

Chester County Agricultural Economic Strategic Plan

DRAFT RECOMMENDATIONS

ACDS, LLC
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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 and Financing	Recommendations to increase the success and profitability of farms and agribusinesses, as well as ways to build an innovation culture.
Education and Outreach	Recommendations to educate, engage, and market to consumers as well as public officials.
Labor and 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 and 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 along with details on the key actions, partners, and funding sources.

Implementation

These recommendation 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.
3. Reliable revenues from private and public sources.
4. Legally sanctioned political action to influence policymaking 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 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 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 a Value-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 publicize information about the strategic plan, key partners, stakeholders, progress, resources, and contacts.

Use Systematic Approach to Integrate the Private Sector

It will be vital to have the private sector integrated into the relevant recommendations so that efforts are more collaborative. This will be 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

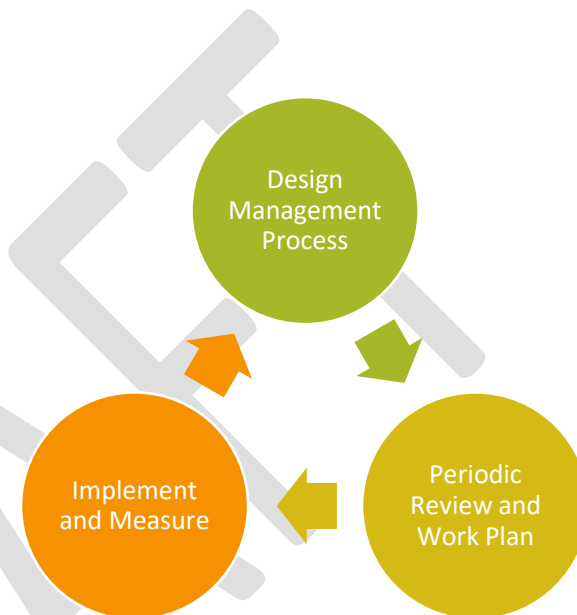
The agricultural industry is dynamic and is influenced by broader economic conditions, consumer trends, and policy direction. As circumstances evolve, the strategic plan will need to be updated. Developing a process to accommodate ongoing changes while keeping the strategic plan relevant is critical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

The implementing entity described above or the Ag 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 above 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 stakeholders. This includes all affected communities, both urban and rural, as well as historically excluded populations, racial minorities, and women.

EQUITY ROUNDTABLE

This strategic plan proposes to address equity through an Equity Roundtable. This proposed Equity Roundtable will be managed by a competent outside professional and will accomplish 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, 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, multisector 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.

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. Develop the Farm of the Future at New Bolton (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)

Measuring the outcomes of implementation is an important element of benchmarking success of both recommendations and actions. Key tracking metrics are listed below.

Metrics
Gross agricultural revenue
Number of firms in AFB sectors and subsectors
Per firm revenue
Share of AFB sector revenue relative to all private sector contributions
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

RECOMMENDATIONS

Develop the Farm of the Future at New Bolton

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 Farm of the Future 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, 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 SWRC

Funding Sources	
UPenn School of Veterinary Medicine	Private and philanthropic funding

Support Expansion of Pasture-Raised and Grass-Fed Operations

Purpose

Use education, technical assistance, collaborate 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.²

From a local perspective, Chester County is primed to help expand these types of production systems. Currently, there is an initiative (Farm of the Future) that would involve beginning farmers, the New Bolton Center, 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.

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

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?”

groups, and farms. Cooperative Extension, New Bolton Center, and PASA will address actions related to trainings, technical assistance, and demonstration projects.

Key Actions
Increase awareness of livestock management trainings provided by 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 Cooperative Extension New Bolton Center	CCEDC / CCIDA PDA SWRC Land Trusts PASA

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

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 Ag Council, 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 CCIDA Ag Council	Chester County Food Bank PDA AMI Cooperative Extension Industry Associations

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

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 is 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 2025.³ 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, Ag Council, and Cooperative 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.
Provide grants for hemp processing infrastructure and R&D.

Lead Partners	Supporting Partners
CCEDC / CCIDA Ag Council Cooperative Extension	PA Industrial Hemp Steering Committee PDA SWRC Thomas Jefferson University Cheyney University Industry Associations

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

Prepare Farms for Traceability and Carbon Credit Markets

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 movement. Increasingly, companies are being asked to demonstrate

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

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?

This will be a collaborative effort involving the Ag Council, AMI, land trusts, Cooperative Extension, and SWRC. 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 jumpstart 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 Chester County brand.
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
Ag Council AMI	Land Trusts Cooperative Extension SWRC

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

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.

How and Who?

The Ag Council and Cooperative 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 stormwater 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 / CCIDA Ag Council Cooperative Extension	CC Planning Commission PA Forest Products Assn. (PFPA) PA Bureau of Forestry (DCNR) Pennsylvania Hardwood Council PDA

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

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. Doing so will involve the CCEDC, CCIDA, Ag Council, Planning Commission, and CCIU.

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 / CCIDA Ag Council CC Planning Commission CCIU	Cooperative Extension CCATO PDA

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

Augment Agritourism Activity

Purpose

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

⁴ [Urban Agriculture - A Guide for Municipalities.pdf \(pitt.edu\)](#)

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.

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
Chester County Conference and Visitors Bureau Ag Council	Industry Associations Cooperative Extension Regional Tourism Association Longwood Garden Hospitality Companies Brandywine Battlefield Task Force

Funding Sources	
Private and philanthropic funding EDA: Outdoor Recreation Grant	VisitPA Grants PennTAP

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 and Agricultural Innovation Center (Moderate Priority)

Measuring the outcomes of implementation is an important element of benchmarking the efficiency at which business deploy capital and capital assets. Key tracking metrics are listed below.

Metrics
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

RECOMMENDATIONS

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 will be led primarily by the CCEDC, CCIDA, Ag Council, and Cooperative Extension.

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 CCIDA Cooperative Extension Ag Council	PASA PDA Industry Associations CC Planning Commission / EEAC

Funding Sources	
PDA Grants <ul style="list-style-type: none"> Farm Vitality Planning Grant Beginning Farmer Tax Credit Program Pennsylvania Dairy Investment Program (PDIP) 	PIDA: Working capital loans CCEDC EDA: PWEAA

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 CCIDA	Cooperative Extension PDA Industry Associations Ag Council CC Planning Commission Chester County Food Bank

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

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 transition funds.
Provide financing for adopting automation.

Lead Partners	Supporting Partners
CCEDC CCIDA Reinvestment Fund	PDA Ag Council Private Lenders Industry Associations

Funding Sources	
EDA BBB PDA Grants Intermediary Relending Program Rural Business Investment Program	PIDA: Working Capital Loans Community Facilities Guaranteed Loan Program Business and Industry Loan Guarantees Rural Microenterprise Assistance Program

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
Improve local traffic conditions through: <ul style="list-style-type: none"> 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 CC Planning Commission	Municipalities PDA Ag Council Industry Associations CCATO

Funding Sources	
County funds Private and philanthropic funding	

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, and Ag Council 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

CCEDC
CCIDA
Ag Council

Supporting Partners

AMI
New Bolton Center
Farms and Agribusinesses
Industry Associations

Funding Sources

Private and philanthropic funding
USDA Rural Economic Development Grant
USDA Value Added Producer Grants
USDA Agriculture Innovation Center Program

EDA: PWEAA
Local EDC/IDA funding
SeedcoPA
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)

Measuring the outcomes of implementation is an important element of benchmarking changes in educational progress, workforce development, and community outreach. Key tracking metrics are listed below.

Metrics
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

RECOMMENDATIONS

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 spraying 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, Cooperative Extension, and Visitor’s Bureau. 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
Cooperative Extension Ag Council CC Visitors Bureau	Industry Associations New Bolton Center Stroud Water Research Center PDA Pennsylvania Hardwood Council Land Trusts Chesapeake Bay Program SWRC CCEDC / CCIDA

Funding Sources	
County funds	
Private and philanthropic funding	

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 and the Planning Commission 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 and 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 Planning Commission	Cooperative Extension CCATO New Bolton Center Industry Associations Stroud Water Research Center PDA Pennsylvania Hardwood Council Land Trusts Chesapeake Bay Program SWRC CCEDC / CCIDA CC Visitors Bureau

Funding Sources
County funds Private and philanthropic funding

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, 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, Ag Council, Visitor's Bureau, New Bolton Center, 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 New Bolton Center to explore new dairy/livestock products focused on local underserved populations.
Build relationship with consumers in nearby urban centers.

Lead Partners	Supporting Partners
CCEDC Ag Council Chester County Conference and Visitors Bureau New Bolton Center AMI	Cooperative Extension Regional tourism Association Longwood Garden Hospitality companies Restaurant Association

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

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

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. However, the Ag Council will need support from PDA, Cooperative 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 Chester Brand.
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 Cooperative Extension Industry Associations Marketing programs at local colleges Restaurant Association Brewers and Distillers

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

⁶ Source is from ESRI Business Analyst.

⁷ Stein, "The Power of Produce 2017."

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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)

Measuring the outcomes of implementation is an important element of benchmarking changes in labor productivity as well as labor utilization rates. Key tracking metrics are listed below.

Metrics
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

RECOMMENDATIONS

Prepare Industry for Future Workforce Needs

Purpose

Build workforce pipelines that address skill gaps in roles within the agriculture. 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 the Ag Council, Cooperative 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 New Bolton Center.

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 Cooperative Extension Chester County Intermediate Unit (CCIU)	CCEDC Industry Associations PA Farm Bureau PASA National Young Farmers Association New Bolton Center

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

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 the Chester County Agriculture Council, Cooperative Extension, Chester County Economic Development Council to identify emerging training needs and create programmatic responses.

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
Ag Council Cooperative Extension CCEDC	SBDC PASA National Young Farmers Association Farm Bureau

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

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 Ag Council and supported by Pennsylvania State University, Farm Bureau, University of Pennsylvania, CCEDC, and industry associations will conduct periodic studies to determine the support and service sector development needs.

Key Actions
Create jobs in farm equipment repair.
Create jobs in ag-related legal and 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 Cooperative Extension	CCEDC School districts

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

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
<ul style="list-style-type: none"> Fertility planning Livestock records and management Weather modeling Microclimate modeling 	<ul style="list-style-type: none"> Robotic milking Mastitis detection Unmanned herding Precision feeding 	<ul style="list-style-type: none"> Storage monitoring Automated sorting Traceability Carbon credits

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

⁹ McKinsey Global Institute.

<ul style="list-style-type: none"> • Yield monitoring • Data analytics • Food safety records and management • Carbon planning and monitoring 	<ul style="list-style-type: none"> • Audio and visual facility 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 	
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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 Ag Council Chester County Workforce Development Board CCIU PSU	Industry Associations School Districts Cooperative Extension FFA

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

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, and the Planning Commission. Changes will be made through county and municipal plans, and initiatives will be launched 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 Delaware Valley Regional Planning Commission CC Planning Commission	CCEDC CCATO PDA Farm Bureau

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

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. Increase 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)

Measuring the outcomes of implementation is an important element of benchmarking changes access to land resources for agriculture and forestry. Key tracking metrics are listed below.

Metrics
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

RECOMMENDATIONS

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 programs to support young and beginning farmer access.
Develop tools to assist with siting and transition.
Launch a mentor-protégé program.
Encourage participation in Farm Link; use tools to match farmers with landowners.

Lead Partners	Supporting Partners
Ag Council CC Planning Commission	Cooperative Extension PDA CCEDC PA Farm Link Land Trusts PASA National Young Farmers Coalition

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

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 Ag Council will be responsible for hiring a staff member to support municipalities seeking guidance. Resources will also be developed through this new role.

Key Actions
Hire staff as a resource 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
Ag Council CC Planning Commission CCATO	Cooperative Extension SWCD Land trusts

Funding Sources	
County funds Private and philanthropic funding	

Demonstrate Positive Environmental Externalities 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.

Lead Partners	Supporting Partners
Stroud Water Research Center (SWRC) New Bolton Center PSU Extension Master Watershed Stewards AMI	PDA Ag Council Cooperative Extension Land Trusts Chesapeake Bay Program

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

Examine Innovative Financial Options for Land Access

Purpose

Identify best 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 exceeding \$35,000 per acre in some parts of the county. 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 Agricultural Land Preservation Board (ALPB) CCEDC	Ag Council Cooperative Extension Land Trusts Chesapeake Bay Program SWRC National Young Farmers Coalition American Farmland Trust

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

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 Ag Council, the Planning Commission, and land trusts. It will also require support from Parks and 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
Ag Council CC Planning Commission Land Trusts	CC Parks + Preservation Agricultural Land Preservation Board (ALPB) PASA National Young Farmers Coalition

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

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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. Promote Managed Forests as an Agricultural Land Use (High Priority)
5. Improve Road Conditions (Moderate Priority)

Measuring the outcomes of implementation in the land use is both complex and nuanced with few objective measures available. Given these limits, this plan recommends the adoption of the following metrics.

Metrics
Number of jurisdictions using the harmonized definition of agriculture
Number of municipalities participating in working land overlay zones
Number of municipalities participating in multijurisdictional 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

RECOMMENDATIONS

Encourage Ag-Friendly Development Policies

Purpose

Minimize development pressure on highly productive agricultural soils, reduce farmland fragmentation, and support farming as an important 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 limited to 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 transit corridors or TOD.
Encourage cluster development that leaves agriculturally productive parcels.
Encourage greater mixed-use zoning.

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

Funding Sources
County funds Private and philanthropic funding

Encourage Ag-Friendly Zoning Appropriate for the Community Context

Purpose

Allow 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.)
Include 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).

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

Funding Sources	
County funds Private and philanthropic funding	USDA Urban Ag Program

Incentivize Inter-Jurisdictional Collaboration

Purpose

Induce interjurisdictional 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.

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.
Collaborate with Bay programs to increase plain sect participation.
Develop shared tools and guidelines to assist with agritourism and neighbor relations.
Collaborate on improving equine trail access.

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

Funding Sources	
County funds Private and philanthropic funding	Special funds

Promote 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?

Creating opportunities for forestry will require the county and municipalities to make changes to the definition of agriculture, comprehensive plans, and other planning documents. It will also involve organizations such as PDA, Cooperative Extension, DCNR, and other entities to encourage sustainable forestry management.

Key Actions
Integrate forestry within the definition of agriculture.
Support township officials with farm and forestland planning issues.
Support science-based forest practice and logging regulations.

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

Funding Sources	
County funds Private and philanthropic funding	USDA Forest Service Grants

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, 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.

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

Lead Partners	Supporting Partners
Ag Council CC Planning Commission CCATO	Cooperative Extension

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