.
- Limit high-density development to designated growth areas.
- Engage conservation groups, land trusts, and farmers on land access challenges and opportunities.
- Shift the focus of land management and agricultural preservation towards higher-value agricultural uses.
- Preserve agricultural land and ensure that it can be used for productive agriculture.
- Support flexible easements that allow for agricultural structures and activities.
- CCEDC and AgConnect should take a leading role in advancing the emerging industrial hemp industry.
- Identify grants for hemp processing infrastructure and R&D.
- Simplify process for developing agricultural labor housing.
- Use temporary traffic alerts along key roadways during peak farm activities to minimize road safety concerns.
- Evaluate the use of underutilized police force for escorting farm equipment.
- Collaborate with municipalities and PennDOT on road design.
- Explore the notion of working capital funding.

Forestry

KEY STATS

33	13,000	270	$7.7
FORESTRY & LOGGING FIRMS	ACRES OF WOODLAND	MILLION CUBIC FEET OF TIMBER	SALES [34] (Million $)

SWOT Analysis

Strengths	Weaknesses
• Interconnection with other agricultural sectors. • Agritourism involving Christmas trees.	• Logging regulations. • High-grading.
Opportunities	**Threats**
• Thermally modified wood and cross-laminated timber (CLT). • Bioenergy and biochar. • Mobile processing.	• Emerald ash borer. • Public misunderstanding of active timber harvest management. • Neighbor relations.

34. Sales from forestry and logging in 2020. Data is from Hoovers, D&B.

Introduction

Forestry is often an overlooked component of agriculture. However, many farms own forestland. About 13,000 acres or 9% of the total agricultural land in Chester County is woodland. This forestland serves many purposes including recreation, conservation, timber sales, and non-timber forest products sales. Farms that choose to sell their timber contribute to the larger forest products industry in the county. They also contribute to other agricultural sectors through the creation of wood chips, wood shavings, and sawdust that are used by the mushroom, livestock, and equine industries in the form of substrate or animal bedding.

Current Conditions

There are 97,277 acres of forestland in Chester County, which represents 20% of the county's total land area. There are also 270 million cubic feet of timber that could be harvested on these lands. A growth-to-removal ratio of 10.2 in the county demonstrates that there is ample room for sustainable harvests and timber management. The major species in the county include yellow-poplar, soft maple, red oaks, hickory, and black walnut. Many of these species are highly desired in furniture and flooring. Others can be used in innovative products such as thermally modified wood or cross-laminated timber (CLT). In the county, there are many local mills. Small milling capacity and demand-draw from local mills is an important aspect of the forestry economy in Chester County.

Table 1.20 Top 10 Species of Trees

Species	Volume (cubic ft.)
Yellow-poplar	84,305,857
Soft maple	29,094,324
Red oaks	51,203,425
Hickory	21,380,452
Black walnut	16,597,162
Other eastern soft hardwoods	12,461,374
White oaks	15,344,908
Ash	9,558,790
Other eastern hard hardwoods	9,068,610
Beech	6,097,777

Source: FIA, 2019

Non-Timber Forest Products

The county's farms also engage in non-timber forest products such as cut Christmas trees and short-term wood crops (STWC). Many of the Christmas tree operations in the county are pick-your-own, agritourism destinations that attract visitors in the winter months. There are also farms engaged in STWC, which are typically used for biomass energy. However, no production of STWC was reported in 2007 and 2017. The USDA Census of Agriculture also suggests that these farms have experienced declines in production and sales over the years.

Table 1.21 Christmas Tree and Short-Term Woody Crop Production

	2002	2007	2012	2017	% Change
Farms with Sales	36	28	33	27	-11%
Sales ($)	509,000	470,000	534,000	605,000	-18%
Acres in Production	815	633	>660	452	7%
Farms with Production	78	42	37	31	31%

Source: USDA Census of Agriculture

Challenges

- **Logging Regulations:** There are widely divergent local logging and logging-related regulations at the municipal level that may make it a challenge to effectively and economically harvest timber. This condition has an especially large impact on small woodland tracts.
- **Neighbor relations:** A strong anti-logging sentiment seems to exist in Chester County, making it difficult for farmers to plan and execute a timber harvest. Threats of litigation are not uncommon. As a result, timber stands are not harvested at a rate the yields adequate financial returns to some landowners and may increase the age of tree stock beyond a point at which the value is maximized.
- **High grading:** The practice of high grading to remove a smaller number of high-value trees from timber stands is becoming the commonplace strategy for harvests. Over time, high grading leads to forest stands with lower timber quality. This reduces the ability to produce quality sawtimber and non-timber forest products. It also negatively impacts activities such as hunting, wildlife watching, or hiking.
- **Pests & Disease:** Pests such as the emerald ash borer or the spotted lantern fly are problems for trees, orchards, vineyards, and produce farms. The lack of active timber harvest management can lead to tree stock harboring pests and disease, which leads to unhealthy forests and disease pressure for farms.

Opportunities

- **Thermally Modified Wood and CLT:** Yellow-poplar and ash are prime candidates for being used thermally modified wood and CLT. These product innovations produce material with exceptional qualities while increasing the return on low-value wood. As new construction favors local and sustainable materials, there will be opportunities to integrate into these emerging supply chains.
- **Bioenergy and Biochar:** Farms that generate waste wood or are thinning low-grade wood can benefit from biomass CHP initiatives that power local communities and businesses. As a by-product, biomass CHP operations generate biochar, which has agricultural and stormwater mitigation applications. Some of its benefits include increased nutrient and water retention, improved soil structure and biology, and decontaminated soil and water.
- **Mobile Processing:** Establishing mobile wood chip processing could help manage wood waste both from farms and communities. The wood chips can then be used for bioenergy and biochar.

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Encourage active timber harvest management for pest management (e.g., SLF).
- Develop biomass energy opportunities and biochar usage.
- Increase access to forest land.
- Ensure logging regulations allow for active timber harvest management.
- Educate the public and elected officials about the importance and benefits of actively managed forests.

Equine

KEY STATS

1,000	10,300	4,110	$117
FARMS WITH EQUINE	HORSES, PONIES, MULES, & DONKEYS	ACRES FOR EQUINE ACTIVITIES	ECONOMIC IMPACT (Million $)

SWOT Analysis

Strengths	Weaknesses
• Mature and diverse industry. • Location of high-profile equine events. • New Bolton anchors the sector. • Interconnection with hay farms and mushroom farms. • Access to a wide array of support services. • High degree of specialization. • Nationally recognized equine training and event centers (such as Fair Hills).	• Declining recreational ridership. • Limited in-depth data on the industry. • Decline in collaboration and cooperation in the industry. • High equine veterinarian turnover. • Weak husbandry skills in small operations.
Opportunities	**Threats**
• Trail development. • Working land conservation. • Creative financing. • Support for pleasure equine owners.	• Road conditions and use conflicts. • Land competition and land prices. • Loss of large lands and connected properties. • Decline in youth participation

Introduction

Chester County is home to a vibrant and diverse equine community. The county's historical relationship with horses is evident in the wide array of activities spanning from tradition to competitive events to leisure. People of all ages can engage in activities that include dressage, fox hunting, racing, trail riding, historic reenactments, therapeutic offerings, and more. These events and activities also generate significant economic impact through spending on food, travel, accommodations, and other services. A recent study estimated that participants spent nearly $91.5 million on goods and services in Chester and Delaware counties.[35] This resulted in an additional $117 million in economic impact.

Current Conditions

According to the 2017 economic impact study commissioned by the Chester Delaware County Farm Bureau, there are about 10,300 horses in Chester County.[36] This is a 6% reported increase from the 2012 Ag Census, which suggests a thriving sector. The respondents to the study also reported devoting 4,100 acres to equine activities with 60% for pasture, 20% for crops, and 13.7% for forage. These operations also preserved an additional 5,573 acres through agricultural preservation and conservation easements.

Working Horse Sales

It is worth noting that there are also operations that sell working horses to others. The 2017 Ag Census reports that 164 farms sold 661 equine animals. These sales generated $5.9 million, making the average equine animal valued at $8,900, the majority of which occur within the plain sect community.

Hay, Straw, and Mushrooms

The economic impact study estimates that equine owners spend an average of $10,875 per animal.[37] Most of this spending is for feed, hay, and animal bedding. This demand is largely supported by hay and wheat production in the region. Straw from wheat harvests are used for bedding and the hay is for feed. What closes the loop is the ability to sell soiled stable bedding material and manure to mushroom farms and composters. The waste material from the equine industry becomes a critical input for making fresh mushroom substrate.

Support Services

The equine sector requires a wide range of support services, which are provided by local professionals and service companies. Some of these include breeders, trainers, barn managers, stable hands, and property maintenance. In addition, the industry employs veterinarians, blacksmiths, plumbers, and others. Moreover, the industry relies on businesses that offer boarding, feed mills, hardware, hauling services, tractors, equipment repair, and insurance. Altogether, the industry supports nearly 2,700 jobs across the local economy, with half being directly related to horses.[38]

35. Urbanchuk et al., "Impact of the Equine Industry on the Economy of Southeastern Pennsylvania."
36. Urbanchuk et al.
37. Urbanchuk et al.
38. Urbanchuk et al.

Challenges

- **Barriers to Entry:** New entrants in the equine sector face very high start-up costs and businesses require specialized management skills that many do not possess. These factors make it difficult for new entrants to survive the start-up phase.
- **Land Access:** Land competition is restricting growth in the equine industry. As the acreage dedicated to the industry shrinks, it limits collaborative development opportunities while diminishing the interest of those requiring interconnected farms for competitive sport. This may force the relocation of some operations to other areas.
- **Trail Access and Mobility:** Trail access and equine mobility are key features of the industry in Chester County. As mobility becomes limited, the industry is expecting to suffer declining income.
- **Risk management:** The unique risks associated with equine are difficult to manage exclusively through commercial insurance products. Operators report changing some business practices to manage risk and suggest that the threat of liability lawsuits for common practices limits growth. Also, there are high levels of concern about unprotected liability that comes from unauthorized land access.

Opportunities

- **Trail Development:** Multi-use trail development is viewed favorably by all sectors of the equine industry as a means to support the growth and development of the industry. It is also seen as a means to link agricultural and non-agricultural communities and build alternative revenue streams.
- **Working Land Conservation:** To keep the industry vibrant and to support new entrants, the expansion of working land easements is seen as essential. Easements should be flexible enough to support a broad range of equine uses to include event centers, veterinary facilities, and rehabilitation activities.
- **Creative Financing:** Encouraging new entrants into the equine industry may require the addition of creating financing vehicles such as purchase-leaseback, real estate investment trusts, and syndications to support asset development for those with limited balance sheets.
- **Support for Pleasure Horse Owners**: Improving management skills, particularly in the pleasure horse sector was highlighted as a means to improve overall industry performance, reduce the overall costs associated with participation in the industry, and serve as a means of recruiting and developing new entrants into the professional segments of the industry.

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Integrate equine trails with other recreational uses.
- Connect with Maryland equine trails.
- Promote experiential youth engagement programs.
- Explore opportunities for hemp bedding and hemp animal feed.

Agritourism

KEY STATS

40+	46%	87%	$1.0+
FARMS	ARE DIVERSIFIED OPERATIONS[39]	ARE CONSIDERD SMALL FARMS[40]	AGRITOURISM SALES (Million $)

SWOT Analysis

Strengths	Weaknesses
• The County draws many visitors. • Proximity to major population centers and affluent consumers. • Promotion by the Chester County Visitors Bureau. • Proximity of the New Bolton Center. • The CC Agriculture Council.	• Risk management considerations. • Neighbor relations. • Difficulty finding labor during peak season.
Opportunities	**Threats**
• Farm tours. • Creating a cross-product trail. • The “Amazing Cow” concept. • Agricultural and Food Center. • Technology integration.	• Adverse macroeconomic trends such as inflation. • Rising transportation costs. • Unexpected disruptors such as COVID-19.

39. Based on Pennsylvania estimates.
40. Based on Pennsylvania estimates.

Introduction

Tourism is among the top 5 industries in Chester County. Being near major population centers and affluent consumers allows businesses to draw tourists to dine, shop, visit, and experience all types of activities. The county's beautiful rural landscapes and diversity of farms attract people to connect with farmers and to enjoy local food. Whether it is dining and shopping in the "Mushroom Capital of the World" or visiting farm wineries, there are ample destinations to satisfy all types of interests.

Current Conditions

Many farms in Chester County view agritourism as a way to diversify revenue streams and to add value to their businesses by using agriculture and tourism to attract, entertain, and educate visitors. Some popular examples of agritourism include:

- Hunting or fishing
- Hayrides and other recreational activities
- Farm or wine tours
- On-farm craft beverage
- Petting farms
- Educational and demonstration farms
- U-pick or Pick-Your-Own
- Farm wedding
- Farm bed and breakfast (B&B)
- Farm events venue

In general, more farms have engaged in agritourism over the years. Current USDA Census of Agriculture data reports 40 farms that generated $1.0 million in revenue from agritourism in 2017. However, this is likely a significant underestimate. A recent study on agritourism indicates that there many more farms involved in a wide array of agritourism activities.[41]

- Farm Markets: 53
- Specialty Products: 103
- Product Processing: 53
- Horse and Farm Animal Experiences: 10+
- Wineries: 16
- Floriculture: 11
- Education: 19
- Pick-Your-Own: 5+
- Farm/Ranch Stays: 2+
- Breweries: 11

Moreover, there are many agritourism events that people can participate in. These are run by farms, organizations, and the county. This includes events such as the Sheep & Wool Day, Kimberton Community Fair, Goshen Country Fair, Kennett Square Beer Fest, Strawberry Festival, and Unionville Community Fair.

41. Chester County Visitors Bureau, "Agritourism Product Development Research Report."

Challenges

- **Risk Management and Neighbor Relations:** When the public has access to the farm, there are many considerations to make regarding public safety, traffic, and even neighbor relations. Insurance and proactive engagement with local government and neighbors are critical for minimizing conflict and liabilities.
- **Local Regulation:** Many agritourism activities often require additional permits and approvals by local zoning boards. The process can be viewed as onerous or inflexible. In situations where farmland is on land zoned as residential, there can be issues with adding value-added processing or offering mobile food services (e.g., food trucks). Confusion over value-added processing can also lead to unnecessary food-related inspections intended for restaurants.
- **Labor Shortage:** Agritourism operations often need additional employees during peak seasons. While some farms may find youth for retail jobs, it can be challenging to staff other activities.

Opportunities

- **Agricultural and Food Center:** This center would house educational events and activities around food and agriculture. It could offer culinary lessons, farm markets, and community activities. Inspiration can be drawn from similar centers such as the New York Wine and Culinary Center. CCVB can also consider incorporating local food into tourism programming.
- **The Amazing Cow:** An exhibit that allows the general public to learn about the cow and to experience it through visuals, sound, and touch. The goal would be to educate people about cows and their beneficial role in agriculture and the environment. This concept is inspired by the Giant Heart exhibit at the Franklin Institute. This idea can also be expanded into a series that promotes other agricultural sectors.
- **Farm Tours:** A county-led and organized series of farm tours around the county could be used to promote agriculture and educate residents. It will help people know their farmers and better understand agricultural production and the benefits farms bring to the community.
- **Cross-Product Trails:** Wine trails have been used as a tool to promote wineries. However, this concept could be expanded to include other value-added operations such as creameries, farm breweries, and others.
- **Integrating Technology:** Mobile apps, kiosks, QR codes, and other technologies can be leveraged to help visitors plan their trips and find information more easily when they are traveling in the county. These tools can also help promote local businesses through a searchable directory or by offering curated suggestions based on a visitor's interests.

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Coordinate with townships to allow more flexibility in zoning to support moderate agricultural activities.
- Conduct analysis on the need, costs, and design of a culinary center.
- Engage the Center for Sustainable Agriculture and Food Security and other partners to develop and fund the Amazing Cow exhibit.
- Coordinate an annual series of farm tours to promote agriculture and educate county residents.
- Promote trail that includes wineries, breweries, creameries, and other value-added operations.
- Pilot the use of mobile apps, kiosks, QR codes, or other technologies to help visitors plan their trip and find information.
- Add agritourism to the definition of agriculture.
- Develop training programs for town and county officials to understand the needs of agritourism, on-farm events, and on-farm processing.
- Develop a shared set of tools and guidelines to address agritourism and neighbor relations.

Organic Farming

KEY STATS

43	56%	58%	$43.6
FARMS	ARE DAIRY, POULTRY, AND EGG FARMS[42]	ARE CONSIDERD SMALL FARMS[43]	SALES (Million $)

SWOT Analysis

Strengths	Weaknesses
• Growing organic production and sales. • Strong interest in organic production in young and beginning farmers. • Presence of large blocks of certifiable land.	• Consumer perceptions. • Industry at large is experiencing declining revenues. • Labor supply and costs. • Small average size of operators.
Opportunities	**Threats**
• Consumer demand for organic. • Organic produce. • Organic milk. • Organic animal feed.	• Import competition. • Inflation. • Competing values-based production systems. • Consumer confusion over organic messaging.

42. Based on Pennsylvania estimates.
43. Based on Pennsylvania estimates.

Introduction

Organic farming is a way to increase the market value of products through aligning with USDA Organic farming practices. Organic certification allows farmers to obtain premium prices. For instance, organic produce trades at an average premium of 30.0% higher than conventional produce.[44]

Current Conditions

It is difficult to estimate the level of organic production that occurs at the county level. Neither the 2012 nor the 2017 Ag Census reported the number of acres dedicated to organic production. However, sales data indicates 43 farms in Chester County sold $43.6 million worth of organic products. It is also encouraging that both the number of farms involved in organic farming and the sales of organic food have increased over the years.

Table 1.22 Organic Farming[45]

	2002	2007	2012	2017	% Change
Farms	--	38	30	43	13%
Sales ($1,000)	--	18,306	11,801	43,625	138%

Source: USDA Census of Agriculture

44. Madigan, “Organic Growth: Rising Industry Exports Will Boost Industry Revenue Growth.”
45. Data on organic farming was not collected prior to 2007. The percent change is calculated based on the change between 2007 and 2017.

Challenges

- **Consumer Perceptions:** Consumers often do not realize that organic farms also need to spray pesticides, albeit "Organic Certified" ones. Growers recognize that educating the public on agricultural practices can be challenging.
- **Declining Industry Revenues:** The industry has been experiencing declines in revenues. This trend is expected to continue through 2023.[46] Increasing operating and input costs along with inflation can create tough operating conditions.
- **Labor Supply and Costs:** This is an issue that all agricultural sectors face. It is difficult to hire agricultural labor, and the expected wage rates are often unsustainable.
- **Import Competition:** 42% of US organic food demand is satisfied through imports.[47] A strong US dollar also encourages imports. Since organic food trades at a premium, foreign demand for US organic food is also limited.
- **Certification Costs:** High certification costs are hard for small operators to support and restrict participation in USDA Certified Organic production. This may limit market access, particularly in wholesale and retail environments.

Opportunities

- **Consumer Preferences for Organic:** Consumers choose organic products for several reasons. Usually, it's for food that is free from pesticides and other undesirable attributes, has positive long-term health benefits, less environmental impact, or better taste and nutrition. It is worth noting that psychographic data from ESRI Business Analyst indicates that consumers in the region have a preference for environmentally-friendly products and are slightly more willing to pay more for them than compared to the rest of the country.
- **Organic Produce Consumption:** Organic produce is still a key driver in the market. It represents 8 percent of fresh produce sales but is responsible for 30 percent of the growth in sales.[48] Organic produce sales also represent 41% of total organic food sold in the country. Based on U.S. demand, the market size for organic fruits is $1.8 billion with a 19.6 percent growth rate in sales. Similarly, the market for organic vegetables is $3.1 billion with a 5.9 percent growth rate in sales.
- **Organic Milk Consumption:** Organic milk sales rank second among total organic food sales. It represents 16% of all organic sales in the US.
- **Organic Animal Feed:** As interest in organic livestock and meat products grows, there will be increased demand for organic animal feed. In particular, demand for organic hay is expected to experience the largest growth.
- **Regional Shift in Production:** Much of the organic production within the United States occurs in western states that are experiencing significant long-term droughts. This is shifting production east or overseas, opening up opportunities for local farmers to capture additional market share.

46. Madigan, "Organic Growth: Rising Industry Exports Will Boost Industry Revenue Growth."
47. Madigan.
48. Stein, "The Power of Produce 2017."

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Educate consumers regarding agricultural practices.
- Assist townships and school districts with developing land management goals for publicly owned land that are consistent with the needs of the agricultural industry.
- Create messaging that is supportive of all agricultural production systems.
- Engage in wholesale market development.
- Encourage input sharing and cooperative buying.
- Develop and enhance programs for workforce training and development.
- Encourage equipment sharing to enhance asset utilization.

Direct-to-Consumer & Value-Added Processing

KEY STATS

53	$13.2	$87.4	$4.1
FARMERS MARKETS	DIRECT TO CONSUMER SALES (Million $)	INTERMEDIATED SALES (Million $)	VALUE-ADDED SALES (Million $)

SWOT Analysis

Strengths	Weaknesses
• Proximity to major population centers. • Affluent consumer demographics. • Diversity in product demand from varied ethnic and cultural communities. • Strong demand for local products. • The CC Agriculture Council.	• Limited human resource capacity of farmers to service retail demand. • Inefficient transportation and distribution network. • Labor shortage. • Lack of collaborative marketing and processing infrastructure.
Opportunities	**Threats**
• E-commerce. • Last-mile delivery. • Local food promotion. • Product development capacity.	• Implementation of GAP and third-party food safety requirements. • Growth in meal kits and e-grocers. • Retailer and processor consolidation.

Introduction

Diversifying through direct-to-consumer (DTC), intermediated sales, and value-added sales are ways to increase farm revenue while establishing relationships with consumers and buyers. For many, these channels are ways for consumers to know their farmers and to know more about the food they buy. The proximity to major metropolitan areas gives growers in Chester County front-row access to a large population of affluent consumers who are interested in local food, sustainability, and quality.

Current Conditions

Producer participation in local food systems has grown over the years. This fits well in a region where 1-in-3 households care about buying American, which is a proxy for buying local. Although the 2017 Ag Census no longer surveys for certain DTC activities separately, interviews indicate that DTC is very important for produce, dairy, and livestock farms. Many of these operations sell through the 10 farmers markets in the county, offer CSAs or pick-your-own, or sell through roadside farm stands. COVID-19 also further encouraged many operations to set up their e-commerce and offer pick-up options.

Table 1.23 Direct-To-Consumer Activity[49]

	2002	2007	2012	2017	% Change
Farms	147	194	208	--	41%
Sales ($1,000)	2,963	3,014	3,924	--	32%
CSA Operations	--	20	33	--	65%

Source: USDA Census of Agriculture

Increasingly, farms are also selling through specialty stores and markets. The county has some notable specialty stores such as Kimberton Whole Foods, Crop's Fresh Marketplace, Hershey's Farm Market, Kennett Garden Market, Northbrook Country Market, Oxford Farm Market, and others. Some urban farms such as Herban Farms also sell directly to grocers such as Giant, ACME, and Wegmans.

However, most importantly is the shift towards value-added processing. The change in Ag Census reporting shows that farms are increasingly selling value-added products through DTC and intermediated channels. In 2017, 86 farms reported selling $4.1 million worth of value-added products. When compared to other counties, Chester County ranks 7th among counties in Pennsylvania for value-added sales.

Table 1.24 Value-Added Activity[50]

	Operations	Sales ($)
Direct to Consumer (incl. value-added)	210	$13,176,000
Wholesale, Direct to Retail/Institution/Food Hub (incl. value-added)	64	$87,362,000
Value-Added	86	$4,087,000

Source: USDA Census of Agriculture, 2017

49. Data collection methods changed in the 2017 Census of Agriculture and do not allow for comparison regarding farms with direct-to-consumer sales. The 2017 Census of Agriculture also did not collect data on CSAs. Finally, the percent change is calculated based on the change between 2002 and 2012. These values cannot be compared to prior census data due to changes in how the data was collected. In the 2007 and 2012 censuses, "value-added" was not included in the data items in the table above. Additionally, value-added sales were not recorded prior to 2017.
50. Value of processed or value-added agricultural products sold. This is a new item for 2017. Data represent the value of products that originated from crop or livestock commodities produced on the operation. Through further manufacture or processing, these items are transformed into products worth more than the originally produced commodity.

Challenges

- **Transportation and Distribution:** The general rise of online shopping and home delivery demand presents challenges related to trucking, delivery networks, and infrastructure. For communities, there are concerns over congestion resulting from increased trucking activity. For farms and last-mile distributors, the issues involve achieving sufficient delivery densities to lower the costs of delivery and justify investments in cold chain infrastructure or food safety processes.
- **Lack of Processing Infrastructure:** Few facilities or businesses exist in the county to spur food product innovation and scaling of value-added processing enterprises.
- **Downstream Supply Chain Consolidation:** Consolidation among retailers, processors, and manufacturers can make it difficult for small or medium-sized farm operations to access the services they need. Disruptions such as COVID-19 and even cyberattacks can lead to plant closures and limited options.[51]
- **Food Safety Requirements:** Farms with growing sales or those interested in selling to restaurants, retailers, wholesalers, or institutions will need to grapple with various food safety regulations. (e.g. GAP, FSMA) This can be challenging for smaller farms due to increased administrative expenses and investments. Requirements involving traceability can also pose technical challenges.

Opportunities

- **Promoting Local Food Purchasing:** Farms can collaborate to partner with corporate health programs to encourage local food purchasing. Marketing campaigns can also be used to increase awareness and purchasing of Chester County agricultural products.
- **E-commerce:** The growing shift towards e-commerce presents an opportunity for farms involved in DTC to enhance their digital presence. Business technical assistance should be offered to help farms implement best practices.
- **Last-Mile Delivery:** There is interest among growers to use last-mile and quasi-last-mile technologies to improve distribution efficiencies and help increase access to local food. For instance, a refrigerated locker network can help consumers get access to local produce and meats.
- **Product Development:** Value-added processing is an important part of increasing and diversifying farm revenue. Even many farmers markets in the region have adapted by promoting more value-added products to mitigate declining sales. Thus, it is important to invest in R&D and product development capacity for the food and beverage sectors.

51. Food Dive, “Tracking Coronavirus Closures at Food and Beverage Factories”; Polansek, “Stung by Pandemic and JBS Cyberattack, U.S. Ranchers Build New Beef Plants.”

recommendations

Ag Marketing

Zoning & Land Use

Education & Outreach

Land Access

Labor & Workforce

Business & Financing

- Analyze the benefit and utility of a Chester County brand.
- Develop an Agricultural Innovation Center that is dedicated to supporting agricultural businesses and food manufacturing.
- Support development of last-mile distribution, cold-chain infrastructure, and e-commerce solutions.
- Partner with corporate health programs to encourage local food purchasing.
- Explore multi-stakeholder cooperative development and multi-stakeholder contracts.
- Increase the number of year-round marketing opportunities.

Appendices

Works Cited

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Organizations

Agricultural Land Preservation Board (ALPB)

American Mushroom Institute (AMI)

American Farmland Trust (AFT)

Brandywine Battlefield Task Force

Chesapeake Bay Program

Chester County Agriculture Council (Ag Council)

Chester County Association of Township Officials (CCATO)

Chester County Economic Development Council (CCEDC)

Chester County Food Bank (CCFB)

Chester County Industrial Development Association (CCIDA)

Chester County Intermediate Unit (CCIU)

Chester Land Trust (Land Trusts)

Chester County (CC) Parks + Preservation

Chester County (CC) Planning Commission

Chester County (CC) Visitors Bureau

Chester County Workforce Development Board

Cheyney University

Delaware Valley Regional Planning Commission (DVRPC)

Environmental Education Advisory Council (EEAC)

Future Farmers of America (FFA)

Longwood Garden

National Young Farmers Coalition (NYFC)

PA Association of School Administrators (PASA)

PA Bureau of Forestry (DCNR)

PA Department of Agriculture (PDA)

PA Department of Transport (PennDOT)

PA Farm Bureau

PA Farm Link

PA Forest Products Association (PFPA)

PA Industrial Hemp Steering Committee

PA Technical Assistance Program (PennTAP)

Penn State Extension

Pennsylvania Hardwood Council

Pennsylvania State University (Penn State)

Pennsylvania Sustainable Agriculture (PASA)

Pennsylvania State (Penn State) University Extension Master Watershed Stewards

Regional Tourism Association

Restaurant Association

Seedcopa

Small Business Development Center (SBDC)

Soil and Water Conservation District (SWCD)

Stroud Water Research Center (SWRC)

Thomas Jefferson University

University of Pennsylvania (UPenn) School of Veterinary Medicine