THE PENNSYLVANIA AGRICULTURE ECONOMIC ANALYSIS

2025

TEAM PENNSYLVANIA

camoin associates

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Dear Champions of Pennsylvania's Agriculture Sector,

It is with great enthusiasm that I share with you **"The Pennsylvania Agriculture Economic Analysis 2025"** report.

Since 2016, Team Pennsylvania's partnership with the Pennsylvania Department of Agriculture and industry stakeholders has promoted agriculture's role in Pennsylvania's economy to a state-level conversation, encouraging leaders to focus on strengthening the sector and ensuring its long-term viability. As we share this next iteration of state-level analysis, here are a few things you should know:

1. This analysis forges considerable new ground. Beyond simply measuring agriculture's impact, the report recognizes that the sector is a complex and integral contributor to Pennsylvania's economy. Previous reports validated agriculture's economic significance, laying the foundation for numerous policies, investments, and partnerships. Now, it's time to build on that momentum. The agriculture sector's intricacies require a more nuanced look, and this report reveals strengths, vulnerabilities, and opportunities for growth, innovation, and investment within both agriculture and related manufacturing industries.

2. Team Pennsylvania is committed to accelerating agriculture's role as a critical driver of our economy. The agriculture sector is at the intersection of issues like food security, climate, and health, while also creating jobs and economic output far beyond the farm gate. Our goal is to provide insights that inspire action, improve outcomes, and support Pennsylvania agriculture's vitality into the future.

3. Acceleration requires partnership and we are dedicated to working with diverse leaders across the commonwealth to ensure that all Pennsylvanians are represented in our economic future. This spirit of collaboration is central to our organization, has shaped the process of drafting this report, and will be critical to advancing the recommendations that follow. We invite leaders to participate in our Advanced Agriculture Collaborative to help us drive this vision forward together.

A sincere thank you to Camoin Associates, our Team Pennsylvania Board of Directors, the Pennsylvania Department of Agriculture, and the many industry stakeholders whose dedication made this work possible.

We are confident this report will spark collaborations and will accelerate efforts aimed at propelling Pennsylvania's agricultural sector for generations to come. Thank you for your continued support as we build a stronger, more prosperous Pennsylvania.

In partnership,

Abby Smith
President and CEO
Team Pennsylvania

TEAM PENNSYLVANIA

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INTRODUCTION

Agriculture is a pillar of Pennsylvania's economy, shaping its communities, industries, and trade networks. As one of the most agriculturally diverse states in the nation, Pennsylvania produces a wide range of commodities, including dairy, livestock, fruits, vegetables, and processed foods and beverages. The state's agricultural sector not only supports thousands of businesses and jobs but also plays a critical role in sustaining local and regional food systems, supplying essential goods to domestic and international markets.

Over the past decade (2012-2022), Pennsylvania's Agriculture Sector has experienced significant shifts influenced by changing market demands, technological advancements, and evolving trade patterns. To better understand these changes and their implications for the future, Team Pennsylvania commissioned Camoin Associates to conduct a comprehensive analysis of the state's agricultural economy. This report, *The Pennsylvania Agriculture Economic Analysis 2025*, highlights key trends in Pennsylvania's dynamic Agriculture Sector based on extensive data collection and analysis.

The Pennsylvania Agriculture Economic Analysis 2025 is organized into three types of analyses, each answering different research questions:

1 | Economic Base and Industry Analysis

- How has the Agriculture Sector in Pennsylvania evolved over the past 10 years?
- How does Pennsylvania's Agriculture Sector compare to other state sectors and national trends across key indicators?

2 | State Comparison Analysis

How does a peer-state comparison of Pennsylvania, New York, Ohio, and Virginia reveal shifts and trends in the Agriculture Sector from 2012 to 2022?

3 | Supply Chain Analysis

- What are Pennsylvania's key supply chain components, and how are they economically linked?
- What are the key trends in agricultural exports and imports, domestically and internationally?

Definitions

The following terms and definitions can be found throughout each section of *The Pennsylvania Agriculture Economic Analysis 2025* report. Refer to Attachment D for more information on data sources.

Commodities vs. Industries: A commodity represents a single raw material or basic good like wheat or cheese. In contrast, an industry refers to a broader category encompassing multiple businesses involved in producing or processing a group of related goods.[1] For example, cheese is a commodity, while Cheese Manufacturing is an industry.

Demand: In this analysis, demand is the amount of an industry's goods and services purchased by businesses and consumers within a given region.

Earnings: Industry earnings are the total industry wages, salaries, supplements, and proprietor income in the region, divided by the number of jobs in the region.

Exports: The amount of money that is spent by industries located outside of Pennsylvania in exchange for goods or services produced by an industry located in the state. Exports can be either foreign or domestic.

Gross State Product: Gross state product (GSP) is the state-level gross domestic product (GDP). GSP measures the final market value of all goods and services produced in the region of study (i.e., within Pennsylvania). It is the sum of total industry earnings, taxes on production and imports, and profits, less subsidies.

When comparing changes in GSP over time, it is often discussed in two ways: Real GSP, which is adjusted for inflation, and Nominal GSP, which uses unadjusted values. All values discussed in this report are in Real GSP terms.

Jobs: A job is any position where a worker provides labor in exchange for monetary compensation. This includes those who work as employees for businesses (i.e., "wage and salary" employees) and proprietors who work for themselves. IMPLAN uses annual averages that account for seasonality. Due to limitations of source data, both full- and part-time jobs are included and counted equally (i.e., job counts are not adjusted to full-time equivalents).

Location Quotient: Location quotient (LQ) quantifies how concentrated a particular sector, cluster, or industry is in a region relative to the nation. It is calculated by comparing an industry's share of total employment in a region to its total share of employment in the nation.

For example, if the Leather Products Industry accounts for 10% of jobs in a given area but 1% nationally, then the area's Leather Products Industry has an LQ of 10.

Output: For all industries, output equals the value of production. In other words, output is an industry's total revenue (sales) minus net inventory change. In farm industries, output equals revenue, less net inventory change, and less on-farm consumption.[2]

Payrolled Business Locations: Also referred to as an "establishment," a payrolled business location is a single physical location of some economic activity (a business) used for reporting purposes in government data sources. A single company may have multiple establishments.

Sources: *Lightcast Knowledge Base, IMPLAN, and IBIS World*

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[1] Source: USA Trade Online

[2] For definition, see https://support.implan.com/hc/en-us/articles/115009668388-Output

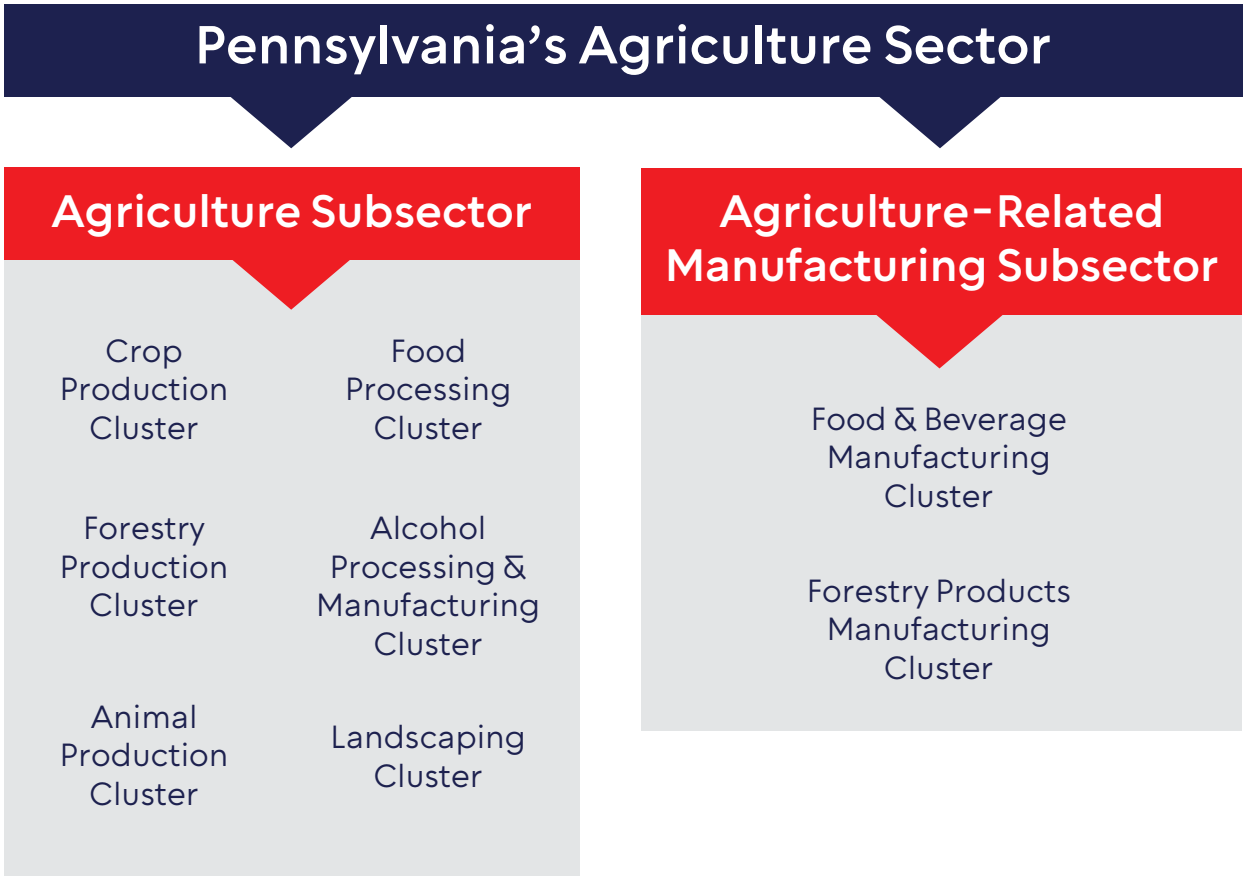
Defining Pennsylvania Agriculture

The impacts of Pennsylvania's agricultural operations extend far beyond the market value of goods produced and sold directly from farms. This expansive sector encompasses traditional crop and animal production operations, forestry operations, and the processing and manufacturing of agriculture-related products.

We employ a broad definition to account for all the interconnected elements that collectively drive Pennsylvania's Agriculture Sector's full economic impact. We then break down and further define Pennsylvania's Agriculture Sector using subsectors and clusters. This nested structure allows us to observe big-picture trends while also identifying the individual factors behind the trend.

All sectors, subsectors, and clusters are built using six-digit North American Industrial Classification System (NAICS) codes. Complete NAICS definitions are included in Attachment A. The figure below further explains the connection between Pennsylvania's Agriculture Sector, subsectors, and clusters.

Figure 1



"Processing" clusters within the Agriculture Subsector encompass industries involved in the initial conversion of raw agricultural materials, such as soybean and oilseed processing and sawmills.

"Manufacturing" clusters with the Agriculture-Related Manufacturing Subsector include industries that assemble processed ingredients, such as bread and bakery products and wood pallet manufacturing.

SUMMARY OF KEY FINDINGS

Economic Base and Industry Analysis[3]

Sector Analysis

Overall, Pennsylvania's Agriculture Sector experienced modest job growth between 2012 and 2022, adding 9,116 jobs (+3%). However, this growth lagged behind the total Pennsylvania economy, which saw an 8% increase. Six of the eight clusters experienced job growth, with the Food and Beverage Manufacturing Cluster experiencing the largest job increase.

As of 2022, Pennsylvania's Agriculture Sector had a location quotient (LQ) of 0.98, indicating that employment in Pennsylvania's total Agriculture Sector is almost as concentrated as national employment in the Agriculture Sector.

Table 1

Pennsylvania Agriculture Sector Economic Performance Metrics

Metric	Agriculture Subsector	Agriculture-Related Manufacturing Subsector	Total Agriculture Sector	Total Pennsylvania Economy
2012 Jobs	166,649	119,098	285,747	7,324,066
2022 Jobs	166,558	128,305	294,863	7,890,080
2012-2022 Change in Jobs	(92)	9,207	9,116	566,014
2012-2022 Pct. Change in Jobs	(0%)	8%	3%	8%
2022 Avg. Earnings Per Job	$45,873	$71,668	$57,097	$73,785
2022 Location Quotient	0.78	1.24	0.98	N/A
2012 GSP	$8.5B	$14.0B	$22.5B	$760.0B
2022 GSP	$11.8B	$15.7B	$27.5B	$929.6B
2012-2022 Pct. Change in GSP	39%	12%	22%	22%
2022 Share of State Jobs	2.1%	1.6%	3.7%	100%
2022 Share of State GSP	1.3%	1.7%	3.0%	100%

Source: IMPLAN

Data Note

- **Jobs and earnings data** discussed in the economic base and industry analysis section was collected via IMPLAN, which uses a combination of Bureau of Labor Statistics (BLS) Census of Employment and Wages (CEW) data, US Census Bureau's County Business Patterns (CBP), and the USDA Census of Agriculture.
- **Gross state product (GSP)** was collected via IMPLAN, which uses a combination of Bureau of Economic Analysis (BEA) National Income and Product Accounts (NIPA) tables, Regional Economic Accounts (REA), Bureau of Labor Statistics (BLS) Census of Employment and Wages (CEW), and the USDA Census of Agriculture.
- **Location quotient values** were calculated by Camoin Associates using IMPLAN jobs data.

[3] The economic base and industry analysis, on pages 9-25, provides more detailed data on these findings.

Subsector and Cluster Analysis

Agriculture Subsector: Despite Flat Job Growth, Productivity Increases

The Agriculture Subsector's employment remained relatively unchanged in the decade from 2012 to 2022 as major gains in clusters like Food Processing, Alcohol Processing, and Animal Processing were offset by major declines in Crop Production and Forestry Processing.

Despite flat employment, Pennsylvania's gross state product (GSP) grew by 39% in real terms during the same period, reaching $11.8 billion in 2022. The subsector accounts for 2.1% of Pennsylvania's jobs and 1.3% of its GSP.

Agriculture-Related Manufacturing Subsector: Strong Growth Over the Last Decade

The subsector's employment grew 8% from 2012-2022, on par with Pennsylvania's overall economy. Food and Beverage Manufacturing alone added over 6,800 jobs, while Forest Product Manufacturing added over 2,300.

Both clusters have location quotients above 1.0, indicating that Pennsylvania has a strong concentration of economic activity in the subsector. Meanwhile, Pennsylvania's GSP grew by 12% in real terms. The subsector accounts for 1.6% of Pennsylvania's jobs and 1.7% of its GSP.

Table 2

Subsector and Cluster Economic Performance Summary, Pennsylvania

Cluster	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Avg. Earnings Per Job	2022 Location Quotient	2012 GSP	2022 GSP	2012-2022 Pct. Change in Real GSP	Cluster Share of PA Jobs	Cluster Share of PA GSP
Agriculture Subsector	**166,649**	**166,558**	**(92)**	**0%**	**$45,873**	**0.78**	**$8.5B**	**$11.8B**	**39%**	**2.1%**	**1.3%**
Crop Production	51,259	40,414	(10,845)	(21%)	$24,240	0.73	$1.6B	$2.1B	33%	0.5%	0.2%
Animal Production	38,474	41,073	2,599	7%	$34,364	0.63	$1.9B	$2.8B	45%	0.5%	0.2%
Forestry Processing	16,009	13,565	(2,445)	(15%)	$86,002	0.98	$1.6B	$1.8B	11%	0.2%	0.2%
Food Processing	15,650	19,520	3,871	25%	$75,875	0.85	$1.2B	$1.8B	51%	0.2%	0.1%
Alcohol Processing and Manufacturing	2,360	8,142	5,782	245%	$48,288	1.01	$0.5B	$0.8B	85%	0.1%	0.0%
Landscaping	42,898	43,844	946	2%	$50,374	1.03	$1.8B	$2.5B	44%	0.6%	0.2%
Agriculture-Related Manufacturing Subsector	**119,098**	**128,305**	**9,207**	**8%**	**$71,668**	**1.24**	**$14.0B**	**$15.7B**	**12%**	**1.6%**	**1.7%**
Forest Product Manufacturing	44,145	46,502	2,358	5%	$82,827	1.64	$4.9B	$5.9B	20%	0.6%	0.5%
Food and Beverage Manufacturing	74,953	81,803	6,850	9%	$65,325	1.39	$9.1B	$9.8B	8%	1.0%	1.0%
Total Agriculture Sector	**285,747**	**294,863**	**9,116**	**3%**	**$57,097**	**0.98**	**$22.5B**	**$27.5B**	**22%**	**3.7%**	**3.0%**
Total PA Economy	**7,324,066**	**7,890,080**	**566,014**	**8%**	**$73,785**	**N/A**	**$760.0B**	**$929.6B**	**22%**	**100.0%**	**100.0%**

Source: IMPLAN

State Comparison Analysis[4]

The following peer-state comparison analysis **examines Pennsylvania alongside Ohio, New York, and Virginia** to evaluate shifts and trends in the Agricultural Sector from 2012 to 2022. These states were chosen due to their comparable population sizes, similar distributions of urban and agriculturally intensive areas, and the gross state product (GSP) contributions from the Agriculture, Forestry, Fishing, and Hunting Industry (NAICS 11).

Economic Strength and Growth in Agriculture

Pennsylvania's Agriculture Sector is vital to the state's economy, contributing $27.5 billion in GSP. The sector's growth of 22.4% in real terms from 2012 to 2022 lagged behind Ohio (38.1%) but outpaced New York (13.7%) and Virginia (0.2%), underscoring Pennsylvania's competitive economic performance in agriculture.

Efficiency and Productivity in Farming

Pennsylvania's agricultural operations are characterized by smaller farm sizes (average 144 acres) but high productivity, with average sales per farm reaching nearly $210,000, suggesting the efficiency of Pennsylvanian farmers.[5]

Significance of Food, Beverage, and Forestry Industries

Food and Beverage Manufacturing significantly contributes to Pennsylvania's economy, representing 1% of total state jobs and outperforming Virginia (0.4%) and Ohio (0.9%) in share. Meanwhile, Forest Product Manufacturing is key to Pennsylvania's economy and accounts for 16% of all jobs in the Agriculture sector, a larger share than New York (9%), Virginia (10%), and Ohio (14%).

Regional Specialization and Competitive Positioning

Pennsylvania exhibits strong regional specialization in key agricultural clusters, particularly Forest Product Manufacturing (LQ 1.64) and Food and Beverage Manufacturing (1.39), while Alcohol Processing and Manufacturing has a similar concentration as the nation (LQ 1.01). While there are opportunities to enhance specialization in Crop and Animal Production, the state demonstrates competitive performance in Food and Beverage Manufacturing (1.39) compared to neighboring states like Virginia (1.03) and Ohio (1.24).

Remarkable Growth in Alcohol Processing and Manufacturing

Alcohol Processing and Manufacturing stands out as a high-growth sector in Pennsylvania, with an 84.5% increase in real GSP from 2012 to 2022. This exceptional growth far exceeds that of Ohio (22.5%) and contrasts sharply with declines in New York (-12.1%) and Virginia (-17.8%), positioning Pennsylvania as a regional leader in this industry.

Opportunties for Growth and Diversification

Pennsylvania's overall Agriculture Sector has a similar concentration as the US (LQ 0.98), with significant strengths in Forest Products and Alcohol Manufacturing. However, opportunities exist to further bolster specialization in Animal Production and Food Processing and enhance the state's agricultural economic impact.

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[4] The state comparison analysis, on pages 26-40, provides more detailed data on these findings.

[5] USDA 2022 Census of Agriculture, https://www.nass.usda.gov/AgCensus/

Supply Chain Analysis[6]

The supply chain analysis provides insights into the industries and trade partners that supply goods and services to Pennsylvania's Agriculture Sector. This analysis aims to identify opportunities to reduce supply chain leakages while also exploring trends in the state's domestic and foreign agriculture imports and exports.

Supply Chain Analysis: Key Findings

Strong Local Supply Chains Across Clusters

Pennsylvania demonstrates significant strengths in local supply chains across multiple Agriculture clusters, with over 70% of the top inputs (including goods and services) in most clusters sourced from within the state. Key infrastructure inputs, such as transportation, warehousing, and storage, support these industries effectively.

For example, over 85% of the demand for Support Activities for Agriculture, Truck Transportation, and Maintenance/Repair of Structures is supplied within Pennsylvania. In addition, Animal Production (75%) and Landscaping services (75%) are also well-supported by in-state suppliers, showcasing resilience in foundational supply chain components.

Gaps in Key Input Sourcing

Despite strong local networks, several critical inputs are sourced predominantly by out-of-state suppliers. These gaps include fertilizers, grains, and containers (e.g., glass, metal, paperboard) across clusters such as Crop Production, Food and Beverage Manufacturing, and Alcohol Processing. Addressing these gaps presents opportunities to strengthen Pennsylvania's supply chains and reduce reliance on external suppliers.

Opportunities to Enhance Intra-Industry Trade

Clusters like Forestry Processing and Forest Products Manufacturing can benefit from improved intra-industry trade, such as increased local production of sawmill products, paper, and paperboard. Leveraging existing strengths to create more robust connections within the state could enhance overall supply chain efficiency and economic impact.

Sector-Specific Growth Opportunities

- **Crop and Animal Production:** Expanding in-state production of high-demand items like beef cattle, hogs, chicken, and soybeans to meet the growing needs of the Food Processing cluster
- **Landscaping and Floriculture:** Increasing local production of nursery and floriculture products to support landscaping services
- **Alcohol Processing:** Investing in local grain, fruit, and container manufacturing to address high levels of external sourcing

Innovation and Diversification Potential

Pennsylvania has a strong industrial transportation and warehouse infrastructure, with most of the agriculture-related demand being met by firms within the state. This indicates that Pennsylvania has the capacity to explore opportunities for innovation and diversification. For example, introducing new product lines in nursery and floriculture or expanding flour milling and grain farming for alcohol and food production clusters could capitalize on unmet demand and enhance regional economic resilience.

[6] The supply chain analysis, on pages 41-49, provides more detailed data on these findings.

Exports and Imports Analysis: Key Findings

Pennsylvania is a Net Exporter in Domestic Trade

In 2022, Pennsylvania was a net exporter in domestic trade, with total agricultural exports ($48.3 billion) surpassing agricultural imports ($46.3 billion). Leading export commodities included snack foods and processed meat, while top imports were processed meat, poultry, and beef cattle.[7,8]

- **Domestic Trade Exports:** Pennsylvania maintains an extensive agricultural trade network, exporting goods to 49 states and Washington, DC. The value of the state's exports grew by about 13%, or $5.6 billion, in real terms between 2012 and 2022. Notably, New York remained Pennsylvania's largest domestic export partner, while Florida emerged as a growing market for Pennsylvania products, reflecting diverse opportunities for trade expansion.[9]
- **Domestic Trade Imports:** Pennsylvania's domestic imports grew significantly, increasing by about 10% or $4.1 billion in real terms from 2012 to 2022. Ohio, Iowa, and Texas were the sources of this growth, with Ohio becoming Pennsylvania's top domestic import partner in 2022. These patterns emphasize Pennsylvania's strong ties to key agricultural-producing states.

Pennsylvania Expands into Emerging Foreign Exports and Import Markets

Pennsylvania's agricultural trade portfolio emphasizes its reliance on established partners like Canada while showcasing growth opportunities in underdeveloped and emerging markets across the Caribbean, Asia, and Europe. This diversified trade strategy positions Pennsylvania to adapt to changing market demands and enhance its agricultural trade influence globally.[10]

- **Expanding Foreign Agricultural Exports:** Pennsylvania's foreign agricultural exports grew by $77.9 million from 2012 to 2022, reaching $3.4 billion. Canada (47%) remained the top foreign export partner, while emerging markets like the Dominican Republic (5%) and China (9%) demonstrated significant growth, highlighting new opportunities in Caribbean and Asian markets.
- **Diverse Foreign Import Sources:** Pennsylvania's foreign agricultural imports grew by $4.7 billion from 2012 to 2022, totaling $11.4 billion in 2022. While Canada (35%) remained the dominant supplier, emerging markets such as Peru (3%), Italy (3%), and Australia (5%) showed remarkable growth, reflecting Pennsylvania's diversification in agricultural import sources.

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[7] A state might import and export the same commodity due to differences in quality, seasonality, trade agreements, consumer preferences, etc. For example, Pennsylvania may export high-quality meat processed from animal carcasses while importing a lower-grade version. Seasonality may also play a role. As an example, Pennsylvania may have an apple surplus and export apples during certain months, but during the winter months, they may need to import apples to satisfy demand. Another contributing factor may be the complex nature of trade agreements. Suppose 20 years ago, a producer was looking for a processor to purchase their goods, but none of the local processors had any demand. The producer may ultimately find a profitable relationship with a processor in another state. Even if local demand increases, that producer is unlikely to end a reliable/profitable trade relationship without some type of major incentive.

[8] Domestic trade data was collected via IMPLAN.

[9] The exports and imports analysis, on pages 50-56, provides more detailed data on this finding.

[10] Foreign trade data is from USA Trade Online.

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ECONOMIC BASE AND INDUSTRY ANALYSIS

The first section of the report is organized by Pennsylvania's Agriculture Sector Analysis, followed by the Cluster Analysis. The Economic Base and Industry Analysis includes:

Market Trends

- Job trends, employment concentration (location quotient), average earnings, and contribution to the gross regional product (GRP)
- Sales, growing and declining productions, and their economic implications

Farm Characteristics

- Number and types of farms driving agricultural production

PENNSYLVANIA'S AGRICULTURE SECTOR

Overall, Pennsylvania's Agriculture Sector experienced modest job growth between 2012 and 2022, adding 8,976 jobs (+3%). However, this growth lagged the total economy, which saw an 8% increase. Six of the eight clusters experienced job growth, with the Food and Beverage Manufacturing Cluster experiencing the largest job increase.

As of 2022, Pennsylvania's Agriculture Sector had a location quotient (LQ) of 0.98, indicating that employment in Pennsylvania's sector is almost as concentrated as national employment in the Agriculture Sector.

Performance Metrics

Jobs

There are nearly 300,000 jobs in Pennsylvania's Agriculture Sector, 3.7% of all jobs in Pennsylvania.

Job Growth

The Food and Beverage Manufacturing Cluster experienced the largest job increase, gaining nearly 7,000 positions during the 10-year study period. The Alcohol Processing and Manufacturing Cluster had the second highest job gains, increasing by nearly 6,000 jobs to 8,142, more than triple the cluster's 2012 job count. Crop Production and Forestry Processing both experienced job declines during the study period.

Key Clusters

Food and Beverage Manufacturing is the largest employer among the clusters and contributed significantly to the state's economy with $9.8 billion in gross state product (GSP). The Forest Product Manufacturing Cluster ($5.9 billion) was the second largest GSP contributor, followed by the Animal Production Cluster ($2.8 billion).

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2022 Share of State Jobs	2.1%	1.6%	3.7%	100%
2022 Share of State GSP	1.3%	1.7%	3.0%	100%

Source: IMPLAN

Average Earnings

$57,097 – lower than the statewide average of $73,785 across all sectors.

Location Quotient

Out of the clusters, Forestry Processing had the highest LQ in 2022 at 1.64. Three other clusters had LQs greater than 1: Food and Beverage Manufacturing (1.39), Landscaping (1.03), and Alcohol Processing and Manufacturing (1.01)

GSP

$27.5 billion, 3% of Pennsylvania's total GSP. From 2012-2022, all clusters experienced real GSP growth. As of 2022, the Food and Beverage Manufacturing Cluster contributes the largest share of GSP, totaling around $9.8 billion. During the study period, however, real GSP produced by the Alcohol Processing and Manufacturing Cluster grew by 85%, the largest percentage increase out of the eight clusters.

Among Pennsylvania's high-level sectors, the Agriculture Sector ranks 16th in terms of GSP.[11]

- The total Agriculture Sector accounts for 3.7% of jobs and 3% of GSP in Pennsylvania. In terms of GSP share of the statewide total, this aligns with the Accommodations and Food Services Sector and the Other Services (except Public Administration) Sector.

Table 3

Pennsylvania Economy Overview

Sector	2022		2012-2022 Pct. Change		2022 Share of PA Total	
	Jobs	GSP	Jobs	GSP	Jobs	GSP
Health Care and Social Assistance	1,118,903	$91.4B	10%	25%	14.2%	9.8%
Retail Trade	671,033	$50.2B	(3%)	48%	8.5%	5.4%
Professional, Scientific, and Technical Services	640,405	$85.4B	17%	31%	8.1%	9.2%
Administrative Government	618,557	$73.4B	(7%)	6%	7.8%	7.9%
Accommodation and Food Services	593,372	$30.6B	7%	19%	7.5%	3.3%
Manufacturing	593,118	$98.5B	(1%)	21%	7.5%	10.6%
Other Services (except Public Administration)	507,279	$28.0B	8%	17%	6.4%	3.0%
Transportation and Warehousing	450,937	$39.3B	69%	66%	5.7%	4.2%
Finance and Insurance	444,221	$64.9B	13%	32%	5.6%	7.0%
Construction	429,169	$37.5B	12%	12%	5.4%	4.0%
Administrative and Support and Waste Management and Remediation Services	392,844	$24.7B	6%	28%	5.0%	2.7%
Real Estate and Rental and Leasing	349,252	$115.8B	26%	23%	4.4%	12.5%
Total Agriculture Sector	294,863	$22.5B	3%	22%	3.7%	3.0%
Wholesale Trade	231,062	$51.5B	(5%)	16%	2.9%	5.5%
Educational Services	214,190	$14.1B	7%	9%	2.7%	1.5%
Agriculture Subsector	166,558	$11.8B	(0%)	39%	2.1%	1.3%
Management of Companies and Enterprises	154,314	$28.3B	16%	27%	2.0%	3.0%
Arts, Entertainment, and Recreation	148,791	$8.5B	(1%)	(3%)	1.9%	0.9%
Agriculture-Related Manufacturing Subsector	128,305	$15.7B	8%	12%	1.6%	1.7%
Information	106,938	$40.3B	2%	(6%)	1.4%	4.3%
Agriculture, Forestry, Fishing and Hunting	86,447	$5.4B	(10%)	42%	1.1%	0.6%
Government Enterprises	81,363	$9.3B	11%	51%	1.0%	1.0%
Mining, Quarrying, and Oil and Gas Extraction	33,201	$17.9B	(42%)	40%	0.4%	1.9%
Utilities	24,683	$14.6B	2%	3%	0.3%	1.6%
Total	**7,890,080**	**$929.6B**	**8%**	**22%**		

Source: IMPLAN

[11] **Establishments in Other Services (except Public Administration) Sector** are engaged in activities, such as promoting or administering religious activities, grantmaking, advocacy, providing drycleaning and laundry services, personal care services, death care services, etc. **Establishments in the Agriculture, Forestry, Fishing, and Hunting Sector** partially overlap with the Agriculture Subsector but exclude light food processing activity and include hunting and fishing, which are not part of the Agriculture Subsector. Similarly, Agriculture-Related Manufacturing activities are included in the broader **Manufacturing Sector**. (Source: North American Industry Classification System).

- From 2012-2022, the Agriculture Subsector was the sixth-fastest growing in Pennsylvania in terms of GSP. The total Agriculture Sector ranks 13th, and Agriculture-Related Manufacturing ranks 18th.
- The total Agriculture Sector ranks 13th in the state by the number of jobs, taking up a similar share as Real Estate and Wholesale Trade.
- Based on job growth, the Agriculture-Related Manufacturing Subsector is the tenth-fastest growing among major sectors in Pennsylvania, at 8% from 2012-2022. This compares to other sectors such as Health Care and Social Assistance and Accommodation and Food Services and matches the overall job growth rate during the same period.

CLUSTER ANALYSIS[12]


Crop Production


Animal Production


Forestry Processing


Landscaping


Food Processing


Alcohol Processing & Manufacturing


Forest Products Manufacturing


Food & Beverage Manufacturing

Key Findings: Overview of Cluster Economic Performance

Agriculture: Despite Flat Job Growth, Productivity Increases

The Agriculture Subsector's employment remained relatively unchanged from 2012 to 2020, as major gains in clusters like Food Processing, Alcohol Processing, and Animal Processing were offset by major declines in Crop Production and Forestry Processing. Despite flat employment growth, Pennsylvania's real gross state product (GSP) grew by 39% during the same period, reaching $11.8 billion in 2022. The subsector accounts for 2.1% of Pennsylvania's jobs and 1.3% of Pennsylvania's GSP.

Table 2

Subsector and Cluster Economic Performance Summary, Pennsylvania

Cluster	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Avg. Earnings Per Job	2022 Location Quotient	2012 GSP	2022 GSP	2012-2022 Pct. Change in Real GSP	Cluster Share of PA Jobs	Cluster Share of PA GSP
Agriculture Subsector	**166,649**	**166,558**	**(92)**	**0%**	**$45,873**	**0.78**	**$8.5B**	**$11.8B**	**39%**	**2.1%**	**1.3%**
Crop Production	51,259	40,414	(10,845)	(21%)	$24,240	0.73	$1.6B	$2.1B	33%	0.5%	0.2%
Animal Production	38,474	41,073	2,599	7%	$34,364	0.63	$1.9B	$2.8B	45%	0.5%	0.2%
Forestry Processing	16,009	13,565	(2,445)	(15%)	$86,002	0.98	$1.6B	$1.8B	11%	0.2%	0.2%
Food Processing	15,650	19,520	3,871	25%	$75,875	0.85	$1.2B	$1.8B	51%	0.2%	0.1%
Alcohol Processing and Manufacturing	2,360	8,142	5,782	245%	$48,288	1.01	$0.5B	$0.8B	85%	0.1%	0.0%
Landscaping	42,898	43,844	946	2%	$50,374	1.03	$1.8B	$2.5B	44%	0.6%	0.2%
Agriculture-Related Manufacturing Subsector	**119,098**	**128,305**	**9,207**	**8%**	**$71,668**	**1.24**	**$14.0B**	**$15.7B**	**12%**	**1.6%**	**1.7%**
Forest Product Manufacturing	44,145	46,502	2,358	5%	$82,827	1.64	$4.9B	$5.9B	20%	0.6%	0.5%
Food and Beverage Manufacturing	74,953	81,803	6,850	9%	$65,325	1.39	$9.1B	$9.8B	8%	1.0%	1.0%
Total Agriculture Sector	**285,747**	**294,863**	**9,116**	**3%**	**$57,097**	**0.98**	**$22.5B**	**$27.5B**	**22%**	**3.7%**	**3.0%**
Total PA Economy	**7,324,066**	**7,890,080**	**566,014**	**8%**	**$73,785**	**N/A**	**$760.0B**	**$929.6B**	**22%**	**100.0%**	**100.0%**

Source: IMPLAN

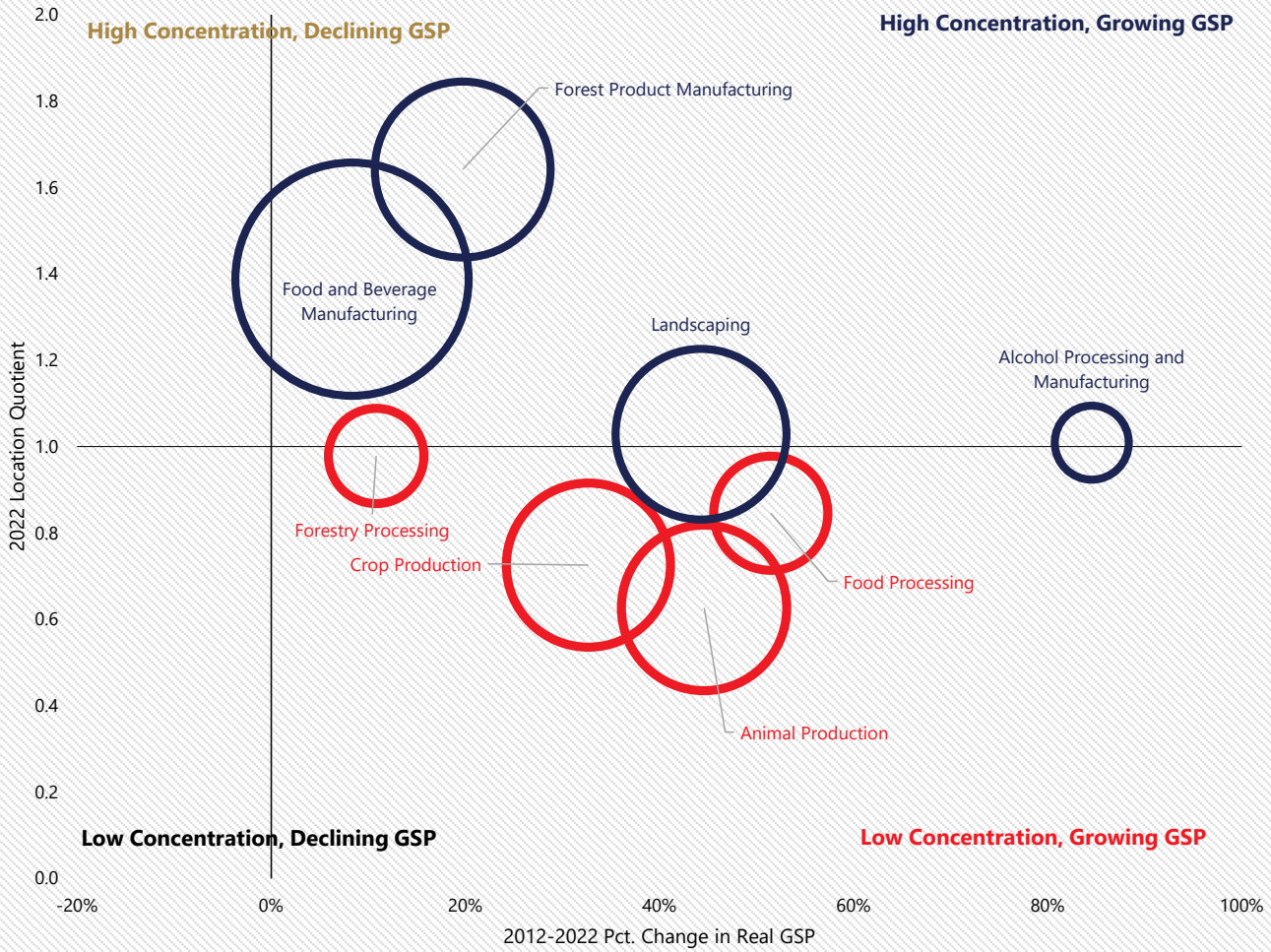
[12] Please see Attachment B for additional detailed industry trends tables.

Agriculture-Related Manufacturing: Strong Growth Over the Last Decade

The subsector's employment grew 8% from 2012 to 2022, on par with Pennsylvania's overall economy. Food and Beverage Manufacturing alone added over 6,800 jobs, while Forest Product Manufacturing added over 2,300. Both clusters have location quotients above 1, indicating that Pennsylvania has a strong concentration of economic activity in the subsector. Meanwhile, GSP grew by 12%. The subsector accounts for 1.6% of Pennsylvania's jobs and 1.7% of the state's GSP.

Figure 2

Cluster Economic Performance Summary, Pennsylvania
Bubble size indicates 2022 job count



Source: IMPLAN

Growth and Concentration Dynamics

High Concentration and Growing GSP

Four of the eight clusters fall into this category, with higher employment concentration and a growing GSP from 2012 to 2022. These include Food and Beverage Manufacturing, Forest Product Manufacturing, Landscaping, and Alcohol Processing and Manufacturing.

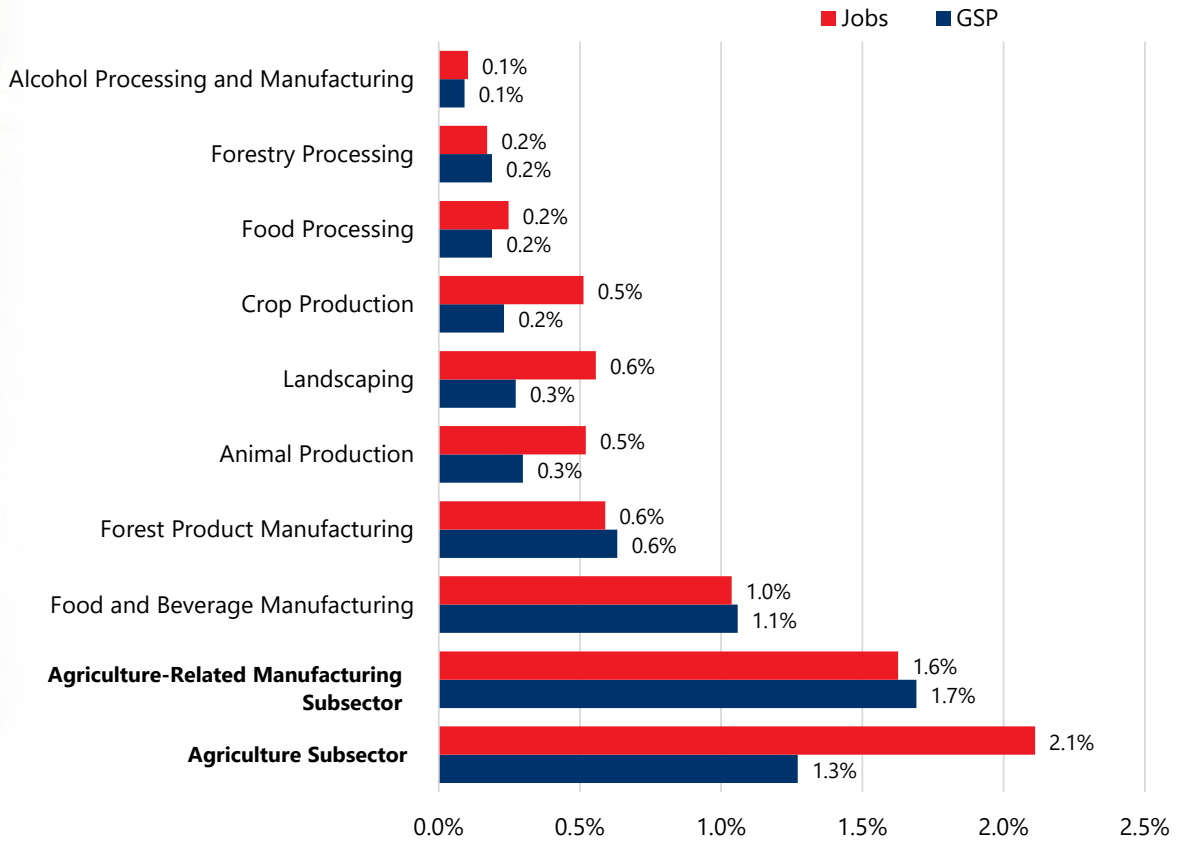
Low Concentration and Growing GSP

Although these clusters have a relatively lower employment concentration compared to the US, they are growing in terms of GSP. Animal Production, Food Processing, Crop Production, and Forestry Processing fit into this category.

The Agriculture Subsector accounts for 1.3% of GSP and 2.1% of total jobs, indicating its larger share of employment relative to its GSP. The Agriculture-Related Manufacturing Subsector contributes 1.7% to GSP and 1.6% to jobs, showcasing a near balance between its economic and employment contributions.

Figure 3

Subsector and Cluster Share of Pennsylvania Economy



Source: IMPLAN

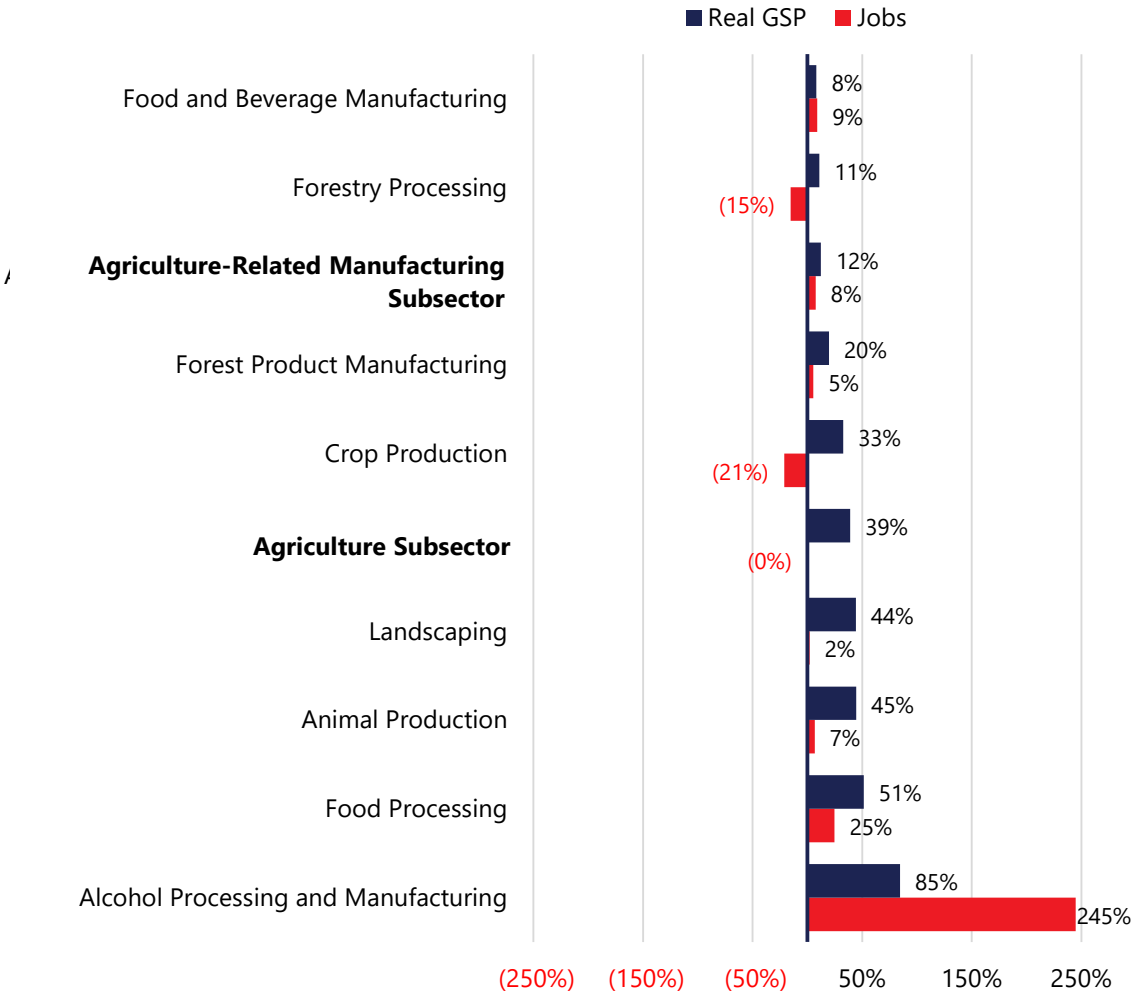
Note: Data reflects Clusters, except for Subsectors, which are bolded.

Food and Beverage Manufacturing represents 1.1% of GSP and 1% of jobs among the clusters. Other clusters, including Animal Production and Crop Production, have the opposite relationship with jobs and GSP, with a relatively higher share of employment (0.5% each) than their GSP contributions (0.3% and 0.2%, respectively). This dynamic reflects more labor-intensive operations. Landscaping, at 0.3% of GSP and 0.6% of jobs, also aligns with this trend of employment outpacing GSP contribution.

The Food Processing, Forestry Processing, and Alcohol Processing and Manufacturing Clusters generate smaller contributions to GSP and employment, ranging from 0.1% to 0.2% for both metrics. The Agriculture-Related Manufacturing Subsector experienced moderate job growth (8%) and GSP (12%). This suggests productivity improvements, potentially through technological advancements or higher value-added production processes.

Figure 4

2012-2022 Change in Jobs and Real GSP in Pennsylvania



Source: IMPLAN
Note: Data reflects Clusters, except for Subsectors, which are bolded.

The Agriculture Subsector remained stable regarding jobs (0% change) but achieved a substantial GSP increase (39%), indicating enhanced efficiency or a shift towards higher-value activities.

At the cluster level, Alcohol Processing and Manufacturing stands out with the highest growth in both jobs (245%) and GSP (85%). While the growth in this sector is substantial, the cluster is still a relatively small contributor to the state's overall economy, as shown in the chart above.

Food Processing and Animal Production also saw increases in GSP at 51% and 45%, respectively, accompanied by 25% and 7% job growth. Similarly, Landscaping showed modest job growth (2%) but a notable GSP increase (44%).

While Crop Production (-21%) and Forestry Processing (15%) experienced declining employment over the decade, both still saw gains in real GSP. This indicates that the workers within these clusters became more efficient despite job declines, potentially due to technological advancement.

Pennsylvania's overall Agriculture Sector grew at a slightly slower rate than the US Agriculture Sector from 2012 to 2022.

Performance Alignment

Pennsylvania and the US saw job and GSP growth in Food Processing and Alcohol Processing and Manufacturing, with Pennsylvania outperforming the US in job and GSP growth in these clusters.

Divergences

Pennsylvania's Crop Production and Forestry Processing clusters performed notably worse than national trends in jobs and GSP growth, although the nation also experienced declining jobs in these clusters.

Standout Performers

- Alcohol Processing and Manufacturing emerged as the fastest-growing cluster in Pennsylvania, with large increases in jobs (245%) and GSP (85%).
- Food Processing was another key growth cluster, reflecting a robust industry trend within Pennsylvania.

Table 4

US Economic Performance Comparison by Subsector and Cluster

	2012-2022 Pct. Job Change		2012-2022 Pct. GSP Change	
	Pennsylvania	US	Pennsylvania	US
Agriculture Subsector	**(0%)**	**2%**	**39%**	**47%**
Crop Production	(21%)	(9%)	33%	65%
Animal Production	7%	11%	45%	46%
Forestry Processing	(15%)	(8%)	11%	33%
Food Processing	25%	14%	51%	38%
Alcohol Processing and Manufacturing	245%	129%	85%	37%
Landscaping	2%	(5%)	44%	47%
Agriculture-Related Manufacturing Subsector	**8%**	**13%**	**12%**	**23%**
Forest Product Manufacturing	5%	13%	20%	49%
Food and Beverage Manufacturing	9%	14%	8%	15%
Total Agriculture Sector	**3%**	**5%**	**22%**	**37%**

Source: IMPLAN, Camoin Associates

Crop Production Cluster

EXAMPLES: Oilseed Farming ◉ Grain Farming ◉ Vegetable & Melon Farming ◉ Fruit Farming

Trends Analysis

The Crop Production Cluster includes eight industries related to growing fruits, vegetables, turf, grains, and other row crops.

Jobs in the Crop Production Cluster declined by 21% in Pennsylvania from 2012 to 2022. This decline contrasts with the state's 8% overall job growth across all sectors and a 3% increase in the state's Agriculture Sector. Six of the Crop Production Cluster's eight industries experienced declines during the study period. The Vegetable and Melon Farming Industry experienced the largest job decline, losing nearly 6,000 positions during the study period. The cluster has an LQ of 0.73, meaning it is less concentrated in Pennsylvania than in the US.

Table 5

Pennsylvania Crop Production Cluster Economic Performance Metrics

2012 Jobs	51,259
2022 Jobs	40,414
2012-2022 Change in Jobs	(10,845)
2012-2022 Pct. Change in Jobs	(21%)
2022 Avg. Earnings Per Job	$24,240
2022 Location Quotient	0.73
2012 GSP	$1.6 B
2022 GSP	$2.1 B
2012-2022 Pct. Change in GSP	33%
2022 Share of Regional Jobs	0.5%
2022 Share of Regional GSP	0.2%

Source: IMPLAN

[13] A detailed table showing industry-level performance is included in Attachment B.

2022 Performance Metrics[13]

Jobs | There were over 40,000 jobs in Crop Production in Pennsylvania, representing 0.5% of all jobs in the state.

Jobs Change | Overall, jobs in Crop Production declined by 21%, representing nearly 11,000 fewer jobs since 2012. Job growth was observed in the Oil Seed Farming and Tobacco Farming Industries. All other industries in the cluster declined during the study period.

GSP | $2.1 billion, 0.2% of Pennsylvania's total GSP. From 2012 to 2022, GSP in Crop Production grew 33% in Pennsylvania. GSP declined for Vegetable and Melon Farming (-77%) and Fruit Farming (-27%), although this loss was offset by major gains in Grains (121%), Oilseeds (218%), and Tobacco Farming (132%).

Key Industries | Greenhouse, Nursery, and Floriculture production accounted for around 25% of all jobs and 33% of the cluster's total GSP. This includes mushroom, sod production, and any crops grown under cover. Grain Farming is the second-largest industry in terms of GSP, contributing 24% of the cluster's total ($515.6 million). The All Other Crop Farming Industry supported the largest number of cluster jobs at about 20,000 in 2022. This industry includes hay, seeds, cuttings, and miscellaneous crops other than oilseeds, grains, vegetables and melons, fruit, tree nuts, greenhouse/floriculture, or tobacco.

Location Quotient | The Greenhouse, Nursery, and Floriculture Production Industry (1.80) and the Tobacco Farming Industry (1.26) had LQs greater than 1.0. The other six crop production industries had LQ values below 1.0.

Average Annual Earnings | $24,240, which is lower than the statewide average ($73,785) across all sectors and below the average for all jobs in the Agriculture Sector ($57,097).

Animal Production Cluster

EXAMPLES: Beef Cattle Ranching & Farming ◉ Dairy Cattle & Milk Production ◉ Poultry & Egg Production ◉ Animal Production, Except Cattle Poultry, & Eggs

Trends Analysis

The Animal Production Cluster comprises six industries, including beef production, dairy production, and poultry and egg production.

Jobs in the Animal Production Cluster grew by 7% in Pennsylvania from 2012 to 2022, which was in line with the state's overall growth of 8% across all sectors and exceeded the 3% growth observed in the Agricultural Sector. As of 2022, the cluster's LQ was 0.63, which shows that the Animal Production Cluster is less concentrated in Pennsylvania than in the US.

Table 6
Pennsylvania Animal Production Cluster Economic Performance Metrics

2012 Jobs	38,474
2022 Jobs	41,073
2012-2022 Change in Jobs	2,599
2012-2022 Pct. Change in Jobs	7%
2022 Avg. Earnings Per Job	$34,364
2022 Location Quotient	0.63
2012 GSP	$1.9 B
2022 GSP	$2.8 B
2012-2022 Pct. Change in GSP	45%
2022 Share of Regional Jobs	0.5%
2022 Share of Regional GSP	0.2%

Source: IMPLAN

[14] A detailed table showing industry-level performance is included in Attachment B.

2022 Performance Metrics[14]

Jobs | There were over 41,000 jobs in Animal Production in Pennsylvania, 0.5% of all jobs in Pennsylvania.

Jobs Change | Overall, jobs in Animal Production grew by 7%, representing an increase of 2,600 jobs since 2012. All industries except Beef Cattle Ranching and Farming grew over the decade, although most of the cluster's growth was driven by Poultry and Egg Production, which nearly doubled and added 2,800 jobs from 2012 to 2022.

GSP | $2.8 billion, 0.3% of Pennsylvania's total GSP. From 2012 to 2022, GSP in Animal Production grew by 45%, with five industries in the cluster seeing growth. Poultry and Egg Production grew the fastest, more than doubling from $190 million to $420 million.

Key Industries | Dairy Cattle and Milk Production contributed $711 million to Pennsylvania's GSP in 2022, accounting for 26% of the cluster's contribution to GSP.

Location Quotient | Two of the cluster's five industries had LQs greater than 1.0. The Dairy Cattle and Milk Production Industry had an LQ of 1.60, and the Poultry and Egg Production Industry's LQ was 1.19, indicating strong employment concentrations relative to the US.

Average Annual Earnings | $34,364, which is lower than the statewide average ($73,785) across all sectors and below the average for all jobs in the Agriculture Sector ($57,097).

Forestry Production Cluster

EXAMPLES: Sawmills ◉ Pulp Mills ◉ Paper Mills ◉ Wood Preservation

Trends Analysis

The Forestry Processing Cluster includes industries related to logging, timber, and millwork. This cluster can be thought of as the first step in forestry operations. The second step, Forest Products Manufacturing, is evaluated later in this report.

Jobs in Forestry Processing declined by 16% in Pennsylvania from 2012 to 2022. This decline contrasts with the state's overall job growth of 8% across all sectors and a 3% increase in the state's Agriculture Sector. All related industries except Wood Preservation declined over the decade. Despite these job declines, the cluster still has an LQ of 0.99, which means it is almost as concentrated in Pennsylvania as in the US.

Table 7
Pennsylvania Forestry Processing Cluster Economic Performance Metrics

2012 Jobs	16,009
2022 Jobs	13,565
2012-2022 Change in Jobs	(2,445)
2012-2022 Pct. Change in Jobs	(15%)
2022 Avg. Earnings Per Job	$86,002
2022 Location Quotient	0.98
2012 GSP	$1.6 B
2022 GSP	$1.8 B
2012-2022 Pct. Change in GSP	11%
2022 Share of Regional Jobs	0.2%
2022 Share of Regional GSP	0.2%

Source: IMPLAN

2022 Performance Metrics[15]

Jobs | There were approximately 13,500 jobs in the Forestry Processing Cluster in Pennsylvania, 0.2% of all jobs in the state.

Jobs Change | Overall, jobs in this cluster have declined over the last 10 years. The exception is the Wood Preservation Industry, which grew by 31%, or 92 jobs, during the study period. Paperboard Mills lost the largest number of jobs, declining by 1,000 or 32%.

GSP | $1.8 billion, 0.2% of Pennsylvania's total GSP. Overall, the cluster's GSP grew by 11% from 2012 to 2022. Growth in all other industries within the cluster offset a declining GSP in industries like Paper Mills and Paperboard Mills. Commercial Logging and Sawmills grew by 51% and 46%, respectively.

Key Industries | Paper Mills generated about $651 million in GSP in 2022, accounting for about 37% of the cluster's total GSP. However, over the last decade, the industry's jobs have declined by 32%, and its GSP has declined by 18%. The next largest contributor was Sawmills, generating around $349 million, or 20% of the cluster's total GSP. Sawmills and Commercial Logging Operations supported the most jobs, accounting for more than 55% of the cluster's total jobs.

Location Quotient | Four industries in the Forestry Processing Cluster had LQs greater than 1.0. Forestry, Forest Products, and Timber had the highest LQ of 1.23, followed by Sawmills (1.21), Other Millwork Including Flooring (1.13), and Paper Mills (1.07).

Average Annual Earnings | $86,002, which is higher than the statewide average ($73,785) across all sectors and above average for all jobs in the Agriculture Sector ($57,097).

[15] A detailed table showing industry-level performance is included in Attachment B.

Landscaping Cluster

EXAMPLES: Arborist Services ◉ Lawn Seeding & Maintenance Services ◉ Maintenance & Installation of Turf Fields ◉ Shrub Services (e.g., bracing, planting, pruning, removal, etc.)

Trends Analysis

The Landscaping Cluster is composed of one industry: Landscape and Horticultural Services. This industry comprises establishments primarily providing landscape care and maintenance services and/or installing trees, shrubs, plants, lawns, or gardens. It also includes establishments that provide landscape design services and/or construction of walkways, retaining walls, decks, fences, ponds, and similar structures.[16]

Table 8
Pennsylvania Landscaping Cluster Economic Performance Metrics

2012 Jobs	42,898
2022 Jobs	43,844
2012-2022 Change in Jobs	946
2012-2022 Pct. Change in Jobs	2%
2022 Avg. Earnings Per Job	$50,374
2022 Location Quotient	1.03
2012 GSP	$1.8 B
2022 GSP	$2.5 B
2012-2022 Pct. Change in GSP	44%
2022 Share of Regional Jobs	0.6%
2022 Share of Regional GSP	0.2%

Source: IMPLAN

Jobs in the Landscaping Cluster increased by 2% in Pennsylvania from 2012 to 2022. This growth lags behind the 8% job growth observed across all sectors at the state level but is more in line with the 3% increase in the state's Agriculture Sector. The cluster also has an LQ of 1.03, meaning it is slightly more concentrated in the state than in the nation.

2022 Performance Metrics[17]

Jobs | There were approximately 43,844 jobs in the Landscaping Cluster in Pennsylvania, 0.6% of all jobs in Pennsylvania.

Jobs Change | Overall, jobs in this cluster have increased by about 946 (2%) over the last 10 years.

GSP | $2.5 billion, 0.3% of Pennsylvania's total GSP. This cluster's GSP grew by 44% from 2012-2022.

Location Quotient | 1.03, indicating that the Landscaping Cluster is slightly more concentrated in Pennsylvania than in the US.

Average Annual Earnings | $50,374, which is lower than the statewide average ($73,785) across all sectors and below average for all jobs in the Agriculture Sector ($57,097).

[16] Source: https://www.naics.com/naics-code-description/?code=561730

[17] A detailed table showing industry-level performance is included in Attachment B.

Food Processing Cluster

EXAMPLES: Flour Milling ◉ Fats & Oils Refining & Blending ◉ Soybean & Other Oilseed Processing ◉ Meat Processing

Trends Analysis

The Food Processing Cluster includes industries related to flour milling, oil seed processing, and animal processing.

Jobs in the Food Processing Cluster grew by 25% in Pennsylvania from 2012 to 2022, far outpacing the state's overall growth of 8% across all sectors. These job gains were driven by growth in the Animal Slaughtering (other than Poultry) and the Meat Processed from Carcasses industries. The cluster's LQ of 0.84 indicates that Food Processing is less concentrated in Pennsylvania than in the nation.

Table 9
Pennsylvania Food Processing Cluster Economic Performance Metrics

2012 Jobs	15,650
2022 Jobs	19,520
2012-2022 Change in Jobs	3,871
2012-2022 Pct. Change in Jobs	25%
2022 Avg. Earnings Per Job	$75,875
2022 Location Quotient	0.85
2012 GSP	$1.2 B
2022 GSP	$1.8 B
2012-2022 Pct. Change in GSP	51%
2022 Share of Regional Jobs	0.2%
2022 Share of Regional GSP	0.1%

Source: IMPLAN

2022 Performance Metrics[18]

Jobs | There were approximately 19,520 jobs in the state's Food Processing Cluster, 0.2% of all jobs in Pennsylvania.

Jobs Change | Overall, jobs in this cluster have increased over the last 10 years. The key exception is the Poultry Processing Industry, which declined by 5%, or 226 jobs, during the study period. Meat Processed from Carcasses experienced the largest job gains, increasing by almost 50% from 4,782 to 7,115 jobs in 2012-2022.

GSP | $1.8 billion, 0.2% of Pennsylvania's total GSP. The Food Processing Cluster's total GSP grew by 51% from 2012 to 2022, with gains driven by the Animal Slaughtering (other than Poultry) and Meat Processed from Carcasses industries.

Key Industries | Animal Slaughtering (other than Poultry) generated nearly $600 million in GSP, accounting for about 34% of the cluster's total GSP. Together, the Animal Slaughtering (other than Poultry) and Meat Processed from Carcasses industries account for about 70% of jobs in the cluster. In terms of productivity, Poultry Processing supports about 21% of jobs in the cluster and generates 20% of its total GSP.

Location Quotient | Three industries in the Food Processing Cluster had LQs greater than 1.0. Rendering and Meat Byproduct Processing had the highest LQ of 1.19, followed by Meat Processed from Carcasses (1.16) and Animal Slaughtering (other than Poultry) (1.10).

Average Annual Earnings | $75,875, which is on par with the statewide average ($73,785) across all sectors and above average for all jobs in the Agriculture Sector ($57,097).

[18] A detailed table showing industry-level performance is included in Attachment B.

Alcohol Processing & Manufacturing Cluster

EXAMPLES: Breweries ◉ Wineries ◉ Distilleries

Trends Analysis

The Alcohol Processing and Manufacturing Cluster includes the Breweries, Wineries, and Distilleries industries.

Jobs in the Alcohol Processing and Manufacturing Cluster grew by 245% in Pennsylvania from 2012 to 2022, far outpacing the state's 8% overall growth across all sectors. These job gains were driven by all three industries, with Breweries experiencing the largest increase. The cluster's LQ is 1.01, meaning that the Alcohol and Beverage Processing Cluster in Pennsylvania is as concentrated as it is in the nation.

Table 10

Pennsylvania Alcohol Processing and Manufacturing Cluster Economic

2012 Jobs	2,360
2022 Jobs	8,142
2012-2022 Change in Jobs	5,782
2012-2022 Pct. Change in Jobs	245%
2022 Avg. Earnings Per Job	$48,288
2022 Location Quotient	1.01
2012 GSP	$0.5 B
2022 GSP	$0.8 B
2012-2022 Pct. Change in GSP	85%
2022 Share of Regional Jobs	0.1%
2022 Share of Regional GSP	0.0%

Source: IMPLAN

2022 Performance Metrics[19]

Jobs | There were approximately 8,142 jobs in Alcohol Processing and Manufacturing in Pennsylvania, 0.1% of all jobs in Pennsylvania.

Jobs Change | Overall, jobs in this cluster more than tripled from 2012 to 2022. The Breweries Industry drove the most growth, adding more than 3,600 jobs and nearly quadrupling in size. Meanwhile, Distilleries — the smallest industry — grew by nearly five times its size.

GSP | $849 million, 0.1% of Pennsylvania's total GSP. The Alcohol Processing and Manufacturing Cluster's GSP grew 85% from 2012 to 2022.

Key Industries | Breweries accounted for 61% of the cluster's jobs and generated 64% of the cluster's GSP. Conversely, Wineries supported 28% of cluster jobs but generated only 15% of GSP.

Location Quotient | Breweries (1.18) was the only industry in the cluster with an LQ greater than 1.0.

Average Annual Earnings | $48,288, which is lower than the statewide average ($73,785) across all sectors but above the average for all jobs in the Agriculture Sector ($57,097).

[19] A detailed table showing industry-level performance is included in Attachment B.

Forest Products Manufacturing Cluster

EXAMPLES: Veneer & Plywood Manufacturing ◉ Wood Container & Pallet Manufacturing ◉ Wood Kitchen Cabinet & Countertop Manufacturing ◉ Paper Bag, Coated & Treated Paper Manufacturing

Trends Analysis

The Forest Products Manufacturing Cluster includes 16 industries related to creating products out of wood, such as prefabricated buildings, doors, and paper products. Its growth lagged the 8% job growth observed across all sectors at the state level. However, the 2012-2022 job growth in the Forest Products Manufacturing Cluster exceeded the 3% increase in the state's Agriculture Sector. These job gains were driven by growth in the All Other Miscellaneous Wood Product Manufacturing Industry. This industry includes activities such as wood dowels manufacturing, wood kitchenware manufacturing, and wood toilet seat manufacturing. The Forest Products Manufacturing Cluster's LQ is 1.64, meaning it is more concentrated in Pennsylvania than in the nation.

Table 11 **Pennsylvania Forest Products Manufacturing Cluster Economic Performance Metrics**

2012 Jobs	44,145
2022 Jobs	46,502
2012-2022 Change in Jobs	2,358
2012-2022 Pct. Change in Jobs	5%
2022 Avg. Earnings Per Job	$82,827
2022 Location Quotient	1.64
2012 GSP	$4.9 B
2022 GSP	$5.9 B
2012-2022 Pct. Change in GSP	20%
2022 Share of Regional Jobs	0.6%
2022 Share of Regional GSP	0.5%

Source: IMPLAN

[20] A detailed table showing industry-level performance is included in Attachment B.

2022 Performance Metrics[20]

Jobs | There were approximately 46,502 jobs in the Forest Products Manufacturing Cluster in Pennsylvania, 0.6% of all jobs in the state.

Jobs Change | Of the cluster's 16 industries, 10 experienced job growth, while six experienced declines between 2012 and 2022. Overall, jobs in this cluster increased, with the largest gains occurring in the All Other Miscellaneous Wood Product Manufacturing, Manufactured Home (Mobile Home) Manufacturing, and Prefabricated Wood Building Manufacturing industries.

GSP | $5.9 billion, 0.6% of Pennsylvania's total GSP. The Forest Products Manufacturing Cluster's GSP grew by 20% from 2012 to 2022, driven by gains in Prefabricated Wood Buildings, Manufactured Homes, and Other Miscellaneous Wood Product Manufacturing.

Key Industries | The Sanitary Paper Product Manufacturing Industry contributed $1.3 billion in GSP, accounting for about 29% of the cluster's total GSP despite supporting only 9% of the cluster's jobs. The Paperboard Container Manufacturing Industry supported the largest share of cluster jobs (18%) and generated almost 22% of its GSP.

Location Quotient | Twelve of the 16 industries in the Forest Products Manufacturing Cluster had LQs greater than 1.0, and five had LQs greater than 2.0. Prefabricated Wood Building Manufacturing had the highest LQ (5.24), followed by Sanitary Paper Product Manufacturing (3.88) and Stationery Product Manufacturing (3.83).

Average Annual Earnings | $82,827, which is higher than the statewide average ($73,785) across all sectors and above average for all jobs in the Agriculture Sector ($57,097).

Food & Beverage Manufacturing Cluster

EXAMPLES: Bread & Bakery Products ◉ Cookie & Cracker Manufacturing ◉ Butter Manufacturing ◉ Ice Cream & Frozen Dessert Manufacturing ◉ Canned Fruits & Vegetables Manufacturing

Trends Analysis

The Food and Beverage Manufacturing Cluster comprises 31 industries across various operations, including animal food manufacturing, canned food, and bottled drink manufacturing. Jobs in Pennsylvania's Food and Beverage Manufacturing Cluster grew by 9% from 2012 to 2022, in line with the state's overall 8% growth across all sectors. This increase was driven by growth in the All Other Food Manufacturing Industry, which includes baking powder manufacturing, dessert puddings manufacturing, egg substitutes manufacturing, and honey processing. The cluster's LQ is 1.39, which means it is more concentrated in Pennsylvania than in the nation.

Table 12 **Pennsylvania Food and Beverage Manufacturing Cluster Economic Performance Metrics**

2012 Jobs	74,953
2022 Jobs	81,803
2012-2022 Change in Jobs	6,850
2012-2022 Pct. Change in Jobs	9%
2022 Avg. Earnings Per Job	$65,325
2022 Location Quotient	1.39
2012 GSP	$9.1 B
2022 GSP	$9.8 B
2012-2022 Pct. Change in GSP	8%
2022 Share of Regional Jobs	1.0%
2022 Share of Regional GSP	1.0%

Source: IMPLAN

[21] A detailed table showing industry-level performance is included in Attachment B.

2022 Performance Metrics[21]

Jobs | There were approximately 81,803 jobs in the Pennsylvania Food and Beverage Manufacturing Cluster, 1% of all jobs in the state.

Jobs Change | Jobs increased in 21 of the cluster's 31 industries, with the largest gains observed in the All Other Food Manufacturing and Dog and Cat Food Manufacturing industries. The Bread and Bakery Products, Except Frozen, Manufacturing Industry experienced the largest decline, losing more than 950 jobs during the study period. However, it remains the cluster's largest employer, supporting over 17,500 jobs.

GSP | $9.1 billion, 1% of Pennsylvania's total GSP. From 2012 to 2022, the Food and Beverage Manufacturing Cluster's GSP grew by 8%. There were major gains in Snack Food Manufacturing ($248 million), Animal Food Manufacturing ($167 million), and several other key industries.

Key Industries | Bread and Bakery Products, Except Frozen, Manufacturing generated around $1.2 billion in GSP, accounting for about 13% of the cluster's total GSP. The next largest contributor was Other Snack Food Manufacturing, responsible for 12% of the cluster's total GSP, or about $1.2 billion.

Location Quotient | Twenty-one of the cluster's 31 industries had LQs greater than 1.0. Industries with the highest LQs were Chocolate and Confectionery Manufacturing from Cacao Beans (9.33), Confectionery Manufacturing from Purchased Chocolate (4.46), and Other Snack Food Manufacturing (3.04).

Average Annual Earnings | $65,325, which is lower than the statewide average ($73,785) across all sectors but above the average for all jobs in the Agriculture Sector ($57,097).

2

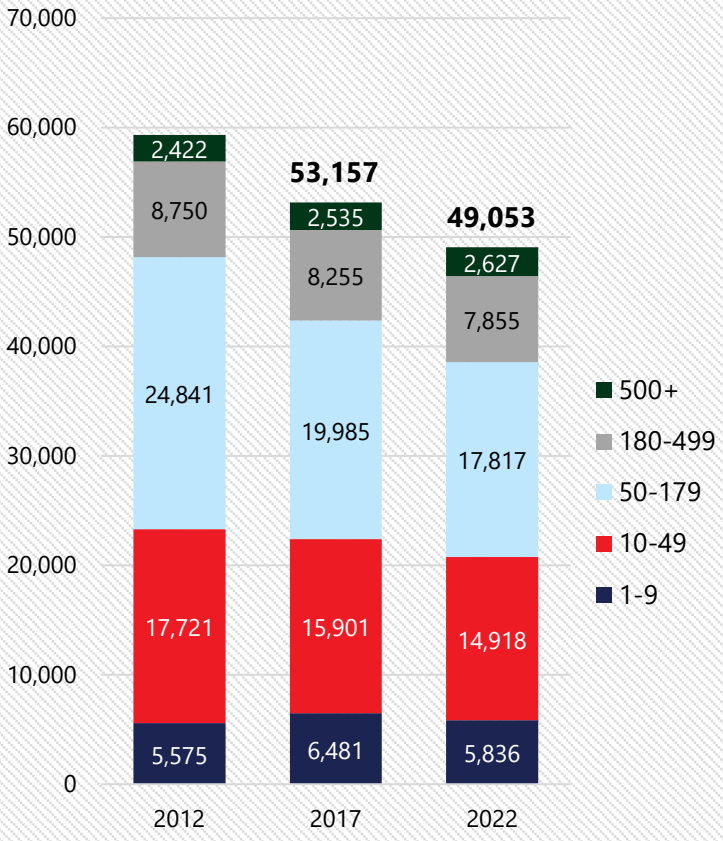
STATE COMPARISON ANALYSIS

The State Comparison Analysis is a peer-state comparison analysis which examines Pennsylvania alongside Ohio, New York, and Virginia.

PENNSYLVANIA PRODUCTION STATISTICS

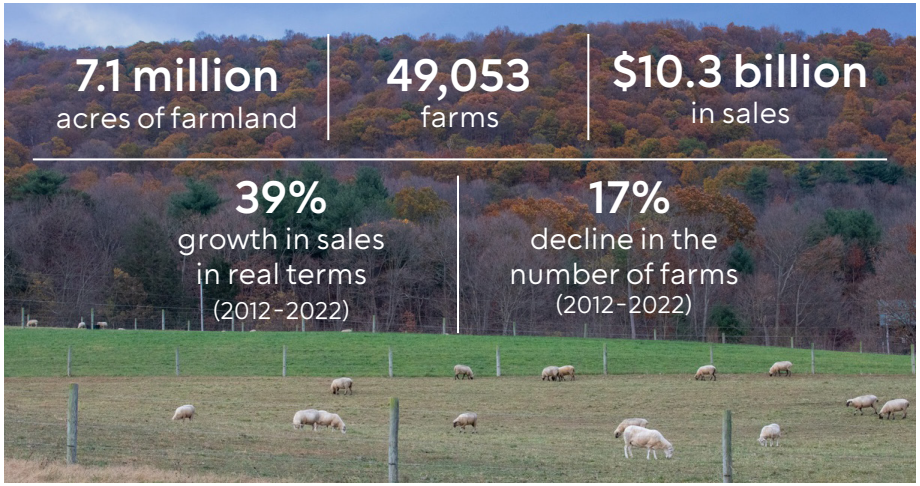
Figure 5

Count of Pennsylvania Farms by Size in Acres, 2012-2022



Source: USDA National Agricultural Statistical Service 2022 & 2017 Census of Agriculture

Key Statistics (2022)



In 2022, Pennsylvania had 49,053 farms spanning nearly 7.1 million acres.

However, the number of farms in Pennsylvania has declined significantly over the last 10 years. In 2022, there were over 10,000 fewer farms than in 2012, a 17% decline, although the pace of decline slowed slightly in the second half of the decade.

This decline was experienced most acutely among small farms. During the 10 years, the drop in the number of farms occurred almost entirely among those with fewer than 500 acres, with the most significant decline among farms between 50-179 acres (-7,024 farms) and between 10-49 acres (-2,803 farms).

The exception to this trend is found in the smallest of Pennsylvania's farms, with less than 10 acres of farmland, and the largest, with more than 500 acres. These smallest farms grew by 251 to over 5,800 in the last decade.

Table 13

Summary of Farms in Pennsylvania, 2012-2022

	2012	2017	2022	2012-2022 Change #	2012-2022 Change %	2017-2022 Change #	2017-2022 Change %
Number of Farms	59,309	53,157	49,053	(10,256)	(17%)	(4,104)	(8%)
Acres of Farms	7,704,444	7,278,668	7,058,325	(646,119)	(8%)	(220,343)	(3%)
Avg. Size of Farms (acres)	130	137	144	14	11%	7	5%

Source: USDA NASS 2022 Census of Agriculture, 2017 Census of Agriculture

Table 14

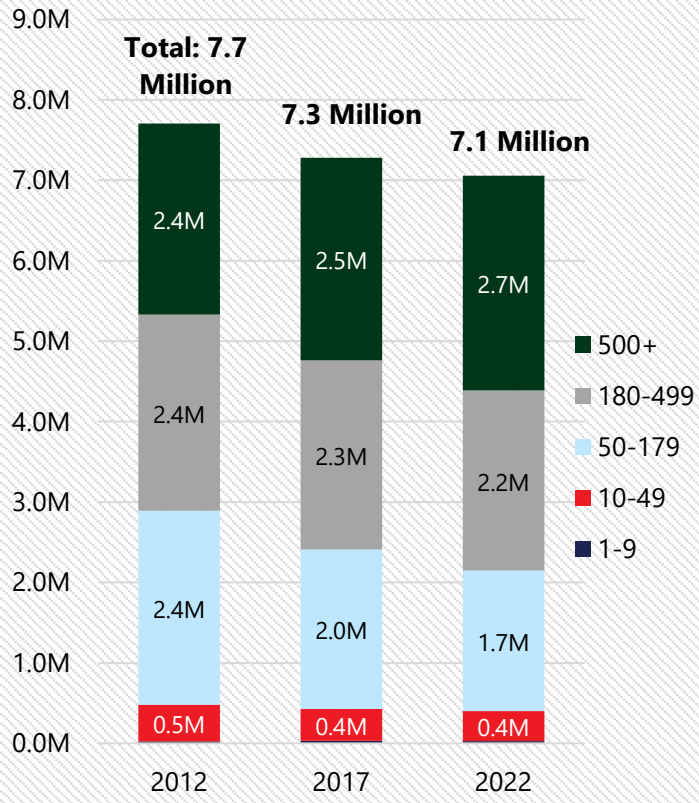
Count of Pennsylvania Farms by Value of Sales

	2012	2017	2022	2012-2022 Change #	2012-2022 Change %	2017-2022 Change #	2017-2022 Change %
Less than $2,500	19,621	16,944	14,692	(4,929)	(25%)	(2,252)	(13%)
$2,500 to $4,999	5,144	4,477	4,179	(965)	(19%)	(298)	(7%)
$5,000 to $9,999	6,002	5,579	4,987	(1,015)	(17%)	(592)	(11%)
$10,000 to $24,999	7,801	6,802	6,668	(1,133)	(15%)	(134)	(2%)
$25,000 to $49,999	4,883	4,437	3,964	(919)	(19%)	(473)	(11%)
$50,000 to $99,999	4,044	3,570	3,338	(706)	(17%)	(232)	(6%)
$100,000 to $499,999	8,913	8,261	7,451	(1,462)	(16%)	(810)	(10%)
$500,000 or more	2,901	3,087	3,774	873	30%	687	22%
Total Farms	**59,309**	**53,157**	**49,053**	**(10,256)**	**(17%)**	**(4,104)**	**(8%)**

Source: USDA NASS 2022 Census of Agriculture, 2017 Census of Agriculture

Figure 6

Total Land Acreage in Pennsylvania Farms by Farm Size in Acres, 2012-2022



Source: USDA NASS 2022 & 2017 Census of Agriculture

Pennsylvania's largest share of farmland is in the largest category of farms, those with 500+ acres. In 2012, 31% of all farmland, or nearly 2.4 million acres, was in farms with over 500 acres. This is nearly equal to the share of the 50-179-acre and 180-499-acre categories. In 2022, 38% of all farmland was found in farms that have more than 500 acres, while other size categories have shrunk as a share of the total.

This same trend can be found when evaluating farms based on the size of their annual sales. From 2012 to 2022, the only size category that increased the number of farms in Pennsylvania was those with $500,000+ in annual sales. Otherwise, all sales categories experienced a decline in the number of farms, with the most significant losses experienced in the smallest category, farms with less than $2,500 in total sales.

Pennsylvania farms had a combined $10.3 billion in sales in 2022, 9% more than 10 years prior and 11% more than five years prior in real terms.

Almost $6.8 billion of those sales came from livestock, poultry, and animal products. While milk from cows was historically Pennsylvania's largest agricultural commodity in terms of sales, poultry and eggs claimed the #1 spot in 2022, with over $2.6 billion in sales. Poultry and egg sales increased by 51% in the last 10 years in Pennsylvania, with the state rising from being the 22nd largest producer in 2012 to the 9th largest in 2022.

Pennsylvania is among the nation's top producers of several commodity categories. The state is the 5th largest producer of Nursery, greenhouse, floriculture, and sod, which encompasses mushroom production, as well as the 5th largest producer of cultivated Christmas trees.

Table 15

Pennsylvania Crop & Animal Production Sales, 2012 vs. 2022

Cluster	Sales ($1,000)			Rank in US			2012-2022 Change		2017-2022 Change	
	2012	2017	2022	2012	2017	2022	Sales	Rank	Sales	Rank
Crops	**$ 3,547,274**	**$ 3,320,704**	**$ 3,493,489**	**24**	**22**	**23**	**(2%)**	▲	**5%**	▼
Grains, oilseeds, dry beans, dry peas	$ 1,543,450	$ 1,171,215	$ 1,492,058	26	25	24	(3%)	▲	27%	▲
Nursery, greenhouse, floriculture, sod	$ 1,204,408	$ 1,212,968	$ 1,082,108	4	3	5	(10%)	▼	(11%)	▼
Other crops and hay	$ 336,837	$ 430,556	$ 361,471	22	13	19	7%	▲	(16%)	▼
Fruits, tree nuts, berries	$ 204,585	$ 204,848	$ 267,092	10	11	8	31%	▲	30%	▲
Vegetables, melons, potatoes, sweet potatoes	$ 179,568	$ 223,645	$ 236,960	18	18	18	32%	▬	6%	▬
Cultivated Christmas trees, short rotation woody crops	$ 26,957	$ 34,496	$ 31,408	4	3	5	17%	▼	(9%)	▼
Tobacco	$ 51,470	$ 42,974	$ 22,392	6	7	8	(56%)	▼	(48%)	▼
Livestock, poultry, and products	**$ 5,886,229**	**$ 5,942,839**	**$ 6,788,903**	**13**	**14**	**14**	**15%**	▼	**14%**	▬
Poultry and eggs	$ 1,736,141	$ 2,011,212	$ 2,627,041	22	8	9	51%	▲	31%	▼
Milk from cows	$ 2,507,125	$ 2,363,214	$ 2,484,319	5	6	8	(1%)	▼	5%	▼
Hogs and pigs	$ 583,689	$ 683,517	$ 774,083	12	13	13	33%	▼	13%	▬
Cattle and calves	$ 914,042	$ 746,837	$ 701,631	22	27	24	(23%)	▼	(6%)	▲
Horses, ponies, mules, burros, donkeys	$ 49,321	$ 52,700	$ 77,121	8	7	4	56%	▲	46%	▲
Other animals and animal products	$ 42,425	$ 40,077	$ 68,280	12	13	8	61%	▲	70%	▲
Aquaculture	$ 33,298	$ 24,818	$ 29,650	15	20	18	(11%)	▼	19%	▲
Sheep, goats, wool, mohair, milk	$ 20,191	$ 20,464	$ 26,778	17	16	15	33%	▲	31%	▲
Total	**$ 9,433,503**	**$ 9,263,542**	**$ 10,282,392**	**22**	**19**	**20**	**9%**	▲	**11%**	▼

Source: USDA National Agricultural Statistics Service Census of Agriculture

Note: Presented in 2022 Dollars. 2012 and 2017 data has been adjusted for inflation using the Consumer Price Index for All Urban Consumers produced by the Bureau of Labor Statistics.

Table 16

Top 10 Crop Commodities in Pennsylvania by Market Value ($)

	2017	2022	Change
Corn	$739,590,090	$936,269,000	27%
Mushrooms	$730,884,297	$598,511,262	(18%)
Soybeans	$342,513,810	$410,548,000	20%
Other Field Crops (incl. Hay)	$430,556,384	$361,471,000	(16%)
Fruit & Tree Nut Totals (excl. Berries)	$189,149,097	$234,079,000	24%
Wheat	$56,540,806	$109,992,000	95%
Flower Plants, Potted, Indoor Use	$53,515,291	$45,608,528	(15%)
Propagative Material (seeds, cuttings, etc.)	$28,856,145	$35,478,630	23%
Berries	$15,698,948	$33,013,000	110%
Cut Christmas Trees	$34,399,428	$31,408,000	(9%)

Table 17

Top 10 Animal Commodities in Pennsylvania by Market Value ($)

	2017	2022	Change
Poultry Totals (incl. Eggs)	$2,011,212,011	$2,627,041,000	31%
Milk	$2,363,213,960	$2,484,319,000	5%
Hogs	$683,517,303	$774,083,000	13%
Cattle (incl. Calves)	$746,837,227	$701,631,000	(6%)
Equine, Horses and Ponies	$52,335,795	$76,563,000	46%
Sheep & Goats (incl. Wool, Mohair, and Milk)	$20,463,911	$26,778,000	31%
Other Specialty Animals (Animals Only)	$18,507,064	$24,058,000	30%
Other Specialty Animals (Products Only)	$6,375,571	$22,426,000	252%
Honey	$3,163,907	$7,145,000	126%
Equine (Products Only)	$5,260,443	$7,108,000	35%

Source: USDA National Agricultural Statistics Service Census of Agriculture

Note: Presented in 2022 Dollars. 2012 and 2017 data has been adjusted for inflation using the Consumer Price Index for All Urban Consumers produced by the Bureau of Labor Statistics.

Crop Production

- Pennsylvania's largest crop is corn, with $936 million in sales in 2022, a 51% increase from five years prior.
- Corn is followed by mushrooms, a nearly $600 million crop, and soybeans, valued at over $410 million in sales in 2022.

Animal Production

- Poultry, including eggs, was the largest animal product in Pennsylvania in 2022, with over $2.6 billion in sales. This is closely followed by milk, at nearly $2.5 billion in sales.
- In 2022, there were 26.9 million layer chickens and 229.6 broiler/meat chickens throughout Pennsylvania. Meanwhile, the state produced nearly 456,000 dairy cows, almost 200,000 beef cows, and 1.3 million pigs.

STATE COMPARISON ANALYSIS

The following peer-state analysis compares Pennsylvania with Ohio, New York, and Virginia to evaluate shifts and trends in the Agricultural Sector from 2012 to 2022. These peer states were chosen due to their similar population size, distribution of urban and agriculturally intensive areas, and gross state product (GSP) contributions from the Agriculture, Forestry, Fishing, and Hunting Industry (NAICS 11).

Pennsylvania's neighboring states were also considered, but with the exception of Ohio and New York, they were excluded due to their significantly smaller populations and less prominent agricultural activity. By benchmarking Pennsylvania's agricultural performance against its peer states, the analysis provides valuable insights into regional strengths, challenges, and opportunities in the sector.

Overview of Pennsylvania's Agriculture Sector and Subsectors

Pennsylvania's Agricultural Sector performs well compared to its peer states. With 294,863 jobs, the Agriculture Sector accounts for 3.7% of Pennsylvania's total employment, placing it slightly behind Ohio (3.9%) but ahead of Virginia (3.1%) and significantly above New York (1.9%).

Pennsylvania's 3% job growth rate in the Agriculture Sector from 2012 to 2022 is in line with New York's (3.3%) but falls short of Ohio's 5%. Virginia, by contrast, lags far behind with only 0.6% job growth during the same period.

Pennsylvania's Agriculture Sector's GSP stands at $27.5 billion, representing 3% of the state's total GSP. This is a higher proportion than New York (1.2%) but slightly lower than Ohio (3.3%) and Virginia (3.8%).

Importantly, Pennsylvania's GSP growth in Agriculture from 2012 to 2022 was 22%, outpacing New York's 13.7% and Virginia's 0.2% but lagging behind Ohio's 38%. GSP in Virginia's Agriculture Subsector grew during the study period; however, GSP related to its Agriculture-

Table 18

Overall Sector Economic Performance Comparison by State

State	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Location Quotient	2012 Real GSP	2022 Real GSP	2012-2022 Pct. Change in GSP	Share of Total Jobs	Share of Total GSP
Pennsylvania	285,747	294,863	9,116	3.2%	0.98	$22.5 B	$27.5 B	22%	3.7%	3.0%
New York	229,581	237,112	7,532	3.3%	0.49	$21.3 B	$24.2 B	14%	1.9%	1.2%
Virginia	167,492	168,421	929	0.6%	0.80	$25.0 B	$25.0 B	0%	3.1%	3.8%
Ohio	265,395	278,698	13,303	5.0%	1.01	$20.2 B	$27.9 B	38%	3.9%	3.3%
United States	**7,631,833**	**8,040,892**	**409,059**	**5.4%**	**N/A**	**$587.5 B**	**$802.2 B**	**37%**	**3.9%**	**3.1%**

Source: IMPLAN

Related Manufacturing Subsector declined, explaining their small GSP increase.

Among the comparison states, Pennsylvania boasts relatively high average earnings in Agriculture at $57,097, second only to New York ($60,762).In the **Agriculture Subsector**, Pennsylvania's performance from 2012 to 2022 reveals stable but limited growth compared to its peers. The state experienced a small decline in jobs, losing 92 positions, contrasting with job gains in New York (5,562) and Ohio (5,179).

Virginia saw more significant losses, shedding 4,823 jobs (-3.9%). Pennsylvania's location quotient of 0.78 indicates a lower-than-average concentration of Agriculture Subsector employment compared to the national average, trailing Virginia (0.90) and Ohio (0.87) but ahead of New York (0.40).

Economically, Pennsylvania's Agriculture Subsector demonstrated strong GSP growth, increasing by 39% from $8.5 billion in 2012 to $11.8 billion in 2022. This growth rate is higher than New York's 29% and Virginia's 19% but below Ohio's 74% increase.

Despite this, Pennsylvania's 2022 GSP ($11.8 billion) is similar to Ohio's ($11.3 billion). It was higher than Virginia's GSP ($8.9 billion) but fell short of New York's $12.4 billion.

As a share of the state's economy, the Agriculture Subsector accounts for 2.1% of jobs and 1.3% of GSP in Pennsylvania, placing it in the middle range compared to Virginia's higher contribution (2.2% of jobs, 1.4% of GSP) and New York's lower share (1.1% of jobs, 0.6% of GSP).

Overall, Pennsylvania shows notable GSP growth despite smaller job changes, positioning it as a stable contributor compared to its peer states.

Pennsylvania's Agriculture-Related Manufacturing Subsector demonstrated moderate job growth and economic expansion compared to its peer states from 2012 to 2022. The state added 9,207 jobs, representing a 7.7% increase.

While this growth rate is higher than New York's 8.1% increase, it is lower than Virginia's 11.2% and Ohio's 16.7%. Pennsylvania's 2022

Table 19

Agriculture Subsector Economic Performance Comparison by State

State	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Location Quotient	2012 Real GSP	2022 Real GSP	2012-2022 Pct. Change in GSP	Share of Total Jobs	Share of Total GSP
Pennsylvania	166,649	166,558	(92)	-0.1%	0.78	$8.5B	$11.8B	39%	2.1%	1.3%
New York	129,130	134,692	5,562	4.3%	0.40	$9.6B	$12.4B	29%	1.1%	0.6%
Virginia	122,727	117,904	(4,823)	-3.9%	0.90	$7.5B	$9.0B	19%	2.2%	1.4%
Ohio	123,361	128,540	5,179	4.2%	0.87	$6.5B	$11.3B	74%	1.8%	1.3%
United States	**5,548,582**	**5,679,622**	**131,040**	**2.4%**	**N/A**	**$324.9B**	**$479.2B**	**47%**	**2.7%**	**1.9%**

Source: IMPLAN

location quotient of 1.24 indicates a higher-than-average employment concentration in this subsector, ranking slightly below Ohio (1.26) and Virginia (1.68) but ahead of New York (0.71).

Economically, **Pennsylvania's Agriculture-Related Manufacturing GSP grew by 12%**, rising from $13.99 billion in 2012 to $15.72 billion in 2022. While this growth outpaces the declines seen in New York (-3%) and Virginia (-11%), it lags behind Ohio's 29% GSP increase. Despite having a smaller job base, Virginia recorded the largest GSP in 2022 at $17.6 billion.

In terms of relative contributions, Pennsylvania's Agriculture-Related Manufacturing Subsector represents 1.6% of the state's total jobs and 1.7% of the state's GSP. This is higher than New York (0.8% jobs, 0.6% GSP) and comparable to Ohio (1.3% jobs, 1.2% GSP) but is lower than Virginia's more significant contributions (1.2% jobs, 2.7% GSP).

Overall, Pennsylvania's Agriculture-Related Manufacturing Subsector exhibited steady growth in GSP, outperforming New York and Virginia in percentage growth while remaining competitive with Ohio's employment concentration.

Table 20

Agriculture-Related Manufacturing Subsector Economic Performance Comparison by State

State	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Location Quotient	2012 Real GSP	2022 Real GSP	2012-2022 Pct. Change in GSP	Share of Total Jobs	Share of Total GSP
Pennsylvania	119,098	128,305	9,207	7.7%	1.24	$14.0B	$15.7B	12%	1.6%	1.7%
New York	93,839	101,452	7,613	8.1%	0.71	$13.2B	$12.8B	(3%)	0.8%	0.6%
Virginia	58,554	65,125	6,571	11.2%	1.68	$19.7B	$17.6B	(11%)	1.2%	2.7%
Ohio	79,341	92,555	13,214	16.7%	1.26	$8.0B	$10.3B	29%	1.3%	1.2%
United States	**2,083,251**	**2,361,271**	**278,019**	**13.3%**	**N/A**	**$262.6B**	**$323.1B**	**23%**	**1.1%**	**1.2%**

Source: IMPLAN

Farm Comparisons

The agricultural landscape across Pennsylvania, New York, Virginia, and Ohio reveals distinct differences in farm characteristics and land use. Pennsylvania has 49,053 farms, fewer than Ohio's 76,009, but more than New York and Virginia. However, Pennsylvania farms average 144 acres, the smallest among these states, indicating a higher concentration of smaller operations.

Despite their smaller size, Pennsylvania farms exhibit robust productivity, with average sales per farm at $209,618, trailing only New York's $262,228 and surpassing Virginia and Ohio. Pennsylvania's total land in farms is 7.06 million acres, accounting for 25% of the state's total land area — higher than New York's 22% but less than Virginia's 29% and Ohio's 52%.

Ohio's dominance in the number of farms and land use highlights its agricultural emphasis, with over half its land dedicated to farming. **Pennsylvania, by contrast, demonstrates efficiency through relatively high average sales per farm and per acre despite its smaller average farm size.**

In addition to having the lowest average farm size among the comparison states, Pennsylvania has the smallest share of farms with 500+ acres. Only 5% of Pennsylvania's farms are larger than 500 acres, compared to 9% in New York and 8% in both Virginia and Ohio. In Pennsylvania and New York, the largest share of farms is in the 50–179-acre category, while the 10-49-acre category makes up the largest share of farms in Virginia and Ohio.

Table 21

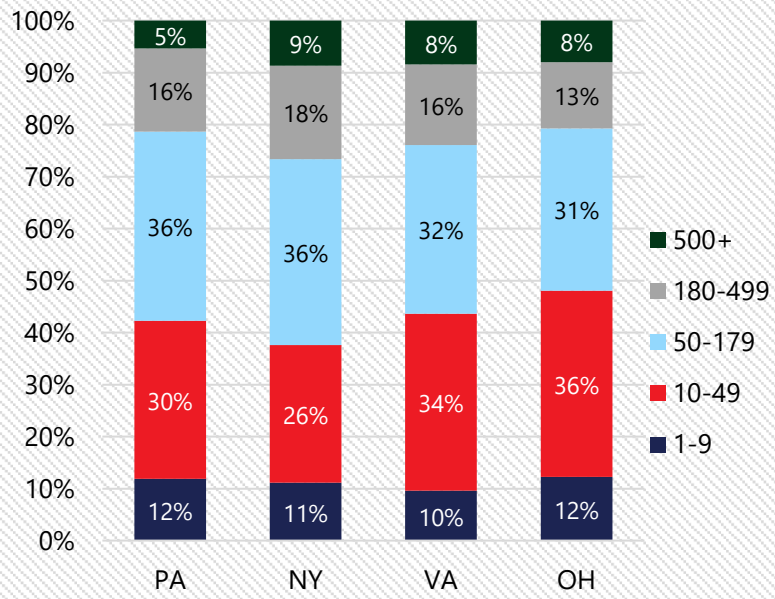
Total Agriculture Economic Performance Comparison by State

	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 Sales 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	13,652,346
Total Acres in State	28,635,053	30,159,098	25,268,550	26,149,606
Farms % of Total Land	25%	22%	29%	52%

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

Figure 7

Distribution of Farms by Size in Acres in Peer States, 2022



Source: USDA National Agricultural Statistical Service 2022 Census of Agriculture

Table 22

Top Three Products By State: Crops and Livestock, Poultry, and Animal Products

The market value of products sold is used to identify each state's top crop and livestock products.

Crops	Amount	Livestock, Poultry, and Animal Products	Amount
Pennsylvania			
Nursery, greenhouse, floriculture, and sod	$1.08 B	Poultry and eggs	$2.63 B
Corn	$0.94 B	Milk from cows	$2.48 B
Soybeans	$0.41 B	Hogs and pigs	$0.77 B
Ohio			
Corn	$3.73 B	Poultry and Eggs	$2.67 B
Soybeans	$3.55 B	Hogs and Pigs	$1.56 B
Nursery, greenhouse, floriculture, and sod	$0.66 B	Milk From Cows	$1.33 B
New York			
Fruits and tree nuts	$0.68 B	Milk from cows	$3.87 B
Corn	$0.64 B	Cattle and calves	$0.49 B
Nursery, greenhouse, floriculture, and sod	$0.54 B	Poultry and eggs	$0.36 B
Virginia			
Corn	$0.42 B	Poultry and eggs	$2.23 B
Nursery, greenhouse, floriculture, and sod	$0.40 B	Cattle and calves	$0.70 B
Soybeans	$0.33 B	Milk from cows	$0.35 B

Note: The Livestock, Poultry, and Animal Products category uses data collected from the Census of Agriculture's Livestock, Poultry and Their Products commodity group
Source: 2022 Census of Agriculture

Industry Metrics

Cluster Share of Agriculture Sector Jobs

The 2022 cluster share of Agriculture Sector jobs highlights the varying emphasis on specific agricultural activities across Pennsylvania and the peer states. The largest share of agricultural jobs in Pennsylvania is concentrated in Food and Beverage Manufacturing (28%). This is similar to Ohio's share (25%) but lower than New York (35%).

Forest Product Manufacturing also plays a significant role in Pennsylvania's Agricultural job sector, accounting for 16% of jobs, the highest share among the four states. This demonstrates Pennsylvania's more established forestry-related industries compared to Virginia (10%) and Ohio (14%).

Crop Production and Animal Production each contribute 14% to Pennsylvania's agricultural jobs. While these shares are slightly lower than Ohio's (18% in Crop Production and 17% in Animal Production), they remain competitive. Like Ohio, Landscaping constitutes 15% of agricultural jobs in Pennsylvania, which is lower than Virginia and New York (both at 19%). Other clusters, such as Food Processing (7%) and Alcohol Processing and Manufacturing (3%), represent smaller, specialized areas within the state's agricultural economy.

Cluster Share of Total State Jobs

The adjacent table illustrates the contribution of agricultural clusters to total state jobs in Pennsylvania, New York, Virginia, and Ohio in 2022. Pennsylvania's Agricultural Sector accounts for 3.7% of the state's total jobs, slightly below Ohio (3.9%) but higher than Virginia (3.1%) and nearly double that of New York (1.9%).

In Pennsylvania, the largest contributor is Food and Beverage Manufacturing, which represents 1% of total state jobs. This is comparable to Ohio (0.9%) and notably higher than New York (0.6%). Landscaping and Forest Product Manufacturing each contribute 0.6% to total jobs, matching or exceeding the other states. Both Crop Production and Animal Production contribute 0.5% each to Pennsylvania's total state jobs, aligning closely with Virginia and slightly trailing Ohio. Smaller clusters, such as Forestry Processing (0.2%), Food Processing (0.2%), and Alcohol Processing and Manufacturing (0.1%), contribute modestly to the total employment. Pennsylvania's shares in these clusters are comparable to those in the peer states.

Table 23

2022 Cluster Share of Agriculture Sector's Jobs

Cluster	PA	NY	VA	OH
Crop Production	14%	15%	15%	18%
Animal Production	14%	10%	15%	17%
Forest Product Manufacturing	16%	9%	10%	14%
Forestry Processing	5%	6%	8%	4%
Landscaping	15%	19%	19%	15%
Food Processing	7%	3%	8%	5%
Alcohol Processing and Manufacturing	3%	5%	4%	2%
Food and Beverage Manufacturing	28%	35%	20%	25%
Total	**100%**	**100%**	**100%**	**100%**

Source: IMPLAN

Table 24

2022 Cluster as a Share of Total State Jobs

Cluster	PA	NY	VA	OH
Crop Production	0.5%	0.4%	0.3%	0.6%
Animal Production	0.5%	0.3%	0.3%	0.6%
Forest Product Manufacturing	0.6%	0.3%	0.2%	0.5%
Forestry Processing	0.2%	0.2%	0.2%	0.1%
Landscaping	0.6%	0.6%	0.4%	0.5%
Food Processing	0.2%	0.1%	0.2%	0.2%
Alcohol Processing and Manufacturing	0.1%	0.1%	0.1%	0.1%
Food and Beverage Manufacturing	1.0%	1.0%	0.4%	0.9%
Total	**3.7%**	**3.0%**	**2.1%**	**3.5%**

Source: IMPLAN

Job Change

Crop Production

During the study period, jobs in Pennsylvania's Crop Production Cluster declined, a trend that was also observed in the three peer states. In Pennsylvania, the Vegetable and Melon Farming Industry experienced the sharpest job decline, losing 5,979 jobs, followed by All Other Crop Farming, which declined by 2,078 jobs. The All Other Crop Farming Industry includes grass seed farming, maple sap gathering, and hayseed farming.

In Virginia, job declines were primarily observed in the All Other Crop Production Industry (-4,136 jobs), the Fruit Farming Industry (-1,889 jobs), and the Greenhouse, Nursery, and Floriculture Production Industry (-1,080 jobs). New York also lost a significant number of jobs in the Vegetable and Melon Farming Industry and the Fruit Farming Industry. However, numbers increased in Greenhouse, Nursery, and Floriculture Production and All Other Crop Production, offsetting losses. In Ohio, Crop Production Cluster job losses were primarily in Grain Farming, where the industry lost 5,789 jobs. Ohio's Greenhouse, Nursery, and Floriculture Production Industry had the second-greatest losses of around 1,138 jobs.

Animal Production

In Pennsylvania, Poultry and Egg Production jobs increased by 2,832. This growth outpaced growth in peer states, where Virginia (+2,115 jobs), Ohio (+2,672 jobs), and New York (+358 jobs) experienced smaller gains. Additionally, Dairy Cattle and Milk Production in Pennsylvania saw a positive job change of 370 jobs, contrasting with the job losses in Virginia and Ohio (-147 jobs and -344 jobs, respectively). However, New York experienced a substantial gain of 3,021 jobs in this industry. On the other hand, Beef Cattle Ranching and Farming in Pennsylvania experienced a notable decline of 1,616 jobs, the largest decline compared to the other three states.

The Animal Production, Except Cattle and Poultry, and Eggs Industry in Pennsylvania saw an increase of 567 jobs. Virginia and Ohio also saw increases (+1,221 and +1,512 jobs, respectively), while New York faced a decline of 368 jobs. Finally, Pennsylvania's Support Activities for Agriculture and Forestry Industry experienced a moderate increase of 446 jobs, but this was dwarfed by the growth seen in Ohio (+2,029 jobs) and Virginia (890 jobs).

Table 25

Percent Change in Jobs, 2012-2022

Cluster	PA	NY	VA	OH
Crop Production	-21.2%	-9.1%	-24.5%	-12.0%
Animal Production	6.8%	12.3%	13.7%	16.2%
Forest Product Manufacturing	5.3%	-14.4%	5.4%	20.0%
Forestry Processing	-15.3%	-5.1%	-6.4%	-4.0%
Landscaping	2.2%	2.7%	-8.3%	-7.3%
Food Processing	24.7%	-6.1%	-2.8%	13.3%
Alcohol Processing and Manufacturing	245.0%	133.2%	144.2%	193.6%
Food and Beverage Manufacturing	9.1%	7.1%	17.2%	7.4%
Total	**3.2%**	**3.3%**	**0.6%**	**5.0%**

Source: IMPLAN

Forest Products Manufacturing

Jobs in the Forest Products Manufacturing Cluster experienced moderate increases of around 5% in Pennsylvania and Virginia. In Pennsylvania, job growth was driven by the All Other Miscellaneous Wood Product Manufacturing Industry, which produces products like wood dowels, kitchenware, stepladders, toilet seats, and toothpicks.

In Ohio, cluster jobs increased by a larger 20%, which was mainly driven by the Paperboard Container Manufacturing Industry. New York's jobs in this cluster declined, driven by losses in 11 industries. New York's Paper Bag and Coated and Treated Paper Manufacturing, Non-upholstered Wood Household Furniture Manufacturing, and Wood Office Furniture Manufacturing industries all lost more than 600 jobs during the study period.

Forest Processing

Jobs in Pennsylvania's Forestry Processing Cluster declined between 2012 and 2022, a trend observed across all peer states. One of the most notable declines occurred in Commercial Logging, where Pennsylvania experienced a loss of 687 jobs, the largest among the peer states. This decline was more pronounced than those in Virginia (-565 jobs), New York (-551 jobs), and Ohio (-241 jobs).

Pennsylvania lost 434 jobs in the Sawmill Industry, a decline that surpassed losses in Virginia (-95 jobs) and Ohio (-92 jobs). In contrast, jobs in New York's Sawmill Industry increased by 243. Despite some recovery in the Wood Preservation Industry, where Pennsylvania experienced a gain of 92 jobs, the cluster faced a challenging decade overall in terms of job growth.

Landscaping

Jobs in Pennsylvania's Landscaping Cluster grew by 2.2%, which was in line with New York's growth and exceeded the decline in jobs observed in Virginia's and Ohio's Landscaping clusters.

Food Processing

Growth in Pennsylvania's Food Processing Cluster was driven by the Animal Slaughtering (other than Poultry) (+1,320 jobs) and Meat Processed from Carcasses (+2,332 jobs) industries. Jobs in this cluster also increased in Ohio, driven by the Meat Processed from Carcasses Industry (+2,021 jobs).

Cluster jobs in New York and Virginia declined, with the largest New York losses observed in the Meat Processed from Carcasses Industry while Virginia's were in the Animal Slaughtering (other than Poultry) Industry.

Alcohol Processing and Manufacturing

Jobs in Pennsylvania's Alcohol Processing and Manufacturing Industry skyrocketed by 245% during the study period. This trend was observed across all three industries (breweries, wineries, distilleries) and all peer states, with Pennsylvania experiencing the largest increase.

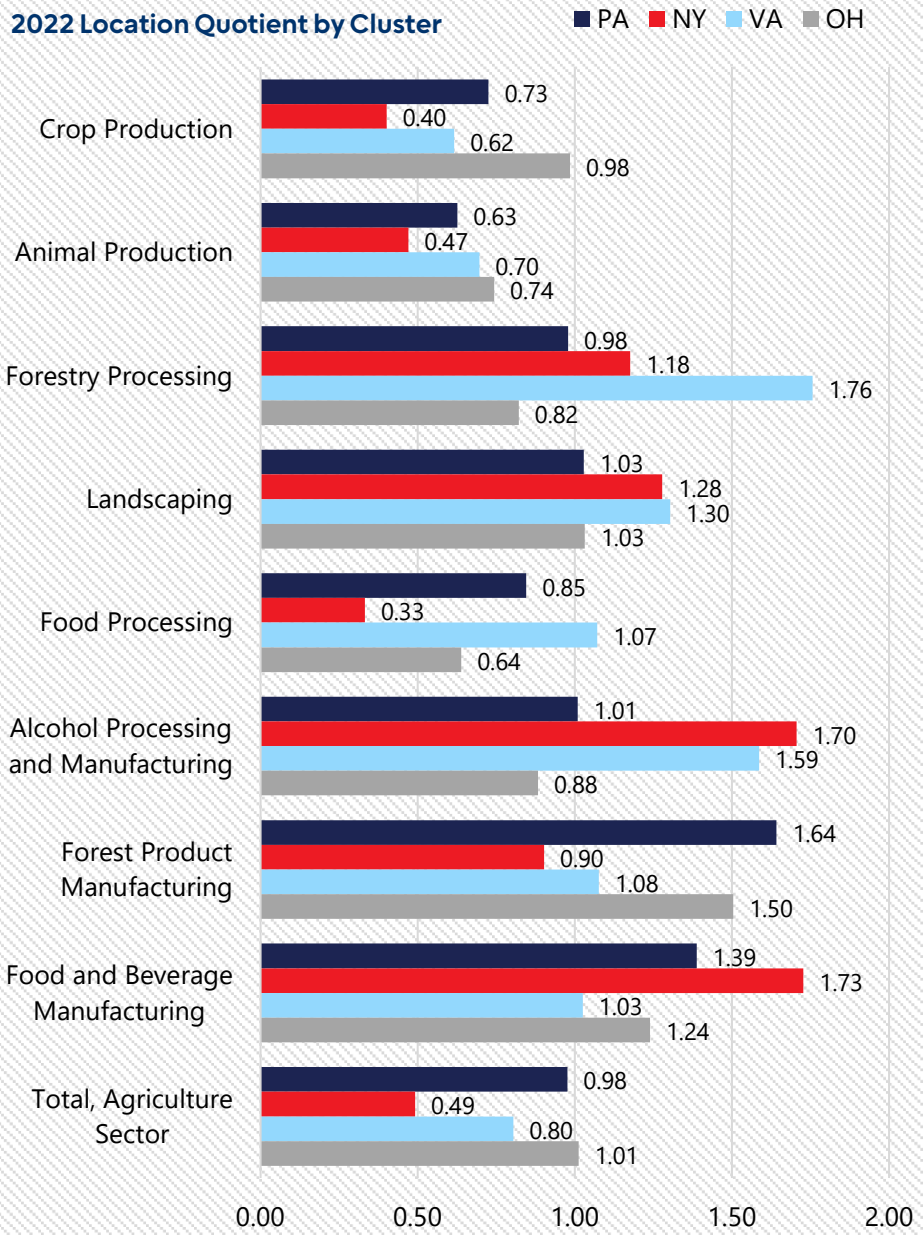
Food and Beverage Manufacturing

Food and Beverage Manufacturing jobs increased in all four states. One of the most notable trends in Pennsylvania was the significant increase in jobs in Dog and Cat Food Manufacturing, where the state saw a gain of 1,159 jobs, outpacing the other three states. In contrast, Ohio saw a loss of 185 jobs in this sector, Virginia had a more modest gain of 74 jobs, and New York saw an increase of 373 jobs.

Notably, Cheese Manufacturing in Pennsylvania increased by 111 jobs, which was modest compared to Virginia's increase of almost 700 jobs. Pennsylvania also saw an increase of 830 jobs in Bottled and Canned Soft Drinks and Water Manufacturing, which was matched by the job growth in Virginia.

Figure 8

2022 Location Quotient by Cluster



Source: IMPLAN

Regional Specialization by Cluster

In 2022, Pennsylvania demonstrated unique strengths and relatively competitive positioning in its agricultural clusters compared to New York, Virginia, and Ohio, which was reflected by the location quotients (LQs). A location quotient above 1.0 indicates a higher regional specialization compared to the national average.

Pennsylvania excelled in Forest Product Manufacturing (LQ 1.64), significantly outperforming New York (LQ 0.90), Virginia (LQ 1.08), and Ohio (LQ 1.50). Alcohol Processing and Manufacturing also emerged as a competitive sector with an LQ of 1.01.

Pennsylvania showed less specialization in Crop Production (LQ 0.73) and Animal Production (LQ 0.63) compared to Ohio (LQ 0.98 and 0.74, respectively) and Virginia (LQ 0.62 and 0.70), but was higher than New York's LQ in both categories. Pennsylvania's Landscaping cluster (LQ 1.03) was on par with Ohio and slightly behind Virginia (LQ 1.30) and New York (LQ 1.28).

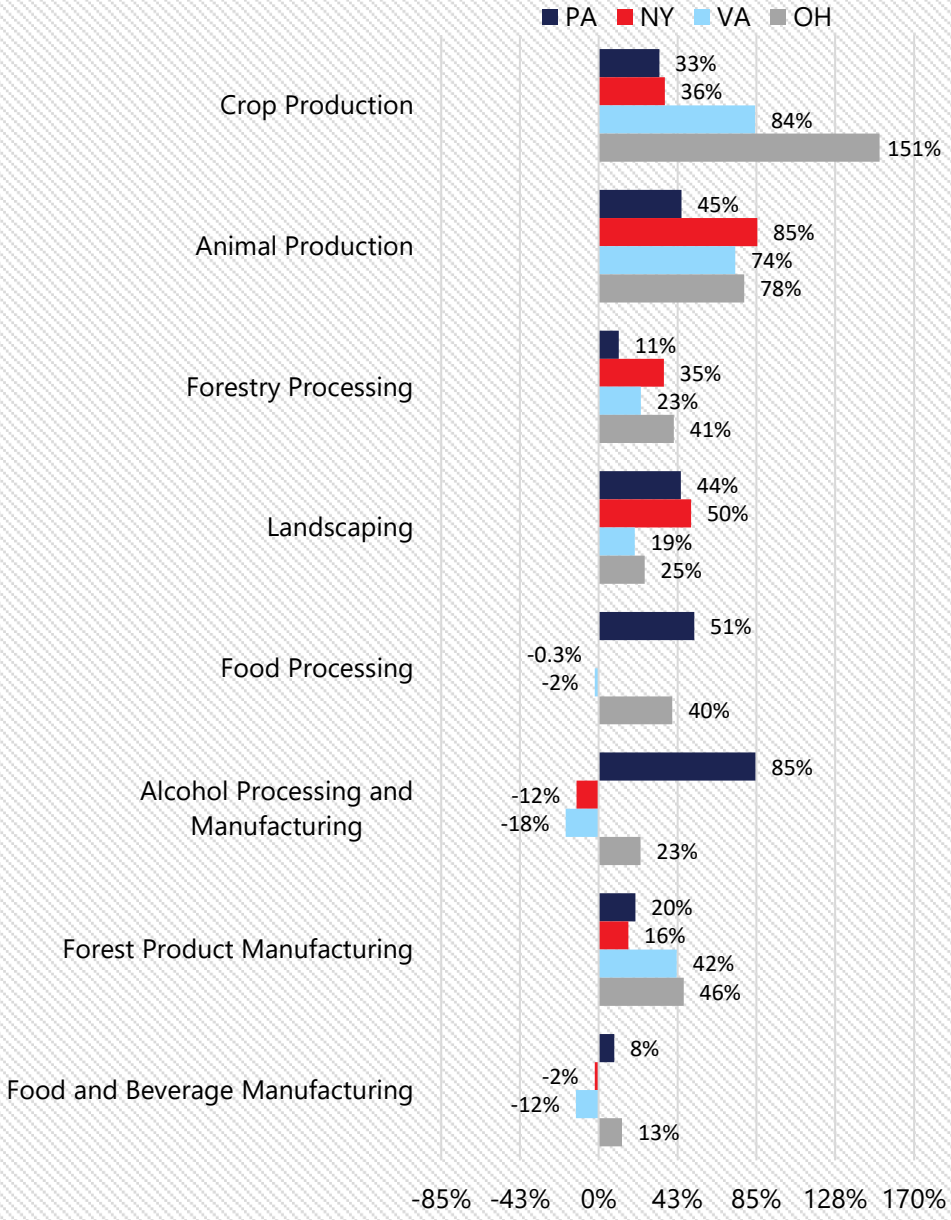
While Pennsylvania lagged behind New York (LQ 1.73) and Virginia (LQ 1.03) in Food and Beverage Manufacturing, it still demonstrated strong performance with an LQ of 1.39, surpassing Ohio (LQ 1.24). Similarly, in Food Processing, Pennsylvania's LQ of 0.85 was higher than New York's 0.33 and Ohio's 0.64, but fell short of Virginia's 1.07.

Overall, Pennsylvania's total Agriculture Sector LQ stood at 0.98, suggesting a near-average specialization relative to the nation. The state slightly trailed Ohio (LQ 1.01) but significantly outperformed New York (LQ 0.49) and Virginia (LQ 0.80).

These figures highlight Pennsylvania's strengths in Forest Products and Alcohol Manufacturing while indicating opportunities for growth in Animal Production and Food Processing.

Figure 9

2012-2022 Real GSP Growth by Cluster



Source: IMPLAN

Real GSP Growth by Cluster

In Crop Production, Pennsylvania experienced a GSP growth rate of 32.7%, which was similar to New York's rate (35.7%) but lagged behind Virginia (84.3%) and Ohio (151.5%). Animal Production in Pennsylvania showed robust growth of 44.6%, although it also lagged increases in New York (85.5%), Virginia (73.6%), and Ohio (78.4%).

Pennsylvania's Forest Product Manufacturing Cluster grew by 19.7%, a moderate gain compared to Virginia (42.1%) and Ohio (45.8%) but slightly higher than New York (15.9%). Similarly, Forestry Processing saw 11% growth in Pennsylvania, again lagging the three comparison states.

Landscaping demonstrated strong growth in Pennsylvania, with a 44.3% increase. This was close to New York's 49.8% and higher than Virginia's 19.4% and Ohio's 24.7%. Food Processing showed exceptional performance in Pennsylvania, with a 51.5% increase, far surpassing New York (0.3%), Virginia (-2.2%), and Ohio (40.1%).

The most remarkable growth in Pennsylvania was in Alcohol Processing and Manufacturing, which surged by 84.5%. This growth vastly outperformed declines in New York (-12.1%) and Virginia (-17.8%) and exceeded Ohio's 22.5% growth. However, Food and Beverage Manufacturing grew modestly in Pennsylvania (8.3%) compared to Ohio (12.5%) and faced declines in New York (-2.1%) and Virginia (-12.3%).

3

SUPPLY CHAIN ANALYSIS

The Supply Chain Analysis describes the supply chain related to the Agriculture Sector. The analysis includes:

- Supply chain industries
- Domestic exports and imports
- Foreign exports and imports

The following analysis provides insights into the industries and trade partners that supply goods and services to Pennsylvania's Agriculture Sector. In cases where a high share of inputs are supplied through out-of-state sources, Pennsylvania may have opportunities to recapture sales by improving in-state sourcing and business-to-business (B2B) purchases.

This analysis identifies those opportunities while also exploring trends in the state's domestic and foreign agriculture imports and exports. Understanding Pennsylvania's agriculture supply chain and key trade partners helps the state better identify new market opportunities.

Crop Production Cluster

Supply Chain Analysis

When looking at the top 25 inputs for Crop Production, about 75% of the Crop Production Cluster's largest inputs are purchased from in-state suppliers. Some key industries selling to the Crop Production Cluster capture an even larger share of in-state demand. For example, more than 85% of Pennsylvania's demand for Support Activities for Agriculture, Truck Transportation, and Maintenance/Repair of Structures is met by Pennsylvania-based suppliers. Overall, this indicates that the supply chain is well-positioned to meet local demand.

Several categories in which crop producers rely more heavily on inputs imported from outside the state represent key opportunities. These include wholesalers for non-durable goods, intra-industry trade among crop farmers, and fertilizers. For example, nearly 60% of Crop Production's inputs from the Greenhouse, Nursery, and Floriculture Sector, such as mushroom spores, seeds, or cuttings, come from outside Pennsylvania. Fertilizer Manufacturing and Fertilizer Mixing inputs are also primarily sourced from outside Pennsylvania.

Supply Chain Gaps

Wholesale Trade for Nondurable Goods (e.g., seed brokers, fertilizer wholesalers, packaging, etc.)

Intra-industry supplies (e.g., greenhouse/nursery products)

Fertilizers (e.g., fertilizer mixers or manufacturers)

Table 26

Top 25 Industries Selling Inputs to Crop Production in Pennsylvania

Industry Selling to Crop Production Cluster	Total Purchases	Pct. Sourced from PA
Support Activities for Agriculture and Forestry	$170,660,591	95%
Wholesale - Other Nondurable Goods Merchant Wholesalers	$87,727,300	66%
Truck Transportation	$33,178,445	96%
Greenhouse, Nursery, and Floriculture Production	$28,254,053	42%
Insurance Carriers, Except Direct Life	$22,943,670	78%
Grain Farming	$21,824,424	25%
Other Real Estate	$21,746,997	83%
Other Local Government Enterprises	$21,041,906	71%
Petroleum Refineries	$17,006,475	33%
Commercial and Industrial Machinery and Equipment Rental and Leasing	$12,571,347	82%
Oilseed Farming	$12,301,954	30%
Wholesale - Petroleum and Petroleum Products	$11,602,309	79%
Monetary Authorities and Depository Credit Intermediation	$10,196,872	73%
Structures	$8,865,062	88%
Rail Transportation	$7,919,233	77%
Electric Power Transmission and Distribution	$7,440,038	87%
Retail - Gasoline Stores	$7,207,030	89%
Wholesale - Machinery, Equipment, and Supplies	$6,647,818	85%
Air Transportation	$6,641,200	39%
Nitrogenous Fertilizer Manufacturing	$6,602,155	15%
Natural Gas Distribution	$5,653,400	67%
Other State Government Enterprises	$5,159,645	98%
Insurance Agencies, Brokerages, and Related Activities	$5,049,512	83%
Fertilizer Mixing	$4,975,841	0%
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	$4,739,876	75%

Source: IMPLAN, Camoin Associates

Animal Production Cluster

Supply Chain Analysis

About 74% of the top 25 inputs to Animal Production are sourced from within Pennsylvania. In 2022, farmers producing animals and animal products purchased over $950 million of manufactured/processed animal food — the most significant input by dollar value — and nearly 75% of it was sourced from within Pennsylvania, representing a key supply chain strength.

That said, other types of animal feed, such as hay and other grains, represent an opportunity for Pennsylvania suppliers to strengthen in-state supply chains. In 2022, 75% of the grains used in Animal Production were sourced from out of state. Similarly, around three-quarters of services provided by Feedlots and Dual-purpose Ranching are purchased from out of state.

Supply Chain Gaps

Beef cattle ranching and farming, including feedlots, dual-purpose ranching, and farming

Beef cattle ranching/supply to other animal production

Grain farming

Table 27

Top 25 Industries Selling Inputs to Animal Production in Pennsylvania

Industry Selling to Animal Production Cluster	Total Purchases	Pct. Sourced from PA
Other Animal Food Manufacturing	$953,596,262	74%
Poultry and Egg Production	$312,218,066	77%
Wholesale - Other Nondurable Goods Merchant Wholesalers	$275,278,410	66%
Truck Transportation	$102,449,713	96%
Support Activities for Agriculture and Forestry	$80,158,304	95%
Beef Cattle Ranching and farming, Including Feedlots and Dual-Purpose Ranching and Farming	$55,820,284	24%
Grain Farming	$40,393,699	25%
Electric Power Transmission and Distribution	$33,028,711	87%
Wholesale - Wholesale Electronic Markets and Agents and Brokers	$30,970,526	100%
Wholesale - Grocery and Related Product Wholesalers	$29,523,077	75%
Veterinary Services	$25,695,753	99%
Other Real Estate	$22,765,953	83%
Petroleum Refineries	$21,438,829	33%
Monetary Authorities and Depository Credit Intermediation	$20,435,898	73%
Insurance Carriers, Except Direct Life	$19,371,054	78%
Rail Transportation	$18,630,170	77%
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	$18,629,695	75%
Wholesale - Petroleum and Petroleum Products	$17,313,086	79%
Wholesale - Machinery, Equipment, and Supplies	$11,763,645	85%
Wholesale - Drugs and Druggists' Sundries	$9,795,749	75%
Commercial and Industrial Machinery and Equipment Rental and Leasing	$9,758,448	82%
Retail - Gasoline Stores	$8,549,397	89%
Battery Manufacturing	$8,274,729	23%
Coal Mining	$8,128,590	45%
Flour Milling	$7,354,932	39%

Source: IMPLAN, Camoin Associates

Forestry Processing Cluster

Supply Chain Analysis

Overall, about 73% of the top 25 inputs to Forestry Processing are sourced from within Pennsylvania, including about 82% of the business-to-business (B2B) demand for Commercial Logging and 46% of the B2B demand for Sawmills.

Meanwhile, key infrastructure needs like Truck Transportation (96%), Warehousing and Storage (90%), and Rail Transportation (77%) are primarily sourced from in-state suppliers, indicating that Pennsylvania's related infrastructure is well positioned to meet demand. Continued support for the state's infrastructure network is critical to ensure the sector's continued success.

Several key opportunities could help Pennsylvania increase B2B connections to improve the supply chain for Forestry Processing. For example, about 54% of the commercial demand for Sawmills is sourced from out of state. This could include instances of sawmills providing intermediate inputs to industries like flooring manufacturers, for example.

Several industries with the largest out-of-state supply rates are Coal Mining, Natural Gas Distribution, and Petroleum Refineries. It is unlikely that Pennsylvania can increase production in these areas, and they are not considered to be key actionable opportunities for the cluster.

Supply Chain Gaps
Sawmills
Continue to strengthen key infrastructure (i.e., transportation, warehousing, and storage)

Table 28

Top 25 Industries Selling Inputs to Forestry Processing in Pennsylvania

Industry Selling to Forestry Processing Cluster	Total Purchases	Pct. Sourced from PA
Wholesale - Other Durable Goods Merchant Wholesalers	$360,949,146	75%
Sawmills	$333,139,044	46%
Commercial Logging	$231,433,921	82%
Truck Transportation	$141,919,340	96%
Electric Power Transmission and Distribution	$98,432,588	87%
Warehousing and Storage	$65,528,542	90%
Management of Companies and Enterprises	$52,172,206	97%
Paperboard Container Manufacturing	$46,900,204	49%
Rail Transportation	$43,674,388	77%
Wholesale - Other Nondurable Goods Merchant Wholesalers	$37,496,880	66%
Wholesale - Machinery, Equipment, and Supplies	$26,531,754	85%
Cut Stock, Resawing Lumber, and Planing	$22,198,855	75%
Legal Services	$21,178,395	80%
Monetary Authorities and Depository Credit Intermediation	$21,159,381	73%
Machine Shops	$21,003,406	38%
Data Processing, Hosting, and Related Services	$20,432,770	68%
Maintenance and Repair Construction of Nonresidential Structures	$20,205,552	88%
Coal Mining	$19,854,235	45%
Wood Container and Pallet Manufacturing	$17,797,798	67%
Services to Buildings	$17,528,497	87%
Natural Gas Distribution	$16,297,119	67%
Commercial and Industrial Machinery and Equipment Repair and Maintenance	$15,491,035	97%
Retail - Motor Vehicle and Parts Dealers	$14,886,665	89%
Wholesale - Motor Vehicle and Motor Vehicle Parts and Supplies	$13,471,854	97%
Petroleum Refineries	$12,988,055	33%

Source: IMPLAN, Camoin Associates

Landscaping Cluster

Supply Chain Analysis

About 79% of the top 25 inputs to Landscaping are sourced from within Pennsylvania, indicating a strong local supply chain.

Unlike other production-based clusters, the top three inputs into the Landscaping Services Cluster are real estate, insurance, and legal services. All three industries have at least 75% of their demand met within Pennsylvania. This indicates that there is a strong base of these service providers available to support the cluster. Continued growth and strengthening of these professional services will be critical to continued success in the Landscaping Cluster.

One key opportunity for the Landscaping Cluster is within Nursery and Floriculture Production, of which only 42% of the demand is met by Pennsylvania suppliers. Despite the state's overall strength in Nursery and Floriculture Production, the inputs for landscaping are not being met locally.

That being said, the existing infrastructure to support the Nursery and Floriculture Cluster may present an opportunity to incorporate new product offerings, such as plant cuttings or flower production, to better serve the Landscaping Cluster locally.

Supply Chain Gaps

Nursery and Floriculture Production

Continue to strengthen key professional services industries such as real estate, insurance, and legal

Table 29

Top 25 Industries Selling Inputs to Landscaping in Pennsylvania

Industry Selling to Landscaping Cluster	Total Purchases	Pct. Sourced from PA
Other Real Estate	$144,702,178	83%
Insurance Carriers, Except Direct Life	$81,857,197	78%
Legal Services	$78,981,306	80%
Wholesale - Motor Vehicle and Motor Vehicle Parts and Supplies	$64,319,403	97%
Warehousing and Storage	$49,666,601	90%
Wholesale - Other Durable Goods Merchant Wholesalers	$46,459,754	75%
Wholesale - Other Nondurable Goods Merchant Wholesalers	$43,933,994	66%
Employment Services	$43,527,745	78%
Wholesale - Petroleum and Petroleum Products	$41,827,075	79%
Commercial and Industrial Machinery and Equipment Repair and Maintenance	$36,950,823	97%
Truck Transportation	$33,046,177	96%
Petroleum Refineries	$29,606,232	33%
Automotive Equipment Rental and Leasing	$25,159,435	79%
Greenhouse, Nursery, and Floriculture Production	$24,625,839	42%
Automotive Repair and Maintenance, Except Car Washes	$24,435,629	95%
Waste Management and Remediation Services	$24,136,998	97%
Air Transportation	$23,693,949	39%
Motor Vehicle Electrical and Electronic Equipment Manufacturing	$23,421,616	22%
Personal and Household Goods Repair and Maintenance	$22,743,390	75%
Advertising, Public Relations, and Related Services	$22,512,488	77%
Architectural, Engineering, and Related Services	$20,930,991	85%
Internet Publishing and Broadcasting and Web Search Portals	$17,749,153	48%
Retail - Building Material and Garden Equipment and Supplies Stores	$16,178,616	90%
Wholesale - Household Appliances and Electrical and Electronic Goods	$15,770,166	81%
Wired Telecommunications Carriers	$14,924,927	96%

Source: IMPLAN, Camoin Associates

Food Processing Cluster

Supply Chain Analysis

Pennsylvania's Food Processing Cluster relies more heavily on out-of-state suppliers, with about 40% of the value of the cluster's top 25 inputs coming from other states. Despite the state's strengths in Animal Production, about 76% of Beef Cattle, 66% of Other Animals (e.g., hogs), 64% of Meat Processed from Carcasses, and 71% of Animal Slaughtering (other than Poultry) used in Food Processing are sourced from outside Pennsylvania. Conversely, only 33% of spending on poultry inputs was sourced from out-of-state suppliers. This data indicates a significant opportunity for Pennsylvania to recapture the meat processing supply chain.

Pennsylvania's Meat Processing Industry comprises large and small processors, with larger processors potentially having strong supply chain relationships with out-of-state entities. Encouraging processors statewide to use locally sourced animals may help Pennsylvania reduce the share of demand currently being met by out-of-state businesses.

A shortage of meat processors in Pennsylvania makes it challenging for animal producers to increase production to meet a larger share of in-state demand for local animal products. State-led initiatives to support small meat and poultry processors will continue to play an important role in increasing this share.

Soybean and Other Oilseed Processing may provide another opportunity for Pennsylvania to strengthen its in-state supply chain. Only about 5% of the Food Processing Cluster's demand for Soybean and Other Oilseed Processing is being met by Pennsylvania companies. Improving existing supply chains or encouraging the increased production and processing of soybeans and other oilseeds could allow Pennsylvania to meet a larger share of this demand.

Table 30

Top 25 Industries Selling Inputs to Food Processing in Pennsylvania

Industry Selling to Food Processing Cluster	Total Purchases	Pct. Sourced from PA
Truck Transportation	$756,878,747	96%
Beef Cattle Ranching and Farming, Including Feedlots and Dual-Purpose Ranching and Farming	$743,853,419	24%
Poultry and Egg Production	$560,124,883	77%
Animal Production, Except Cattle and Poultry and Eggs	$384,419,826	34%
Wholesale - Other Nondurable Goods Merchant Wholesalers	$362,408,737	66%
Animal Slaughtering, Except Poultry	$288,734,844	29%
Wholesale - Grocery and Related Product Wholesalers	$203,636,709	75%
Management of Companies and Enterprises	$184,559,051	97%
Meat Processed From Carcasses	$132,250,417	36%
Oilseed Farming	$119,485,203	30%
Poultry Processing	$75,047,487	25%
Other Animal Food Manufacturing	$61,813,931	74%
Rail Transportation	$49,879,903	77%
Grain Farming	$47,865,299	25%
Electric Power Transmission and Distribution	$46,843,189	87%
Paperboard Container Manufacturing	$44,658,449	49%
Warehousing and Storage	$34,811,286	90%
Wholesale - Wholesale Electronic Markets and Agents and Brokers	$31,347,613	100%
Monetary Authorities and Depository Credit Intermediation	$26,419,128	73%
Maintenance and repair construction of nonresidential structures	$16,918,330	88%
Services to Buildings	$14,940,700	87%
Soybean and Other Oilseed Processing	$14,782,190	5%
Data Processing, Hosting, and Related Services	$13,956,657	68%
Commercial and Industrial Machinery and Equipment Repair and Maintenance	$13,108,187	97%
Wholesale - Drugs and Druggists' Sundries	$12,467,065	75%

Source: IMPLAN, Camoin Associates

Supply Chain Gaps

Cattle, Hogs, and Chicken Production to Supply Processing Activity

Soybeans and Other Oilseed Processing

Alcohol Processing & Manufacturing Cluster

Supply Chain Analysis

Overall, 67% of the top 25 inputs to Alcohol Processing and Manufacturing are sourced from within Pennsylvania. Containers (metal, glass) are among the most imported inputs, with two-thirds of metal cans and three-quarters of glass bottles used in Alcohol Processing imported from out of state.

Improving the supply chain for in-state packaging and container sources is a key opportunity to help improve the cluster's overall economic impact.

Other key opportunities to improve the Alcohol Processing supply chain can be found in Flour Milling. About 61% of milled flour used at breweries and distilleries is sourced from out of state.

Similarly, a large majority of the grain (75%), fruit (92%), and other crops (73%) used in Alcoholic Beverage Processing is also sourced from outside of the state.

Supply Chain Gaps

Container Manufacturing (glass, metal)

Grain Milling

Grain, Fruit, and Other Crop Farming

Table 31

Top 25 Industries Selling Inputs to Alcohol Processing and Manufacturing in Pennsylvania

Industry Selling to Alcohol Processing Cluster	Total Purchases	Pct. Sourced from PA
Wholesale - Other Nondurable Goods Merchant Wholesalers	$123,696,247	66%
Truck Transportation	$75,595,376	96%
Wholesale - Machinery, Equipment, and Supplies	$71,456,104	85%
Metal Cans Manufacturing	$69,677,036	34%
Wholesale - Grocery and Related Product Wholesalers	$64,027,064	75%
Breweries	$48,393,977	33%
Management of Companies and Enterprises	$47,859,418	97%
Insurance Agencies, Brokerages, and Related Activities	$42,066,939	83%
Paperboard Container Manufacturing	$38,882,125	49%
Warehousing and Storage	$38,437,817	90%
Flour Milling	$29,410,325	39%
Glass Container Manufacturing	$28,223,813	24%
Other Real Estate	$27,916,572	83%
Lessors of Nonfinancial Intangible Assets	$27,257,449	77%
Wholesale - Other Durable Goods Merchant Wholesalers	$19,165,021	75%
Wineries	$14,880,693	23%
Electric Power Transmission and Distribution	$14,841,172	87%
Grain Farming	$13,177,985	25%
Insurance Carriers, Except Direct Life	$12,296,933	78%
Fruit Farming	$11,995,208	8%
Monetary Authorities and Depository Credit Intermediation	$11,432,649	73%
Rail Transportation	$11,248,529	77%
Advertising, Public Relations, and Related Services	$9,689,748	77%
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	$9,037,441	75%
All other Crop Farming	$7,995,609	27%

Source: IMPLAN, Camoin Associates

Forest Products Manufacturing Cluster

Supply Chain Analysis

Overall, about 71% of the Forest Products Manufacturing Cluster's largest input purchases were from in-state suppliers. Key infrastructure inputs such as transportation, warehousing and storage, machinery and equipment wholesale, and scientific R&D have strong in-state supply chains, with nearly all purchases provided by Pennsylvania suppliers.

Opportunities for improvement can be supported by fostering stronger intra-industry trade. For example, paper mills and paperboard manufacturers produce goods used as intermediate inputs in other Forest Product Manufacturing Sectors. In Pennsylvania, many of these intermediate inputs are sourced from outside the state. For example, 46% of purchases from paper mills and 49% from paperboard container manufacturers are sourced from within the state.

Meanwhile, only 46% of the dimension lumber used in Pennsylvania's Forest Product Manufacturing Sector is purchased from in-state suppliers. Finally, machine shops are critical to any manufacturing process, supplying key tools and materials to the production floor. In Pennsylvania, only 38% of purchases from machine shops are sourced from within the state.

Supply Chain Gaps

Paper and Paperboard Manufacturing

Sawmills/Lumber Producers

Machined Products

Table 32

Top 25 Industries Selling Inputs to Forest Product Manufacturing in Pennsylvania

Industry Selling to Forestry Products Manufacturing Cluster	Total Purchases	Pct. Sourced from PA
Wholesale - Other Nondurable Goods Merchant Wholesalers	$354,285,699	66%
Truck Transportation	$353,728,023	96%
Sanitary Paper Product Manufacturing	$264,392,206	49%
Paper Mills	$262,494,034	46%
Paperboard Container Manufacturing	$261,896,088	49%
Warehousing and Storage	$250,019,318	90%
Wholesale - Other Durable Goods Merchant Wholesalers	$224,335,693	75%
Wholesale - Drugs and Druggists' Sundries	$163,450,278	75%
Management of Companies and Enterprises	$157,716,282	97%
Sawmills	$147,559,538	46%
Electric Power Transmission and Distribution	$140,343,351	87%
Other Real Estate	$135,978,085	83%
Rail Transportation	$114,374,093	77%
Data Processing, Hosting, and Related Services	$82,382,804	68%
Wholesale - Machinery, Equipment, and Supplies	$78,482,334	85%
Monetary Authorities and Depository Credit Intermediation	$77,567,035	73%
Machine Shops	$63,131,180	38%
Legal Services	$54,291,302	80%
Plastics Packaging Materials and Unlaminated Film and Sheet Manufacturing	$53,747,032	20%
Maintenance and Repair Construction of Nonresidential Structures	$46,562,308	88%
All Other Miscellaneous Wood Product Manufacturing	$45,895,712	71%
Insurance Agencies, Brokerages, and Related Activities	$43,669,583	83%
Scientific Research and Development Services	$43,381,038	89%
Wholesale - Household Appliances and Electrical and Electronic Goods	$43,139,523	81%
Lessors of Nonfinancial Entangible Assets	$42,679,143	77%

Source: IMPLAN, Camoin Associates

Food & Beverage Manufacturing Cluster

Supply Chain Analysis

In total, 75% of Food and Beverage Manufacturing's top 25 inputs are sourced from within Pennsylvania. In 2022, the cluster spent over $1 billion buying three key inputs: Dairy Cattle and Milk Production, Grocery Wholesale Services, and Management of Companies and Enterprises. Overall, 90% of the dairy used in Food and Beverage Manufacturing was sourced from Pennsylvania farmers, highlighting the state's key strength in dairy production.

Meanwhile, other critical inputs represent opportunities where Pennsylvania could enhance in-state supply. Like other clusters, Food and Beverage Manufacturing relies heavily on an out-of-state supply of grains and flour milling. Only 25% of grain inputs and 39% of milled flour inputs are sourced in-state, and increasing the production of grains and flours within Pennsylvania could improve Food Manufacturing supply chains.

Additionally, key containers used in food products, including paperboard, metal cans, and plastic bottles, are primarily imported from other states, so increased in-state production and B2B trade of these items could improve the cluster's overall supply chain and economic impact.

Supply Chain Gaps

Grains

Flour Milling

Packaging Containers (paperboard, metal cans, plastic bottles)

Table 33

Top 25 Industries Selling Inputs to Food & Beverage Manufacturing in Pennsylvania

Industries Selling to Food & Beverage Manufacturing Cluster	Total Purchases	Pct. Sourced from PA
Dairy Cattle and Milk Production	$1,596,340,780	90%
Wholesale - Grocery and Related Product Wholesalers	$1,511,229,904	75%
Management of Companies and Enterprises	$1,231,088,945	97%
Truck Transportation	$834,690,734	96%
Wholesale - Other Nondurable Goods Merchant Wholesalers	$704,009,812	66%
Grain Farming	$346,473,178	25%
Paperboard Container Manufacturing	$340,822,155	49%
Fluid Milk Manufacturing	$272,458,431	54%
Flour Milling	$231,591,438	39%
Meat Processed From Carcasses	$205,859,468	36%
Metal Cans Manufacturing	$191,652,944	34%
Wholesale - Machinery, Equipment, and Supplies	$185,976,494	85%
Rail Transportation	$184,948,341	77%
Electric Power Transmission and Distribution	$180,496,744	87%
All Other Crop Farming	$157,793,901	27%
Insurance Agencies, Brokerages, and Related Activities	$147,554,318	83%
Advertising, Public Relations, and Related Services	$139,278,856	77%
Poultry and Egg Production	$137,049,021	77%
Wholesale - Other Durable Goods Merchant Wholesalers	$133,384,206	75%
Wholesale - Drugs and Druggists' Sundries	$132,318,838	75%
Other Real Estate	$117,573,316	83%
Monetary Authorities and Depository Credit Intermediation	$116,862,622	73%
Warehousing and Storage	$115,348,846	90%
Plastics Bottle Manufacturing	$96,787,982	29%
Internet Publishing and Broadcasting and Web Search Portals	$89,051,206	48%

Source: IMPLAN, Camoin Associates

Exports and Imports Analysis

Domestic Trade: Exports

The Pennsylvania Agriculture Sector exported goods to 49 states and Washington, DC, in 2022. Between 2012 and 2022, the state's agricultural exports saw significant growth, increasing by $5.63 billion (13%) in real terms, from $42.67 billion to $48.30 billion.

New York remained the state's largest export partner, with exports rising by $938.85 million to $7.75 billion in 2022. Florida experienced the second-highest growth, adding $570 million, and was Pennsylvania's sixth-largest export partner in 2022.

Overall, in 2022, Pennsylvania domestically exported more agricultural-related commodities than it imported.

Top Exported Commodities to Top Domestic Export Partners

New York | Meat processed from carcasses, bottled and canned soft drinks and water, other snack foods, paperboard containers, and sanitary paper products

New Jersey | Meat processed from carcasses, paperboard containers, bottled and canned soft drinks and water, paper from pulp, and other snack foods

Maryland | Meat processed from carcasses, paperboard containers, other snack foods, dairy cattle and milk products, and paper from pulp

Table 34

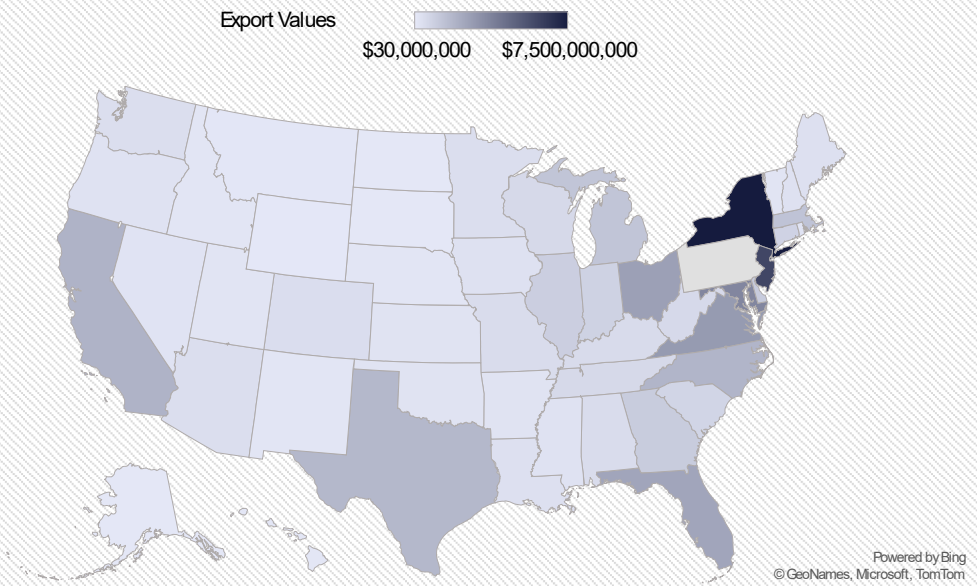
Pennsylvania Agriculture's Top 10 Domestic Export Partners, 2022

State	Export Value
New York	$7,745,244,785
New Jersey	$5,915,159,325
Maryland	$3,590,438,927
Virginia	$2,853,860,318
Ohio	$2,648,662,142
Florida	$2,468,974,708
California	$1,956,605,028
North Carolina	$1,881,898,241
Texas	$1,786,738,198
Massachusetts	$1,381,659,296
Total, All Domestic Agriculture Exports	**$48,300,737,072**

Source: IMPLAN

Figure 10

Destination States for Pennsylvania Agriculture's Domestic Exports, 2022



Source: IMPLAN, Camoin Associates

Virginia | Other snack foods, paperboard containers, meat processed from carcasses, other animal food, and dairy cattle and milk products

Ohio | Other snack foods, paper from pulp, paperboard containers, dimension lumber, and confectioneries from purchased chocolate

Florida | Other snack foods, confectioneries from purchased chocolate, prefabricated wood buildings, dog and cat food, and canned fruits and vegetables

California | Confectioneries from purchased chocolate, canned fruits and vegetables, other snack foods, sanitary paper products, and dog and cat food

North Carolina | Other animal food, other snack foods, paperboard containers, confectioneries from purchased chocolate, and meat processed from carcasses

Texas | Confectioneries from purchased chocolate, canned fruits and vegetables, prefabricated wood buildings, other snack foods, and dog and cat food

Massachusetts | Other snack foods, meat processed from carcasses, confectioneries from purchased chocolate, dog and cat food, and canned fruits and vegetables

Domestic Trade: Imports

Pennsylvania imported agriculture-related goods from 49 states and Washington, DC, in 2022. During the 10-year study period, Pennsylvania's top three domestic agricultural import partners by growth were Iowa, Ohio, and Texas, which contributed significantly to a total import growth of $4.1 billion (10%).

Iowa experienced the largest increase, with agricultural imports rising by $450 million to $1.6 billion in 2022. However, Iowa was not among Pennsylvania's top 10 import partners in 2022. Ohio followed closely, with an increase of $375.31 million, and was Pennsylvania's top import partner in 2022. Agriculture imports from Texas increased by around $360 million, totaling $1.53 billion in 2022.

Top Imported Commodities from Top Domestic Import Partners

Ohio | Meat processed from carcasses, paperboard containers, bottled and canned soft drinks and water, soybean and other oilseed processing, and frozen specialties

New York | Fluid milk, paperboard containers, paper from pulp, cheese, and other animal food

New Jersey | Paperboard containers, meat processed from carcasses, all other food products, other animal food, and bottled and canned soft drinks and water

Illinois | Wet corn, meat processed from carcasses, soybean and other oilseed processing, fats and oils refining and blending, and all other food products

Table 35

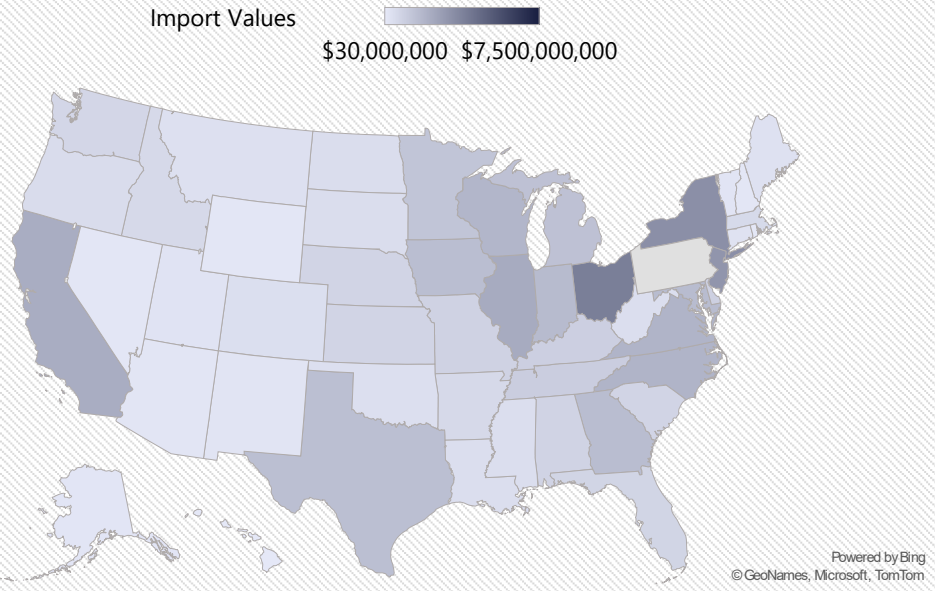
Pennsylvania Agriculture's Top 10 Domestic Import Partners, 2022

State	Import Value
Ohio	$3,868,957,030
New York	$3,256,450,461
New Jersey	$3,040,175,154
Illinois	$2,250,300,000
California	$2,174,336,301
North Carolina	$1,938,267,583
Virginia	$1,917,286,084
Wisconsin	$1,846,778,681
Indiana	$1,671,816,385
Maryland	$1,637,721,093
Total, All Domestic Agriculture Imports	**$46,301,386,822**

Source: IMPLAN

Figure 11

Source State's for PA Agriculture's Domestic Imports, 2022



Source: IMPLAN, Camoin Associates

California | Fruit, wine and brandies, vegetables and melons, canned fruits and vegetables, and tree nuts

North Carolina | Processed poultry meat products, upholstered household furniture, paperboard containers, soybean and other oilseed processing, and paper from pulp

Virginia | Processed poultry meat products, paperboard from pulp, bottled and canned soft drinks and water, dimension lumber, and meat processed from carcasses

Wisconsin | Cheese, meat processed from carcasses, paper from pulp, canned fruits and vegetables, and paper bags and coated and treated paper

Indiana | Soybean and other oilseed processing, meat processed from carcasses, grains, wet corn, and paperboard containers

Maryland | Spices and extracts, paperboard containers, bottled and canned soft drinks and water, sugar cane, and processed poultry meat products

Top Domestic Exported and Imported Commodities

In 2022, Pennsylvania's total domestic agricultural imports amounted to $46.3 billion, led by processed meat from carcasses ($2.67 billion, 6% of imports), processed poultry meat products ($2.33 billion, 5%), and beef cattle ($2.31 billion, 5%).

Pennsylvania recorded $48.3 billion in total domestic agricultural exports in 2022. Leading export commodities included other snack foods ($3.48 billion, 7% of exports), processed meat from carcasses ($2.94 billion, 6%), and confectioneries made from purchased chocolate ($2.73 billion, 6%).

The data highlights Pennsylvania's dual role as a major importer and exporter of processed agricultural goods, with processed meats and paper products dominating both lists.[22]

During 2022, export values exceeded import values.

Table 36 **Pennsylvania Agriculture's Top 15 Domestic Exported Commodities, 2022**

Commodity	Export Value	Pct. of Total Exports
Other snack foods	$3,483,241,077	7%
Meat processed from carcasses	$2,939,298,412	6%
Confectioneries from purchased chocolate	$2,728,777,181	6%
Paperboard containers	$2,708,529,383	6%
Canned fruits and vegetables	$2,320,420,134	5%
Dog and cat food	$2,188,045,377	5%
Paper from pulp	$1,970,310,600	4%
Sanitary paper products	$1,847,690,810	4%
Bottled and canned soft drinks and water	$1,736,892,819	4%
Cheese	$1,460,995,913	3%
All other food products	$1,445,882,357	3%
Other animal food	$1,445,295,260	3%
Fluid milk	$1,435,590,754	3%
Poultry and egg products	$1,255,291,569	3%
Prefabricated wood buildings	$1,030,483,438	2%
Total, All Domestic Agriculture Exports	**$48,300,737,072**	**100%**

Source: IMPLAN

Table 37 **Pennsylvania Agriculture's Top 15 Domestic Imported Commodities, 2022**

Commodity	Import Value	Pct. of Total Imports
Meat processed from carcasses	$2,670,773,782	6%
Processed poultry meat products	$2,334,601,141	5%
Beef cattle	$2,313,211,433	5%
Paperboard containers	$2,070,690,122	4%
Soybean and other oilseed processing	$1,986,120,647	4%
Grains	$1,811,171,495	4%
Cheese	$1,745,825,750	4%
All other food products	$1,505,225,962	3%
Bottled and canned soft drinks and water	$1,378,760,547	3%
Paperboard from pulp	$1,294,230,892	3%
Paper from pulp	$1,238,627,593	3%
Canned fruits and vegetables	$1,170,951,894	3%
Wet corn	$1,083,180,004	2%
Distilled liquors except brandies	$979,873,659	2%
Fats and oils refining and blending	$916,807,976	2%
Total, All Domestic Agriculture Imports	**$46,301,386,822**	**100%**

Source: IMPLAN

Commodities associated with the Agriculture Subsector

Commodities associated with the Agriculture-Related Manufacturing Subsector

[22] A state might import and export the same commodity due to differences in quality, seasonality, trade agreements, consumer preferences, etc. For example, Pennsylvania may export high-quality meat processed from animal carcasses while importing a lower-grade version. Seasonality may also play a role. As an example, Pennsylvania may have an apple surplus and export apples during certain months, but during the winter months, they may need to import apples to satisfy demand. Another contributing factor may be the complex nature of trade agreements. Suppose 20 years ago, a producer was looking for a processor to purchase their goods, but none of the local processors had any demand. The producer ultimately found a profitable relationship with a processor in another state. Even if local demand increases, that producer is unlikely to end a reliable/profitable trade relationship without some type of major incentive.

Foreign Trade: Exports

Pennsylvania's foreign agricultural export landscape shows significant growth from 2012 to 2022, with total foreign exports increasing by $77.9 million in real terms, reaching $3.4 billion in 2022.

The top five foreign export partners, which collectively represented 71% of the state's total exports in 2022, displayed varying degrees of growth over the decade.

Canada remained the dominant partner, contributing $1.6 billion in 2022 (47% of total exports).

The Dominican Republic saw the most dramatic percentage growth (237% increase), with export values rising from $117.7 million to $167.3.5 million in 2022, making it the fourth-largest partner and showing Pennsylvania's growing presence in Caribbean markets.

Table 38

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

China, the second-largest export partner in 2022, grew by $80.9 million to $293.3 million in 2022, reflecting expanding trade opportunities in Asia.

Mexico, which ranked third, experienced a $36.4 million increase in agricultural exports, reaching $241.9 million in 2022.

Notably, while not in the top five by export value in 2022, the Netherlands showed significant growth, with exports rising from $41.2 million to $64.3 million.

The data highlights the importance of long-standing trade relationships with North American partners (Canada and Mexico) while showcasing emerging opportunities in regions like the Caribbean, Asia, and Europe.

Top Exported Commodities to Top Foreign Export Partners

Canada | Cocoa and cocoa preparations, prepared cereal, flour, starch or milk, bakers wares, paper and paperboard and articles (including paper pulp articles), wood and articles of wood, wood charcoal, and miscellaneous edible preparations

China | Wood and articles of wood, wood charcoal, meat and edible meat offal, raw hides and skins (no furskins) and leather, products of animal origin, other, and miscellaneous edible preparations

Mexico | Cocoa and cocoa preparations, wood and articles of wood, wood charcoal, paper and paperboard and articles (including paper pulp articles), dairy, produce, birds' eggs, honey, other edible animal products, and miscellaneous edible preparations

Dominican Republic | Tobacco and manufactured tobacco substitutes; meat and edible meat offal; cocoa and cocoa preparations; miscellaneous edible preparations, prepared cereal, flour, starch or milk, and bakers wares

United Kingdom | Cocoa and cocoa preparations, prepared cereal, flour, starch or milk, bakers wares, miscellaneous edible preparations, wood and articles of wood, wood charcoal, and sugars and sugar confectionary

Foreign Trade: Imports

In 2022, Pennsylvania's total foreign agricultural imports amounted to approximately $11.4 billion.

The largest share of these imports came from Canada, which contributed nearly $4.0 billion, accounting for 35% of the total. Other significant partners included Mexico, Australia, Brazil, and Chile, with each contributing 4-6% to the overall import value.

Collectively, imports from all other countries comprised 47% of the state's total foreign imports.

Over the decade from 2012 to 2022, Pennsylvania experienced substantial growth in its agricultural imports, with the overall increase totaling $4.7 billion.

Canada remained the dominant partner, with imports growing by $1.4 billion, reinforcing its position as Pennsylvania's largest supplier.

Table 39

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

However, some emerging markets showed exceptional growth. Notably, imports from Peru grew by almost 800% or about $349.6 million, while Italy saw an increase of $268.1 million.

Australia also experienced significant growth, with imports rising by $287.0 million.

These trends show diversification in Pennsylvania's agricultural import sources, with emerging economies gaining prominence in the state's agricultural trade portfolio. Canada's consistent dominance, however, shows its importance as a key partner in Pennsylvania's agricultural imports.

Top Imported Commodities from Top Foreign Import Partners

Canada | Wood and articles of wood, wood charcoal, prepared cereal, flour, starch or milk, bakers wares, paper and paperboard and articles (including paper pulp articles), cocoa and cocoa preparations, and wood pulp, etc. recovered (waste and scrap)

Mexico | Prepared cereal, flour, starch or milk, bakers wares, cocoa and cocoa preparations, sugars and sugar confectionery, miscellaneous edible preparations, and beverages, spirits, and vinegar

Australia | Meat and edible meat offal, edible fruit and nuts, citrus fruit or melon peel, sugars and sugar confectionery, miscellaneous edible preparations, dairy produce, birds' eggs, honey, and other edible animal products

Brazil | Meat and edible meat offal, wood and articles of wood, wood charcoal, wood pulp, etc. recovered (waste and scrap), dairy produce, birds' eggs, honey, other edible animal products, and miscellaneous edible preparations

Chile | Edible fruit and nuts, citrus fruit or melon peel, wood and articles of wood, wood charcoal, meat and edible meat offal, dairy produce, birds' eggs, honey, and other edible animal products

ATTACHMENT A: DATA TABLES

IMPLAN and NAICS Definition for Pennsylvania's Agricultural Sector

Display Code	IMPLAN Description	6-Digit NAICS Codes
	Agriculture Subsector	
Cluster: Crop Production		
1	Oilseed farming	111110, 111120
2	Grain farming	111130, 111140, 111150, 111160, 111191, 111199
3	Vegetable and melon farming	111211, 111219
4	Fruit farming	111310, 111320, 111331, 111332, 111333, 111334, 111336,111339
5	Tree nut farming	111335
6	Greenhouse, nursery, and floriculture production	111411, 111419, 111421, 111422
7	Tobacco farming	111910
8	Cotton farming	111920
9	Sugarcane and sugar beet farming	111930, 111991
10	All other crop farming	111940, 111992, 111998
Cluster: Animal Production		
11	Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	112111, 112112
12	Dairy cattle and milk production	112120
13	Poultry and egg production	112310, 112320, 112330, 112340, 112390
14	Animal production, except cattle and poultry and eggs	112210, 112410, 112420, 112511, 112512, 112519, 112910,112920, 112930, 112990
19	Support activities for agriculture and forestry	115111, 115112, 115113, 115114, 115115, 115116, 115210, 115310

IMPLAN and NAICS Definition for Pennsylvania's Agricultural Sector

Display Code	IMPLAN Description	6-Digit NAICS Codes
	Agriculture Subsector	
Cluster: Forestry Processing		
139	Other millwork, including flooring	321918
16	Commercial logging	113310
132	Sawmills	321113
144	Pulp mills	322110
145	Paper mills	322120
146	Paperboard mills	322130
138	Cut stock, resawing lumber, and planing	321912
133	Wood preservation	321114
15	Forestry, forest products, and timber tract production	113110, 113210
Cluster: Landscaping		
477	Landscape and horticultural services	561730
Cluster: Food Processing		
65	Flour milling	311211
66	Rice milling	311212
68	Wet corn milling	311221
69	Soybean and other oilseed processing	311224
70	Fats and oils refining and blending	311225
73	Sugar cane mills and refining	311314
88	Poultry processing	311615
89	Animal, except poultry, slaughtering	311611
90	Meat processed from carcasses	311612
91	Rendering and meat byproduct processing	311613
Cluster: Alcohol Processing and Manufacturing		
106	Breweries	312120
107	Wineries	312130
108	Distilleries	312140

IMPLAN and NAICS Definition for Pennsylvania's Agricultural Sector

Display Code	IMPLAN Description	6-Digit NAICS Codes
Agriculture-Related Manufacturing Subsector		
Cluster: Forest Products Manufacturing		
134	Veneer and plywood manufacturing	321211, 321212
135	Engineered wood member and truss manufacturing	321215
136	Reconstituted wood product manufacturing	321219
137	Wood windows and door manufacturing	321911
140	Wood container and pallet manufacturing	321920
141	Manufactured home (mobile home) manufacturing	321991
142	Prefabricated wood building manufacturing	321992
143	All other miscellaneous wood product manufacturing	321999
147	Paperboard container manufacturing	322211, 322212, 322219
148	Paper bag and coated and treated paper manufacturing	322220
149	Stationery product manufacturing	322230
150	Sanitary paper product manufacturing	322291
151	All other converted paper product manufacturing	322299
365	Wood kitchen cabinet and countertop manufacturing	337110
367	Nonupholstered wood household furniture manufacturing	337122
370	Wood office furniture manufacturing	337211
Cluster: Food and Beverage Manufacturing		
63	Dog and cat food manufacturing	311111
64	Other animal food manufacturing	311119
67	Malt manufacturing	311213
71	Breakfast cereal manufacturing	311230
72	Beet sugar manufacturing	311313
74	Nonchocolate confectionery manufacturing	311340
75	Chocolate and confectionery manufacturing from cacao beans	311351
76	Confectionery manufacturing from purchased chocolate	311352

IMPLAN and NAICS Definition for Pennsylvania's Agricultural Sector

Display Code	IMPLAN Description	6-Digit NAICS Codes
	Agriculture-Related Manufacturing Subsector	
77	Frozen fruits, juices and vegetables manufacturing	311411
78	Frozen specialties manufacturing	311412
79	Canned fruits and vegetables manufacturing	311421
80	Canned specialties	311422
81	Dehydrated food products manufacturing	311423
82	Cheese manufacturing	311513
83	Dry, condensed, and evaporated dairy product manufacturing	311514
84	Fluid milk manufacturing	311511
85	Creamery butter manufacturing	311512
86	Ice cream and frozen dessert manufacturing	311520
87	Frozen cakes and other pastries manufacturing	311813
93	Bread and bakery product, except frozen, manufacturing	311811, 311812
94	Cookie and cracker manufacturing	311821
95	Dry pasta, mixes, and dough manufacturing	311824
96	Tortilla manufacturing	311830
97	Roasted nuts and peanut butter manufacturing	311911
98	Other snack food manufacturing	311919
99	Coffee and tea manufacturing	311920
100	Flavoring syrup and concentrate manufacturing	311930
101	Mayonnaise, dressing, and sauce manufacturing	311941
102	Spice and extract manufacturing	311942
103	All other food manufacturing	311991, 311999
104	Bottled and canned soft drinks & water	312111, 312112
105	Manufactured ice	312113
109	Tobacco product manufacturing	312230

Source: IMPLAN

ATTACHMENT B: DETAILED INDUSTRY TREND TABLES

Pennsylvania Crop Production Cluster Economic Performance Metrics

IMPLAN Code	Description	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Avg. Earnings Per Job	2022 Location Quotient	2012 GSP	2022 GSP	Real GSP Growth, 2012-2022	Share of Cluster Jobs	Share of Cluster GSP
1	Oilseed farming	832	853	21	3%	$125,679	0.24	$113M	$361M	218%	2.1%	7.0%
2	Grain farming	5,850	5,242	(609)	(10%)	$39,613	0.39	$233M	$516M	121%	13.0%	14.4%
3	Vegetable and melon farming	7,415	1,436	(5,979)	(81%)	$43,995	0.30	$525M	$122M	(77%)	3.6%	32.4%
4	Fruit farming	3,349	1,775	(1,574)	(47%)	$38,982	0.34	$178M	$130M	(27%)	4.4%	11.0%
5	Tree nut farming	34	13	(22)	(63%)	$38,529	0.01	$2M	$1M	(46%)	0.0%	0.1%
6	Greenhouse, nursery, and floriculture production	11,271	10,578	(693)	(6%)	$34,522	1.80	$418M	$720M	72%	26.2%	25.8%
7	Tobacco farming	555	643	87	16%	$29,798	1.26	$16M	$37M	132%	1.6%	1.0%
10	All other crop farming	21,952	19,874	(2,078)	(9%)	$7,423	0.96	$134M	$261M	95%	49.2%	8.3%
	Total	**51,259**	**40,414**	**(10,845)**	**(21%)**	**$24,240**	**0.73**	**$1,619M**	**$2,148M**	**33%**	**100.0%**	**100.0%**

Source: IMPLAN

Pennsylvania Animal Production Cluster Economic Performance Metrics

IMPLAN Code	Description	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Avg. Earnings Per Job	2022 Location Quotient	2012 GSP	2022 GSP	Real GSP Growth, 2012-2022	Share of Cluster Jobs	Share of Cluster GSP
11	Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	8,933	7,317	(1,616)	(18%)	$19,517	0.37	$323.6M	$452.5M	40%	17.8%	16.9%
12	Dairy cattle and milk production	6,113	6,483	370	6%	$47,088	1.60	$507.6M	$710.8M	40%	15.8%	26.5%
13	Poultry and egg production	3,064	5,896	2,832	92%	$27,257	1.19	$186.2M	$421.9M	127%	14.4%	9.7%
14	Animal production, except cattle and poultry and eggs	7,557	8,124	567	8%	$34,805	0.75	$435.1M	$656.9M	51%	19.8%	22.7%
19	Support activities for agriculture and forestry	12,807	13,253	446	3%	$39,227	0.48	$466.3M	$532.3M	14%	32.3%	24.3%
	Total	**38,474**	**41,073**	**2,599**	**7%**	**$34,364**	**0.63**	**$1,919M**	**$2,774M**	**45%**	**100.0%**	**100.0%**

Source: IMPLAN

Pennsylvania Forestry Processing Cluster Economic Performance Metrics

IMPLAN Code	Description	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Avg. Earnings Per Job	2022 Location Quotient	2012 GSP	2022 GSP	Real GSP Growth, 2012-2022	Share of Cluster Jobs	Share of Cluster GSP
15	Forestry, forest products, and timber	1,017	1,009	(8)	(1%)	$80,050	1.23	$53M	$88M	64%	7.4%	3.4%
16	Commercial logging	4,268	3,581	(687)	(16%)	$84,034	0.87	$219M	$331M	51%	26.4%	13.9%
132	Sawmills	4,565	4,131	(434)	(10%)	$64,186	1.21	$239M	$349M	46%	30.5%	15.1%
133	Wood preservation	297	389	92	31%	$77,380	0.89	$26M	$53M	101%	2.9%	1.7%
138	Cut stock, resawing lumber, and planing	578	514	(64)	(11%)	$64,799	0.92	$32M	$47M	45%	3.8%	2.0%
139	Other millwork, including flooring	1,811	1,644	(167)	(9%)	$78,249	1.13	$114M	$169M	48%	12.1%	7.2%
144	Pulp Mills	11	56	45	428%	$165,529	0.17	$0M	$11M	N/A	0.4%	0.0%
145	Paper mills	3,097	2,097	(1,000)	(32%)	$139,282	1.07	$794M	$651M	(18%)	15.5%	50.3%
146	Paperboard mills	366	144	(222)	(61%)	$183,012	0.12	$101M	$53M	(48%)	1.1%	6.4%
	Total	**16,009**	**13,565**	**(2,445)**	**(15%)**	**$86,002**	**0.98**	**$1,580M**	**$1,751M**	**11%**	**100.0%**	**100.0%**

Source: IMPLAN

Pennsylvania Landscaping Cluster Economic Performance Metrics

IMPLAN Code	Description	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Avg. Earnings Per Job	2022 Location Quotient	2012 GSP	2022 GSP	Real GSP Growth, 2012-2022	Share of Cluster Jobs	Share of Cluster GSP
477	Landscape and horticultural services	42,898	43,844	946	2%	$50,374	1.00	$1.8 B	$2.5 B	44%	100.0%	100.0%
	Total	**42,898**	**43,844**	**946**	**2%**	**$50,374**	**1.03**	**$1.8 B**	**$2.5 B**	**44%**	**100.0%**	**100.0%**

Source: IMPLAN

Pennsylvania Food Processing Cluster Economic Performance Metrics

IMPLAN Code	Description	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Avg. Earnings Per Job	2022 Location Quotient	2012 GSP	2022 GSP	Real GSP Growth, 2012-2022	Share of Cluster Jobs	Share of Cluster GSP
65	Flour milling	309	346	38	12%	$100,851	0.58	$62.0M	$67.2M	8%	1.8%	5.3%
66	Rice milling	11	0	(11)	(100%)	$0	0.00	$0.3M	$0.0M	(100%)	0.0%	0.0%
69	Soybean and other oilseed processing	25	140	115	469%	$81,975	0.36	$5.2M	$60.9M	1069%	0.7%	0.4%
70	Fats and oils refining and blending	155	182	27	18%	$152,666	0.61	$22.4M	$68.5M	206%	0.9%	1.9%
73	Sugar cane mills and refining	307	402	94	31%	$111,603	0.96	$0.0M	$41.8M	N/A	2.1%	0.0%
88	Poultry processing	4,341	4,116	(226)	(5%)	$72,347	0.45	$292.9M	$358.5M	22%	21.1%	25.3%
89	Animal, except poultry, slaughtering	5,272	6,592	1,320	25%	$77,001	1.10	$399.8M	$602.0M	51%	33.8%	34.5%
90	Meat processed from carcasses	4,782	7,115	2,332	49%	$71,031	1.16	$340.3M	$501.8M	47%	36.4%	29.4%
91	Rendering and meat byproduct processing	448	628	181	40%	$81,804	1.19	$36.6M	$55.4M	51%	3.2%	3.2%
	Total	**15,650**	**19,520**	**3,871**	**25%**	**$75,875**	**0.85**	**$1,159.4M**	**$1,756.1M**	**51%**	**100.0%**	**100.0%**

Source: IMPLAN

Pennsylvania Alcohol Processing and Manufacturing Cluster Economic Performance Metrics

IMPLAN Code	Description	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Avg. Earnings Per Job	2022 Location Quotient	2012 GSP	2022 GSP	Real GSP Growth, 2012-2022	Share of Cluster Jobs	Share of Cluster GSP
106	Breweries	1,356	4,998	3,642	269%	$56,860	1.18	$382.6M	$543.4M	42%	61.4%	83.1%
107	Wineries	825	2,287	1,461	177%	$29,856	0.76	$34.0M	$126.9M	273%	28.1%	7.4%
108	Distilleries	179	857	679	380%	$47,478	0.83	$43.6M	$178.8M	310%	10.5%	9.5%
	Total	**2,360**	**8,142**	**5,782**	**245%**	**$48,288**	**1.01**	**$460.1M**	**$849.1M**	**85%**	**100.0%**	**100.0%**

Source: IMPLAN

Pennsylvania Forest Product Manufacturing Cluster Economic Performance Metrics

IMPLAN Code	Description	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Avg. Earnings Per Job	2022 Location Quotient	2012 GSP	2022 GSP	Growth, 2012-2022	Share of Cluster Jobs	Share of Cluster GSP
134	Veneer and plywood manufacturing	652	678	25	4%	$66,991	0.57	$40M	$55M	37%	1.5%	0.8%
135	Engineered wood member and truss manufacturing	1,302	1,690	388	30%	$94,910	0.95	$87M	$209M	142%	3.6%	1.8%
136	Reconstituted wood product manufacturing	747	1,032	284	38%	$89,086	1.64	$89M	$168M	90%	2.2%	1.8%
137	Wood windows and door manufacturing	1,959	2,198	239	12%	$77,600	0.91	$129M	$202M	57%	4.7%	2.6%
140	Wood container and pallet manufacturing	3,636	4,021	385	11%	$71,546	1.58	$175M	$348M	98%	8.6%	3.6%
141	Manufactured home (mobile home) manufacturing	1,207	2,089	883	73%	$85,965	1.60	$84M	$218M	160%	4.5%	1.7%
142	Prefabricated wood building manufacturing	3,062	3,934	871	28%	$74,259	5.24	$180M	$419M	133%	8.5%	3.7%
143	All other miscellaneous wood product manufacturing	2,003	3,538	1,535	77%	$76,787	3.25	$121M	$333M	176%	7.6%	2.5%
147	Paperboard container manufacturing	7,782	8,386	604	8%	$98,744	1.39	$1,072M	$1,226M	14%	18.0%	21.8%
148	Paper bag and coated and treated paper manufacturing	3,454	2,675	(779)	(23%)	$100,443	1.26	$550M	$420M	(24%)	5.8%	11.2%
149	Stationery product manufacturing	2,937	2,143	(794)	(27%)	$76,929	3.83	$242M	$211M	(13%)	4.6%	4.9%
150	Sanitary paper product manufacturing	5,256	4,171	(1,085)	(21%)	$108,217	3.88	$1,428M	$1,303M	(9%)	9.0%	29.1%
151	All other converted paper product manufacturing	1,361	1,726	365	27%	$71,863	2.55	$148M	$205M	39%	3.7%	3.0%
365	Wood kitchen cabinet and countertop manufacturing	6,751	6,451	(300)	(4%)	$63,352	1.30	$461M	$448M	(3%)	13.9%	9.4%
367	Nonupholstered wood household furniture manufacturing	1,499	1,244	(255)	(17%)	$54,996	1.03	$72M	$72M	1%	2.7%	1.5%
370	Wood office furniture manufacturing	535	526	(9)	(2%)	$72,467	0.79	$35M	$42M	19%	1.1%	0.7%
	Total	**44,145**	**46,502**	**2,358**	**5%**	**$82,827**	**1.64**	**$4,911M**	**$5,880M**	**20%**	**100.0%**	**100.0%**

Source: IMPLAN

Pennsylvania Food and Beverage Manufacturing Cluster Economic Performance Metrics

IMPLAN Code	Description	2012 Jobs	2022 Jobs	2012-2022 Change in Jobs	2012-2022 Pct. Change in Jobs	2022 Avg. Earnings Per Job	2022 Location Quotient	2012 GSP	2022 GSP	Real GSP Growth, 2012-2022	Share of Cluster Jobs	Share of Cluster GSP
63	Dog and cat food manufacturing	1,734	2,893	1,159	67%	$89,369	2.14	$514.6M	$601.0M	17%	3.5%	5.7%
64	Other animal food manufacturing	2,242	2,230	(12)	(1%)	$79,421	1.21	$250.0M	$330.6M	32%	2.7%	2.8%
71	Breakfast cereal manufacturing	649	440	(210)	(32%)	$127,892	0.86	$180.5M	$136.3M	(24%)	0.5%	2.0%
74	Nonchocolate confectionery manufacturing	1,557	1,999	442	28%	$76,803	2.05	$162.8M	$211.3M	30%	2.4%	1.8%
75	Chocolate and confectionery manufacturing from cacao beans	2,991	3,793	801	27%	$80,983	9.33	$612.6M	$454.2M	(26%)	4.6%	6.7%
76	Confectionery manufacturing from purchased chocolate	5,065	5,904	840	17%	$64,116	4.64	$426.6M	$554.7M	30%	7.2%	4.7%
77	Frozen fruits, juices and vegetables manufacturing	295	228	(68)	(23%)	$60,793	0.19	$24.0M	$28.5M	19%	0.3%	0.3%
78	Frozen specialties manufacturing	1,445	1,523	78	5%	$63,834	0.59	$125.5M	$131.9M	5%	1.9%	1.4%
79	Canned fruits and vegetables manufacturing	4,639	4,751	112	2%	$72,476	2.06	$566.4M	$647.5M	14%	5.8%	6.2%
80	Canned specialties	1,243	631	(611)	(49%)	$85,219	1.23	$230.1M	$119.6M	(48%)	0.8%	2.5%
81	Dehydrated food products manufacturing	93	103	10	10%	$75,508	0.20	$8.7M	$13.5M	56%	0.1%	0.1%
82	Cheese manufacturing	1,642	1,753	111	7%	$84,187	0.74	$180.5M	$208.7M	16%	2.1%	2.0%
83	Dry, condensed, and evaporated dairy product manufacturing	285	283	(3)	(1%)	$92,494	0.36	$60.1M	$62.5M	4%	0.3%	0.7%
84	Fluid milk manufacturing	3,387	3,424	37	1%	$74,016	1.59	$419.6M	$417.7M	(0%)	4.2%	4.6%
85	Creamery butter manufacturing	84	146	62	74%	$81,489	1.01	$18.4M	$37.8M	106%	0.2%	0.2%
86	Ice cream and frozen dessert manufacturing	1,372	1,730	357	26%	$71,010	1.81	$137.0M	$177.1M	29%	2.1%	1.5%
87	Frozen cakes and other pastries manufacturing	8,394	8,173	(222)	(3%)	$43,300	1.23	$457.2M	$517.5M	13%	10.0%	5.0%
93	Bread and bakery product, except frozen, manufacturing	18,532	17,570	(962)	(5%)	$48,041	1.15	$1,179.6M	$1,232.7M	4%	21.5%	13.0%
94	Cookie and cracker manufacturing	1,998	2,715	716	36%	$54,103	1.81	$174.5M	$207.6M	19%	3.3%	1.9%
95	Dry pasta, mixes, and dough manufacturing	1,008	1,356	348	35%	$72,979	1.61	$126.4M	$230.4M	82%	1.7%	1.4%
96	Tortilla manufacturing	32	41	9	28%	$55,422	0.05	$1.4M	$2.9M	108%	0.0%	0.0%
97	Roasted nuts and peanut butter manufacturing	589	532	(57)	(10%)	$81,047	0.51	$62.2M	$82.2M	32%	0.6%	0.7%
98	Other snack food manufacturing	6,086	6,798	712	12%	$69,396	3.04	$929.2M	$1,177.3M	27%	8.3%	10.2%
99	Coffee and tea manufacturing	590	1,250	660	112%	$72,534	1.17	$70.1M	$166.6M	138%	1.5%	0.8%
100	Flavoring syrup and concentrate manufacturing	390	492	102	26%	$110,967	1.31	$272.9M	$360.3M	32%	0.6%	3.0%
101	Mayonnaise, dressing, and sauce manufacturing	1,094	1,133	39	4%	$75,706	1.35	$166.2M	$158.3M	(5%)	1.4%	1.8%
102	Spice and extract manufacturing	552	637	85	15%	$77,448	0.58	$72.7M	$79.8M	10%	0.8%	0.8%
103	All other food manufacturing	2,318	4,287	1,969	85%	$58,673	1.04	$127.0M	$352.1M	177%	5.2%	1.4%
104	Bottled and canned soft drinks & water	3,484	4,313	830	24%	$90,183	1.11	$606.7M	$676.7M	12%	5.3%	6.7%
105	Manufactured ice	397	392	(5)	(1%)	$63,942	1.27	$2.8M	$17.2M	521%	0.5%	0.0%
109	Tobacco product manufacturing	767	287	(481)	(63%)	$94,605	0.62	$915.2M	$442.1M	(52%)	0.4%	10.1%
	Total	**74,953**	**81,803**	**6,850**	**9%**	**$65,325**	**1.39**	**$9,081.4M**	**$9,836.9M**	**8%**	**100.0%**	**100.0%**

Source: IMPLAN

ATTACHMENT C: ADDITIONAL IMPORT AND EXPORT TABLES

Pennsylvania Agriculture's Top 10 Domestic Export Partners by Growth 2012-2022

State	2012 Export Value	2022 Export Value	2012-2022 Increase	2012-2022 Pct. Growth
New York	$6,806,391,724	$7,745,244,785	$938,853,060	14%
Florida	$1,898,503,394	$2,468,974,708	$570,471,315	30%
California	$1,514,953,688	$1,956,605,028	$441,651,339	29%
Texas	$1,378,942,939	$1,786,738,198	$407,795,258	30%
Virginia	$2,541,368,832	$2,853,860,318	$312,491,485	12%
Maryland	$3,289,754,744	$3,590,438,927	$300,684,183	9%
Ohio	$2,359,329,676	$2,648,662,142	$289,332,466	12%
New Jersey	$5,663,851,454	$5,915,159,325	$251,307,871	4%
North Carolina	$1,702,579,224	$1,881,898,241	$179,319,017	11%
Delaware	$919,409,011	$1,095,629,847	$176,220,836	19%
Total, All Domestic Agriculture Exports	**$42,669,848,610**	**$48,300,737,072**	**$5,630,888,462**	**13%**

Source: IMPLAN

Pennsylvania Agriculture's Top 10 Domestic Import Partners by Growth 2012-2022

State	2012 Import Value	2022 Import Value	2012-2022 Increase	2012-2022 Pct. Growth
Iowa	$1,105,251,230	$1,556,887,256	$451,636,027	41%
Ohio	$3,493,642,195	$3,868,957,030	$375,314,834	11%
Texas	$1,165,794,070	$1,525,333,226	$359,539,156	31%
Indiana	$1,357,099,695	$1,671,816,385	$314,716,690	23%
Kansas	$445,772,932	$755,979,763	$310,206,831	70%
Idaho	$350,617,072	$580,377,670	$229,760,598	66%
Minnesota	$1,099,085,898	$1,315,498,819	$216,412,921	20%
Nebraska	$553,945,780	$756,675,492	$202,729,712	37%
North Carolina	$1,743,452,835	$1,938,267,583	$194,814,748	11%
Virginia	$1,731,803,213	$1,917,286,084	$185,482,871	11%
Total, All Domestic Agriculture Imports	**$42,197,348,949**	**$46,301,386,822**	**$4,104,037,873**	**10%**

Source: IMPLAN

Pennsylvania Agriculture's Top 15 Domestic Exported Commodities by Growth, 2012-2022

Commodity	2012 Export Value	2022 Export Value	2012-2022 Increase	2012-2022 Pct. Growth
Meat processed from carcasses	$1,816,823,674	$2,939,298,412	$1,122,474,738	62%
All other food products	$665,778,078	$1,445,882,357	$780,104,279	117%
Poultry and egg products	$573,397,450	$1,255,291,569	$681,894,119	119%
Prefabricated wood buildings	$400,658,804	$1,030,483,438	$629,824,634	157%
Soybean and other oilseed processing	$63,164,580	$556,775,870	$493,611,291	781%
Paperboard containers	$2,245,705,125	$2,708,529,383	$462,824,258	21%
All other miscellaneous wood products	$181,224,433	$547,192,089	$365,967,656	202%
Reconstituted wood products	$269,748,523	$634,104,743	$364,356,219	135%
Distilled liquors except brandies	$264,061,874	$610,281,114	$346,219,240	131%
Coffee and tea	$282,125,400	$627,406,703	$345,281,303	122%
Engineered wood members and trusses	$199,652,425	$508,680,615	$309,028,190	155%
Other snack foods	$3,207,605,853	$3,483,241,077	$275,635,223	9%
Wood containers and pallets	$274,163,546	$547,775,313	$273,611,768	100%
Dimension lumber	$439,063,955	$711,744,697	$272,680,742	62%
Nonchocolate confectioneries	$750,863,473	$1,010,137,060	$259,273,587	35%
Total, All Domestic Agriculture Exports	**$42,669,848,610**	**$48,300,737,072**	**$5,630,888,462**	**13%**

Source: IMPLAN

Commodities associated with the Agriculture Subsector

Commodities associated with the Agriculture-Related Manufacturing Subsector

Pennsylvania Agriculture's Top 15 Domestic Imported Commodities by Growth, 2012-2022

Commodity	2012 Import Value	2022 Import Value	2012-2022 Increase	2012-2022 Pct. Growth
Beef cattle	$1,503,692,728	$2,313,211,433	$809,518,705	54%
Grains	$1,105,958,508	$1,811,171,495	$705,212,986	64%
All other food products	$896,402,018	$1,505,225,962	$608,823,944	68%
Meat processed from carcasses	$2,143,062,834	$2,670,773,782	$527,710,948	25%
Soybean and other oilseed processing	$1,471,250,165	$1,986,120,647	$514,870,483	35%
Dimension lumber	$378,193,169	$852,438,302	$474,245,133	125%
Cheese	$1,324,047,271	$1,745,825,750	$421,778,478	32%
Engineered wood members and trusses	$133,862,800	$470,243,895	$336,381,095	251%
Vegetables and melons	$339,393,497	$670,322,315	$330,928,817	98%
Processed poultry meat products	$2,026,029,094	$2,334,601,141	$308,572,046	15%
Other animal food	$380,987,028	$671,234,927	$290,247,899	76%
Oilseeds	$116,859,880	$403,648,166	$286,788,287	245%
Reconstituted wood products	$189,022,853	$439,021,030	$249,998,178	132%
Roasted nuts and peanut butter	$326,764,685	$552,942,106	$226,177,421	69%
Wood kitchen cabinets and countertops	$486,846,845	$699,228,687	$212,381,842	44%
Total, All Domestic Agriculture Imports	**$42,197,348,949**	**$46,301,386,822**	**$4,104,037,873**	**10%**

Source: IMPLAN

Commodities associated with the Agriculture Subsector

Commodities associated with the Agriculture-Related Manufacturing Subsector

ATTACHMENT D: DATA SOURCES

Lightcast (formerly Emsi Burning Glass) is a global leader in labor market analytics, offering a data platform that gives a comprehensive, nuanced, and up-to-date picture of labor markets at all scales from national to local. Key components of the platform include traditional labor market information, job posting analytics, talent profile data, compensation data, and skills analytics. Lightcast integrates government data with information from online job postings, talent profiles, and resumes to produce timely intelligence on the state of the labor market. Job and compensation data is available by industry, occupation, educational program, and skill type. Learn more.

Esri ArcGIS Business Analyst combines proprietary statistical models covering demographic, business, and spending data with map-based analytics to offer insights on market opportunities for industries, businesses, and sites. Business Analyst integrates datasets covering a wide range of topics including demographics, consumer spending, market potential, customer segmentation, business locations, traffic counts, and crime indexes, which can be overlaid spatially to produce customizable maps and uncover market intelligence. Data can be pulled for standard and custom geographies, allowing for valuable comparisons between places. Learn more.

IMPLAN is an economic impact analysis platform built on data (at the county, state, and national level) on commodities, core competencies, deflators, demographics, employment and wages, environmental factors, industries, occupations, taxes, and trade flows. As a modeling tool and regional economic database, IMPLAN allows for easy comparison across regions, industries, and time. Learn more.

The **American Community Survey (ACS)** is an ongoing statistical survey by the US Census Bureau that gathers demographic and socioeconomic information on age, sex, race, family and relationships, income and benefits, health insurance, education, veteran status, disabilities, commute patterns, and other topics. Mandatory to fill out, the survey is sent to a small sample of the population on a rotating basis. The questions on the ACS are different from those asked on the decennial census and provide ongoing demographic updates of the nation down to the block group level. Learn more.

The **American Housing Survey (AHS)** is sponsored by the Department of Housing and Urban Development (HUD) and conducted by the US Census Bureau. The AHS is a longitudinal housing unit survey conducted biennially in odd-numbered years, with samples redrawn in 1985 and 2015. The survey provides information about the quality and cost of housing in the United States and major metropolitan areas including the physical condition of homes and neighborhoods, the costs of financing and maintaining homes, and the characteristics of people who live in these homes. Learn more.

Conducted every ten years in years ending in zero, the **US Decennial Census of Population and Housing** is a complete count of each resident of the nation based on where they live on April 1 of the Census year. The Constitution mandates the enumeration to determine how to apportion the House of Representatives among the states. The latest release of the 2020 Census contains data for a limited number of variables, including total population by race/ethnicity, population under 18, occupied and vacant housing units, and group quarters population. Learn more.

The **Local Area Unemployment Statistics (LAUS)** program estimates total employment and unemployment for approximately 7,500 geographic areas on a monthly basis, from the national level down to the city and town level. LAUS data is offered through the US Bureau of Labor Statistics (BLS) by combining data from the Current Population Survey (CPS), Current Employment Statistics (CES) survey, and state unemployment (UI) systems. Learn more.

The **Census of Agriculture** provides a detailed picture of US farms and ranches and the people who operate them. It provides uniform, comprehensive agricultural data for every state and county in the US on topics including agricultural land, animal and crop production, employment, worker demographics, farm business operations, and the environment. and employment. It is conducted by the US Department of Agriculture (USDA) every five years, in years ending in 2 and 7. Learn more.

Business Dynamics Statistics | US Census Bureau

The **Business Dynamics Statistics (BDS)** program provides annual measures of business dynamics—such as job creation and destruction, establishment births and deaths, and firm startups and shutdowns—for the economy and aggregated by establishment and firm characteristics. It covers the entire US economy and is available at the national, state, and MSA (metropolitan statistical area) levels. Learn more.

Population Estimates Program | US Census Bureau

The **Census Bureau's Population Estimates Program (PEP)** produces estimates of the population for the US and its states, counties, cities, and towns. Demographic components of population change—births, deaths, and migration—are produced at the national, state, and county levels. PEP provides population estimates on an annual basis. Learn more.

Economic Census | US Census Bureau

The **Economic Census** is the US Government's official five-year measure of American business and the economy. It is conducted by the US Census Bureau for years ending in 2 and 7. The Economic Census is the most comprehensive public source of information about American businesses from the national to the local level. Published statistics cover more than 1,000 industries, 15,000 products, every state, over 3,000 counties, 15,000 cities and towns, and Puerto Rico and other US Island Areas. Learn more.

Freight Analysis Framework | US Bureau of Transportation Statistics

The **Freight Analysis Framework (FAF)** creates a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. The FAF integrates data from a variety of sources. Starting with data from the Commodity Flow Survey (CFS) and international trade data from the Census Bureau, FAF incorporates data from agriculture, extraction, utility, construction, service, and other sectors. The FAF is produced by the Bureau of Transportation Statistics (BTS) with support from the Federal Highway Administration (FHWA). Learn more.

ATTACHMENT E: METHODOLOGY

Economic Base and Industry Analysis

Methodology

We 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 | The IMPLAN Data Library provides industry data for IMPLAN's 528 Industry Aggregation Scheme. IMPLAN uses primarily federal data sources to provide industry data.

The three primary data sources used to produce employment and labor income estimates are:

- The Bureau of Labor Statistics (BLS) Census of Employment and Wages (CEW)
- Census Bureau County Business Patterns (CBP)
- Bureau of Economic Analysis (BEA) Regional Economics Accounts (REA) data

IMPLAN uses other federal data sources to produce output, value-added, and GSP, primarily:

- The Bureau of Economic Analysis (BEA) National Income and Product Accounts (NIPA) tables
- BEWA Regional Economic Accounts (REA) tables
- BLS Census of Employment and Wages
- For farm industries, the USDA's National Agricultural Statistical Service Value of Production and ERS Cash Receipts data alongside Census of Agriculture data are used to produce output estimates

Definitions

For definitions please see the section, "Definitions" at the front of this report.

State Comparison Analysis

Methodology

For each state, we 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

Census of Agriculture | The US Census of Agriculture is produced by the National Agricultural Statistical Service, under the US Department of Agriculture. The goal of the Census of Agriculture is to account for "any place from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year."

It represents a complete count of US farms, whether rural or urban, that produce at least $1,000 of agricultural products. The survey is conducted once every five years, in years ending in 2 or 7, and provides information about land use and ownership, producer characteristics, production practices, income, and expenditures.

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. An example of the SAM output can be found below.

Sample IxI SAM Output for Industry Use

Paying Industry	Paying Cluster	Receiving Industry	Receiving Cluster	Value
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	Animal Production	Grain farming	Crop Production	$6,348,982
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	Animal Production	Electric power transmission and distribution	Not A Study Cluster	$737,283
Poultry and egg production	Animal Production	Grain farming	Crop Production	$15,653,631
Poultry and egg production	Animal Production	Poultry and egg production	Animal Production	$311,084,486
Animal production, except cattle and poultry and eggs	Animal Production	Support activities for agriculture and forestry	Animal Production	$495,060
Animal production, except cattle and poultry and eggs	Animal Production	Maintenance and repair construction of nonresidential structures	Not A Study Cluster	$85,977

Source: IMPLAN

As the table above shows, Paying Industries can purchase inputs from within their own industry (e.g., when a chicken farmer buys chicks from another chicken farm), from other agriculture-related industries (e.g., when a cattle farmer buys feed from a grain farmer), or from other industries outside of agriculture (e.g., when a farm buys electric power from a utility).

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).

Definitions

Industry by Industry (IxI) Social Accounting Matrix (SAM) | This matrix maps the purchases from industries from other industries and institutions. It shows how goods and services flow through the economy on an industry basis and details how industries source their inputs.

Purchasing Industry | This is the industry that **makes purchases**, or in other words, demands inputs, in order to produce their goods.

Receiving Industry | This is the industry that **sells its goods** to other industries, which are used as intermediate inputs to production.

Regional Purchase Coefficient (RPC) | An RPC is the proportion of the total demand for a Commodity by all users in the Study Area that is supplied by producers located within the Study Area.

Average RPC is the proportion of local demand for the Commodity that is currently met by local production. It is "average" in the sense that there is just one RPC per Commodity, so all Industries and Institutions are assumed to purchase that Commodity locally at the same rate. RPCs are applied to commodities, rather than industries. For this analysis, the commodity-based RPCs were bridged to industries. For example, Beef Cattle (commodity) is tied to the Beef Cattle Ranching

and Farming industry, Logs and Roundwood (commodity) is tied to the Commercial Logging industry, Grains (commodity) is tied to the Grain Farming industry, etc.

Exports and Imports

Methodology

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 | As there are no raw data sources available for sub-national trade, IMPLAN has developed this domestic trade flow data. Trade flow data is available for all states, counties, ZIP Codes, and congressional districts.

By estimating this sub-national trade flow data, IMPLAN allows for:

1. Calculating improved regional purchase coefficients (RPCs) necessary for single-region impact analysis
2. Multi-Regional Input-Output (MRIO) impact analysis
3. Examination of likely trade patterns between trading partners

Domestic trade flows are available for all IMPLAN Commodities (as described in Commodity Trade below) and capture labor-related trade (as described in Labor Income Trade below). The Domestic Trade Flows capture Commodity demand for both Intermediate Inputs as well as Final Demand.

Foreign Trade – USA Trade Online | This data provides the customs value of goods traded with international partners, both exports and imports. Data is based on the US International Trade in Goods and Services Report, which is compiled from documents collected by US Customs and Border Protection (CBP). This data is released monthly.

ABOUT CAMOIN ASSOCIATES

As the nation's only full-service economic development and lead generation consulting firm, Camoin Associates empowers communities through human connection backed by robust analytics.

Since 1999, Camoin Associates has helped local and state governments, economic development organizations, nonprofit organizations, and private businesses across the country generate economic results marked by resiliency and prosperity.

To learn more about our experience and projects in all of our service lines, please visit our website at www.camoinassociates.com. You can also find us on LinkedIn, Facebook, and YouTube.

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Service Lines

- Strategic and Organizational Planning
- Economic and Fiscal Impact Analysis
- Real Estate Development Analytics and Advisory
- Housing Needs Assessment
- Prospecting and Business Attraction
- Target Industry Analytics and Strategy
- Workforce Development and Talent Retention
- Entrepreneurship and Innovation

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