TEAM PENNSYLVANIA

THE PENNSYLVANIA AGRICULTURE ECONOMIC ANALYSIS 2025

Executive Summary

March 2025

INTRODUCTION

Pennsylvania's Agriculture Sector has earned its status as a pillar of the state's economy, supporting thousands of businesses and jobs and supplying essential goods to local, national, and global markets. Since 2016, Team Pennsylvania—the state's public-private partnership dedicated to accelerating long-term economic growth—has prioritized agriculture as a sector through a partnership with the Pennsylvania Department of Agriculture and industry stakeholders.

As a nonpartisan and neutral broker, Team Pennsylvania provides independent third-party data and analysis that can be used to strengthen the sector, ensure its long-term viability, and accelerate areas for strategic economic growth. To that end, we've commissioned two previous iterations of this work, which have advanced both industry and state leaders' understanding of the economic contributions of the sector. The 2018 report provided the first-ever definition of "Pennsylvania Agriculture," to include crop and animal production, food and beverage processing and manufacturing, forestry-related industries, and landscaping; from there, it quantified the economic impact of the sector.[1] The report's findings were used to justify initiatives within the bipartisan Pennsylvania Farm Bill—the first state-level Farm Bill in the nation—and encouraged a diverse array of stakeholders, beyond agriculture, to engage with the status and future of the sector. In 2021, new data from the USDA's Census of Agriculture was incorporated into the model to update economic impact figures.[2] Additionally, we employed survey and roundtable methods to explore the acute impacts of the Pennsylvania Farm Bill and the COVID-19 pandemic, to inform economic recovery efforts and highlight the wide reach of stakeholders impacted by agriculture's significance in the commonwealth.

1 "Pennsylvania Agriculture: A Look at the Economic Impact and Future Trends", 2018

2 "The Economic Impact of Agriculture in Pennsylvania: 2021 Update"

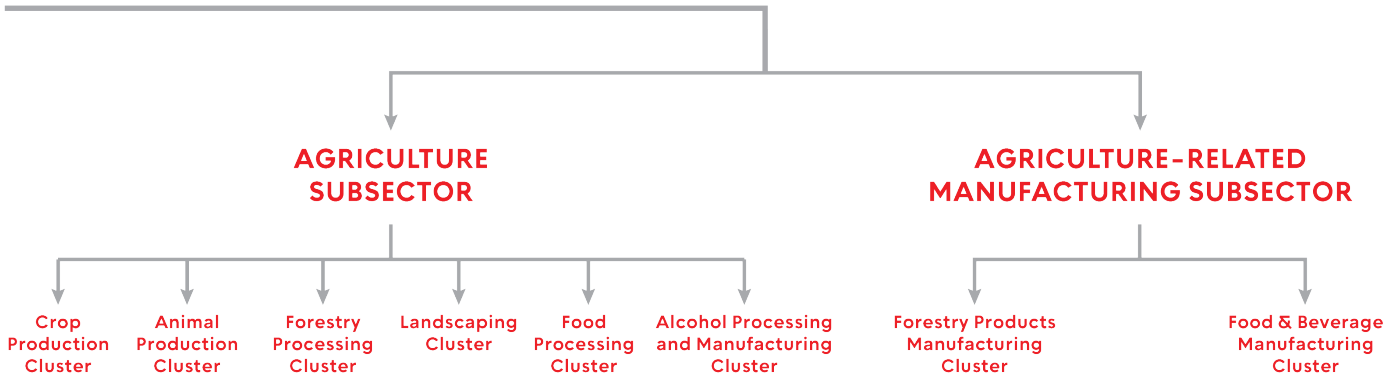
INTRODUCTION

This report, *The Pennsylvania Agriculture Economic Analysis 2025*, provides a deeper analysis of agriculture's economic contributions, offering insights into its evolving landscape over a decade (2012–2022) at the sector, subsector, and cluster levels. The Agriculture Sector includes all agriculture-related activities in the state, consistent with definitions used in previous studies. A key addition to this report is the introduction of Agriculture and Agriculture-Related Manufacturing Subsectors, which separately group and track trends within:

1. **On-farm activities and primary processing activities** that involve the initial conversion of raw agricultural materials; and
2. **Manufacturing activities** that assemble processed materials into finished products.

This enhanced categorization improves understanding of in-state connections among on-farm activities, primary processing infrastructure, and value-added manufacturing. By structuring the analysis through a sector, sub-sector, and cluster approach, a more comprehensive view of Pennsylvania's complex intra-sector dynamics emerges while also quantifying its impact on national and global agricultural value chains.

PENNSYLVANIA'S AGRICULTURE SECTOR



Rather than providing definitive conclusions, this study serves as a foundation for deeper discussions, requiring additional regional insights that will further refine opportunities and challenges within Pennsylvania's Agriculture Sector.

The report is structured into three core analyses:

- **Economic Base and Industry Analysis** – Examines how Pennsylvania's Agriculture Sector, the sub-sectors, and the clusters have evolved over the decade of 2012 to 2022 and compares its growth to the state's overall economy and national trends.
- **State Comparison Analysis** – Assesses Pennsylvania's agricultural performance relative to the peer states of New York, Ohio, and Virginia. States were selected for their similar population sizes, rural-urban distribution, agriculture contributions to gross

state product (GSP), and history as regional competitors in ag-related economic development.

- **Supply Chain Analysis** – Identifies key components of Pennsylvania's agricultural supply chain and explores domestic and international trade trends.

This report offers valuable data and important framing to help industry leaders, policymakers, and stakeholders of the commonwealth's economic future better understand the sector's complexity and inform strategies and actions that enhance Pennsylvania and its Agriculture Sector in the decades to come.

METHODOLOGY

Economic Base and Industry Analysis	Camoin Associates evaluated the Agriculture Sector, as well as the Agriculture and Agriculture-Related Manufacturing Subsectors. In each of these cases, the data describes the aggregate performance across all relevant industries within each Sector and Subsector. Data from IMPLAN is in real (inflation-adjusted) dollars, such that comparisons of GSP and Sales from 2012-2022 reflect real changes outside of inflation trends. *Key Data Source: IMPLAN Data Library*
State Comparison Analysis	For each state, Camoin Associates evaluated the Agriculture Sector, as well as the Agriculture and Agriculture-Related Manufacturing Subsectors. In each of these cases, the data describes the aggregate performance across all relevant industries within each Sector and Subsector. Data from IMPLAN is in real (inflation-adjusted) dollars, such that comparisons of GSP and Sales from 2012-2022 reflect real changes outside of inflation trends. *Key Data Source: U.S. Census of Agriculture*

METHODOLOGY

Supply Chain Analysis

The supply chain of each cluster is evaluated by combining Industry Use data from the Detailed Industry by Industry (IxI) Social Accounting Matrix (SAM) with the relevant Regional Purchase Coefficient (RPC) for each industry within the clusters.

Within the IxI SAM, data shows the paying industry, receiving industry, and the total value of industry use purchases. Camoin Associates mapped the Paying Industry column to the clusters included in the study. After mapping paying industries to clusters, Camoin Associates aggregated the data for paying clusters to produce the supply chain tables for each cluster in the study. For example, to arrive at the total input purchases that Animal Production pays to Grain Farming, we added the total purchases of Grain Farming from Beef Cattle Ranching and Farming, Poultry and Egg Production, Dairy Cattle and Milk Production, etc. In this example, the sum total represents the total purchases that Animal Farming makes from Grain Farming.

The data describing the Percent Sourced From PA is derived from IMPLAN's Regional Purchasing Coefficients, which describe the proportion of total demand that is supplied by producers located within the region (Pennsylvania).

Exports and Imports

While this data is available on a monthly basis, trade data was compiled for this report on an annual basis for 2022 to avoid presenting the complex fluctuations and seasonal trends present in the monthly data. Data was compiled on a commodity-by-country basis for 2022 through the online data platform at https://usatrade.census.gov.

Key Data Sources: Domestic Trade – IMPLAN Data Library; Foreign Trade – USA Trade Online

KEY FINDINGS

The report illuminates trends in Pennsylvania's Agriculture Sector over the decade of 2012 to 2022. The Agriculture Sector supports a diverse range of industries, with 135 North American Industry Classification System (NAICS) codes grouped into clusters and analyzed to track trends across the sector, subclusters, and within clusters themselves. Findings underscore the breadth and complexity of Pennsylvania's Agriculture Sector, identify both strengths and challenges for the state, and offer valuable insights into the connectivity of industries and sector specializations.

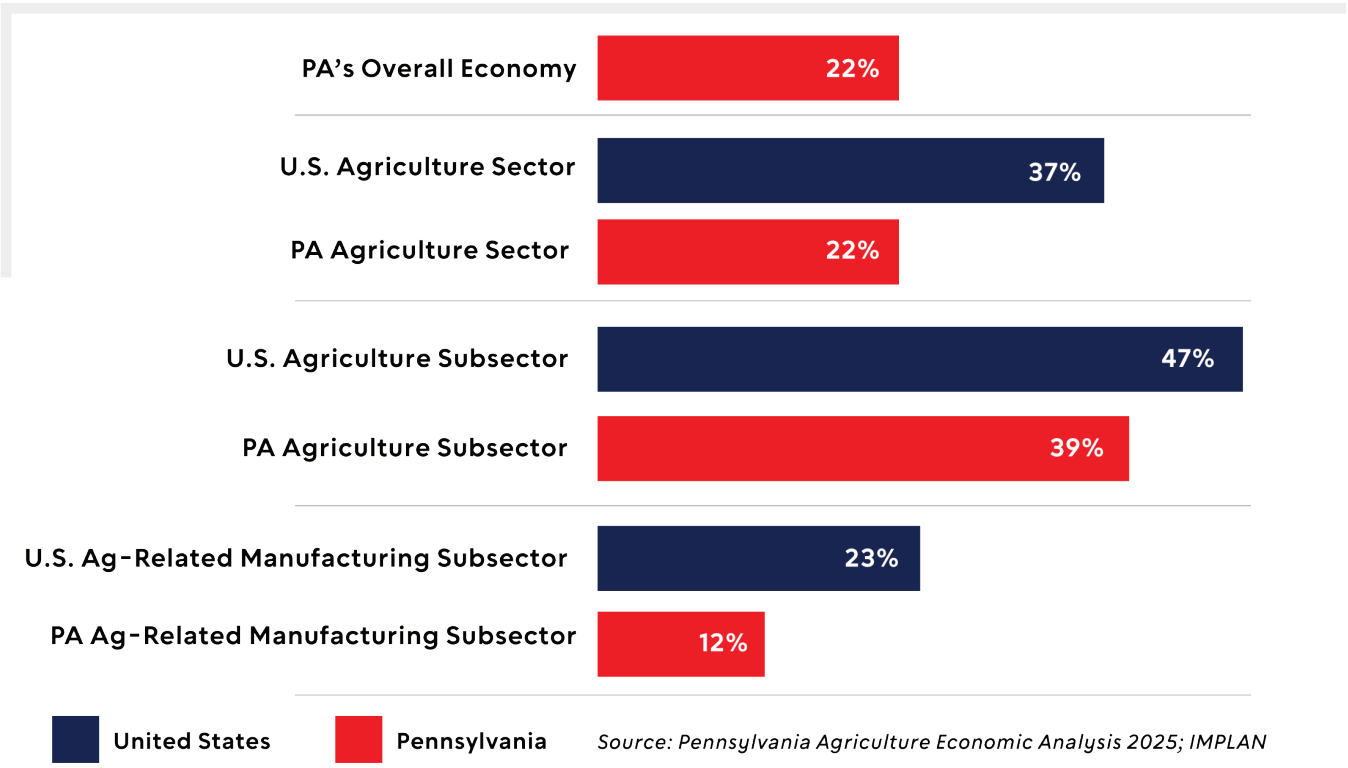
ECONOMIC BASE AND INDUSTRY ANALYSIS

This section reveals areas of growth, structural shifts, and Pennsylvania's competitive positioning, which may help public and private sector leaders make informed choices on policy, investments, workforce development, and supply chain resilience. Benchmarking agriculture's performance within the broader economy reveals opportunities to enhance the sector's long-term viability and economic contributions. While this analysis offers considerable amounts of data, three macro-level findings come to light:

- A broad look at the Agricultural Sector showed modest job growth with outsized increases in output, suggesting efficiency gains such as shifts toward higher-value activities and the adoption of new methods and technologies.
- Segmenting the Agriculture Sector into two distinct subsectors and eight clusters elevates significant differences in performance during the ten years, indicating even greater efficiencies in production and processing areas.
- While Pennsylvania's Agriculture Sector output was consistent with the broader Pennsylvania economy, it lagged in both job growth and output compared to the U.S. Agriculture Sector's performance during the period.

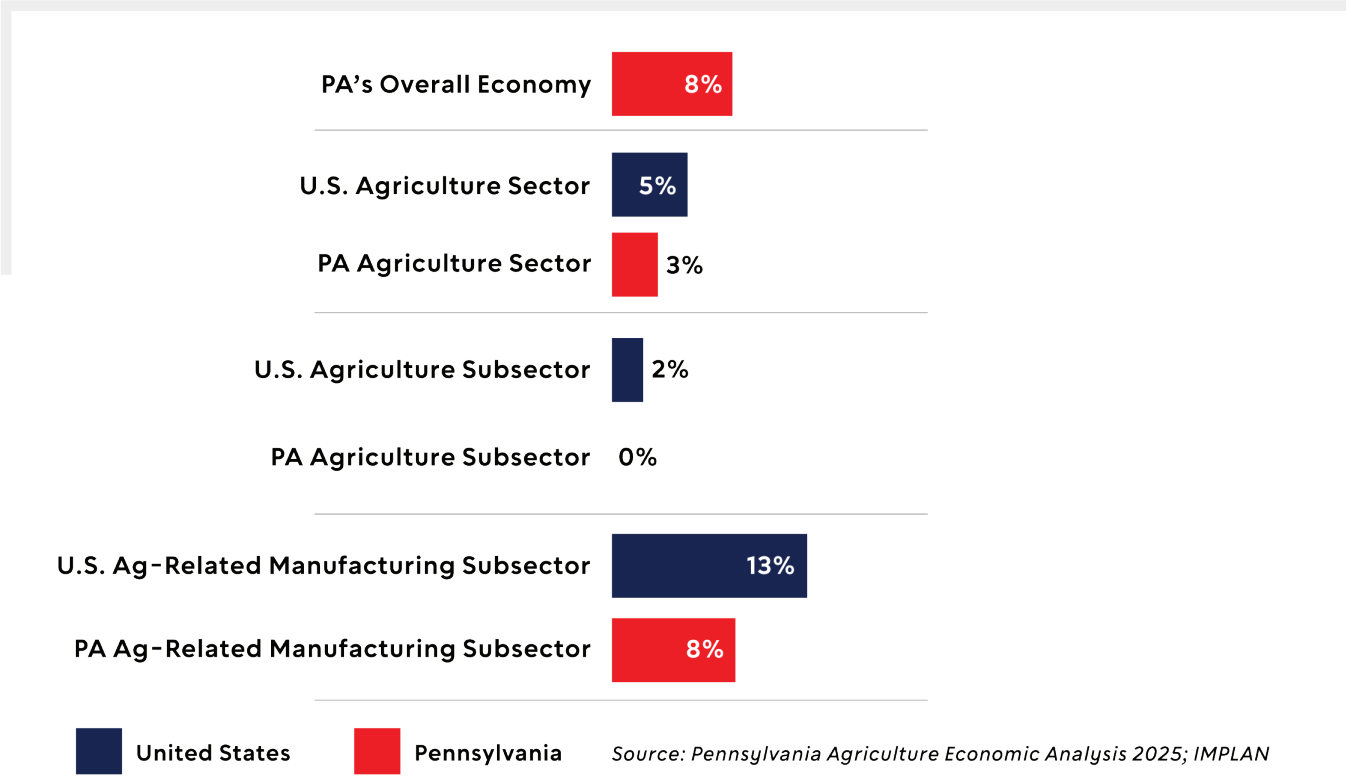
KEY FINDINGS

Change in GSP/GDP (2012-2022)



Source: Pennsylvania Agriculture Economic Analysis 2025; IMPLAN

Change in Jobs (2012-2022)



Source: Pennsylvania Agriculture Economic Analysis 2025; IMPLAN

STATE COMPARISON ANALYSIS

New York, Ohio, and Virginia were benchmarked as peer states based on their similar population sizes, rural-urban distribution, agricultural gross state product (GSP) contributions, and history as regional competitors in economic development. By comparing the states across factors like farm size distribution, economic performance, and top products using standard definitions, this analysis highlights Pennsylvania's relative strengths, weaknesses, and competitive positioning. Broad takeaways from this analysis include:

- Ohio outperformed Pennsylvania, Virginia, and New York in terms of jobs and output growth.
- Productivity-wise, Pennsylvania farmers' average sales per farm and per acre is relatively high compared to peer states, despite having the smallest average farm size.
- Farm size and scale are shifting in Pennsylvania, with clear trend lines between 2012 - 2022 of fewer farms and fewer acres in farming.

Comparison of Number, Average Sales, and Size of Farms by State

	Pennsylvania	New York	Virginia	Ohio
Number of Farms	49,053	30,650	38,995	76,009
Average Sales Per Farm	$209,618	$262,228	$140,838	$202,767
Average Sale per Acre	$1,457	$1,236	$751	$1,129
Average Acres per Farm	144	212	187	180
Total Land in Farms (acres)	7,058,325	6,502,286	7,309,687	13,625,346
Total Acres in State	28,635,053	30,159,098	25,268,550	26,149,606
Farm % of Total Land	25%	22%	29%	52%

Source: 2022 Census of Agriculture, 2020 Decennial Census Camoin Associates

SUPPLY CHAIN ANALYSIS

Analyzing Pennsylvania's agricultural supply chain, along with domestic and international trade patterns, can reveal business development opportunities, reduce supply chain vulnerabilities, and elevate Pennsylvania's role in feeding the nation and world. Pennsylvania's geographic location, its multimodal infrastructure, and its strengths across the supply chain are on display in the analysis, offering potential springboards for the future growth of the sector. Key takeaways include:

- Pennsylvania's long-standing strength and depth in the Agriculture Sector—spanning on-farm production, processing, and manufacturing—are evident in its robust supply chain, which relies on in-state sources to support each cluster and sustain industries both upstream and downstream.

KEY FINDINGS

- Pennsylvania has been an essential player in the national food supply, exporting more agricultural products ($48.3B) to other states than it imports ($46.3B), helping offset the U.S.'s position as a net importer of food since 2013.[3]
- Canada is Pennsylvania's top foreign trade partner, accounting for 35% of agricultural imports to the state ($4.3B), and 47% of the state's agricultural exports ($1.8B). Data suggests emerging markets, like the Dominican Republic and China, present opportunities for trade growth.

Pennsylvania Agriculture's Top 5 Foreign Export Partners, 2022

	Export Value	Pct. of Total Foreign Exports
Canada	$1,816,247,723.85	47%
China	$333,138,531.51	9%
Mexico	$274,686,979.29	7%
Dominican Republic	$190,066,863.89	5%
United Kingdom	$107,818,723.97	3%
All Other	*$1,134,943,569.35*	*29%*
Total, All Foreign Agriculture Exports	**$3,856,902,391.86**	**100%**

Source: USA Trade Online

Pennsylvania Agriculture's Top 5 Foreign Import Partners, 2022

	Import Value	Pct. of Total Foreign Imports
Canada	$4,300,575,159.59	35%
Mexico	$722,177,216.57	6%
Australia	$632,603,060.70	5%
Brazil	$501,568,718.44	4%
Chile	$482,252,333.69	4%
All Other	*$5,818,906,970.79*	*47%*
Total, All Foreign Agriculture Imports	**$12,458,083,459.78**	**100%**

Source: USA Trade Online

3 "U.S. agricultural import values outpaced export values in fiscal year 2023", USDA ERS 2024

BROAD THEMES ILLUMINATE AREAS FOR FOLLOW-ON WORK

Pennsylvania's Agriculture Sector is as complex as it is significant. Ensuring its long-term growth and sustainability—from on-farm to manufacturing plant—requires deeper and more nuanced analysis. This report should be considered the first step. Building on this baseline analysis, several areas emerge as opportunities for further research:

Pennsylvania's Agriculture Sector is vital to the state and national economy, yet a deeper and more nuanced understanding of its end-to-end value chain would allow for enhanced efficiency, greater economic impact, and increased competitiveness—from on-farm production to primary processing, end-stage manufacturing, wholesale, and retail.

Clear signals in key clusters require a deeper understanding of change drivers. Declines in crop production and forestry processing, alongside growth in food processing and alcohol processing, highlight changing dynamics. Identifying the specific drivers behind these trends is crucial for informed decision-making.

Pennsylvania's agricultural supply chain is extensive and well-positioned, yet gaps in key inputs like fertilizers, grains, and packaging remain. Continuing to strengthen market access through transportation and processing infrastructure while addressing input shortages will enhance resilience and reduce dependence on external suppliers.

Pennsylvania has important domestic and international trade relationships. As a net exporter within the U.S. with growing global trade, these strong relationships offer expansion opportunities, particularly with Canada and emerging markets like the Caribbean and Asia.

Our goal is that this report will provide industry leaders, policymakers, and stakeholders with critical data and framing to help understand the significance and complexity of Pennsylvania's agricultural sector and catalyze strategic action. Team Pennsylvania calls on stakeholders statewide to leverage these insights to drive investment, innovation, and policy advancements that, as envisioned by our co-founder, Governor Tom Ridge, position Pennsylvania as "a leader among states and a competitor among nations.

TEAM PENNSYLVANIA

FROM ANALYSIS TO ACTION

Report Overview

FROM ANALYSIS TO ACTION

In past iterations of our agriculture economic impact analyses, different organizations and stakeholders have leveraged that data to inform their policy platforms, their areas of focus, and their investments. As a nonpartisan organization, Team Pennsylvania brings objective third-party research and analysis to bear for these purposes, and we hope that this analysis again informs Pennsylvania's agricultural organizations, government, and industry leaders and their work.

Similarly, at Team Pennsylvania, we will be using these insights to guide our efforts to accelerate the commonwealth's long-term economic future. The following data-driven goals and actions are priorities that we believe Team Pennsylvania is well-positioned to advance, all of which are challenges that no single sector can tackle alone. Guided by the report's findings and the insights gained throughout its development, we have identified key priorities where Team Pennsylvania can drive meaningful progress. With input from our Board of Directors, the Advanced Agriculture Collaborative, and staff, we have identified three strategic goals with aligned objectives (see Table 1):

1. Harnessing Technology & AI for Industry Growth

Report findings: *Pennsylvania's Agriculture Sector has become more efficient, as evidenced by GSP growth outpacing job growth over the decade. However, it lags behind the national growth rate. A key factor may be that other states have more effectively leveraged economies of scale, despite Pennsylvania's advancements in technology, R&D, and improved farming techniques. The ongoing loss of farmland and the shift from mid-sized farms to both smaller and larger operations further underscore the urgency of maximizing efficiency with fewer resources.*

Given Pennsylvania's robust AI and robotics ecosystem and depth in agricultural research—anchored by institutions such as Carnegie Mellon University, the University of Pennsylvania, and Penn State University serving as the state's land-grant institution—we propose leveraging these assets to enhance efficiency across the agricultural sector, from on-farm operations, to processing, and manufacturing.

2. Enhancing International Trade Strategy

Report findings: *The Supply Chain Analysis acknowledges Pennsylvania's significant existing import and export trade relationships, particularly with Canada, and export opportunities within*

growing markets in the Caribbean and Asia.

Working closely with industry, international trade support entities, the Pennsylvania Department of Community and Economic Development, and the Pennsylvania Department of Agriculture, proposed actions are aimed at building strong relationships with trade partners and outlining specific agricultural trade opportunities that can grow Pennsylvania's global reach.

3. Strengthening Pennsylvania's Internal Value Chain

Report findings: *Pennsylvania exhibits strengths across the entire value chain, from raw material production to end-stage manufacturing. Particularly notable are the strengths in food processing and forest product manufacturing clusters, and the abundance of inputs produced in-state that could contribute to strengthening these clusters and the full value chain.*

Strengthening connections within Pennsylvania's Agriculture Sector can enhance supply chain efficiency, industry resiliency, and multiply economic impact.

By focusing on these strategic priorities, Team Pennsylvania will drive innovation, expand market opportunities, and solidify Pennsylvania's leadership in the future of agriculture.

Achieving these goals will require growing our network, forging strong partnerships, and funding initiatives through philanthropy, grants, and private-sector investments. We invite you to be part of this transformative effort. Become a partner by contributing financially or by participating in the Advanced Agriculture Collaborative. Together, we can build a thriving, innovative agricultural economy for our commonwealth.

DOWNLOAD THE FULL REPORT

ADVANCE TEAM PENNSYLVANIA'S MISSION

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Table 1: Analysis to Action Goals & Objectives

Goal 1: Harnessing Technology & AI for Industry Growth	
Objective 1.1	Assessing automation and AI adoption by examining current applications across industries that benefit from increased efficiency and those with competitive advantages, such as animal and crop production, forestry, and food processing.
Objective 1.2	Evaluating market-ready innovations by reviewing technologies like controlled environment agriculture and robotics for industry impact.
Objective 1.3	Identifying R&D and innovation opportunities by amplifying Pennsylvania-based research and technologies that drive sector growth.
Objective 1.4	Strengthening cross-sector collaboration by building connections between R&D institutions, funding sources, and industry stakeholders to accelerate adoption.
Goal 2: Enhancing International Trade Strategy	
Objective 2.1	Strengthening strategic trade partnerships by maintaining strong and stable trade relationships with top partners like Canada amid evolving market dynamics.
Objective 2.2	Expanding global reach by conducting deeper analysis to identify and assess the feasibility of new international markets that grow Pennsylvania's agricultural exports.
Goal 3: Strengthening Pennsylvania's Internal Value Chain	
Objective 3.1	Closing processing gaps by identifying bottlenecks and opportunities for investment in sectors of particular strength, like food processing and forestry-related clusters.
Objective 3.2	Strengthening intra-industry links by enhancing coordination across Pennsylvania's agricultural ecosystem to maximize economic impact and competitiveness.