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JEO CONSULTING GROUP

WAMPO Economic Development Report - Agriculture

May 2023

Contents

Introduction

This study focused on the industry landscape in the agricultural sector, focusing on labor, main thoroughfares, and the balance of trade in the Wichita area. In addition, the report analyzed the growth matrix to assess the competitiveness of the aerospace manufacturing sector in Wichita and identified opportunities and challenges within the agricultural industry.

The labor analysis revealed fluctuations in agricultural employment figures in Wichita from 2015 to 2021, with a decrease of 4% overall. However, there was a positive trend in 2021, with a 3% increase compared to the previous year. The crop production sector remained relatively stable, while animal production and aquaculture experienced fluctuations and a significant overall decrease of 7%. Support activities for crop and animal production declined, while other food manufacturing grew.

The study emphasizes the importance of key occupations, labor costs, and required skills in the agricultural sector. It notes the weak location quotient for key agriculture occupations in Wichita but highlights the urban nature of the region as a contributing factor. Critical skills identified include near vision, oral comprehension, and important knowledge components such as production and processing. Key abilities include active listening, monitoring, and critical thinking.

Thoroughfares analysis focuses on major firms in the Wichita region, highlighting transportation demands related to inbound goods, outbound goods, and labor movement. Cargill and Smithfield Foods are mentioned as firms with heavy highway traffic demands and labor access needs.

Lastly, the study assesses the threats and bargaining powers within the agricultural industry. It identifies low barriers to entry, a moderate threat of substitutes, high bargaining power of buyers, and moderate bargaining power of suppliers. Rivalry among existing firms is moderate, with numerous companies competing for market share.

In conclusion, the agricultural industry in Wichita is competitive, with opportunities for growth but also challenges that require ongoing analysis and support. The industry plays a vital role in the Wichita economy, as a major employer and contributor to the national and global food supply chain.

Industry Landscape

The following NAICS codes, provided by the Greater Wichita Partnership, constitute the category of agriculture, which includes both farm production and manufacturing-related firms. These codes were used to extract specific industry data related to these subsections.

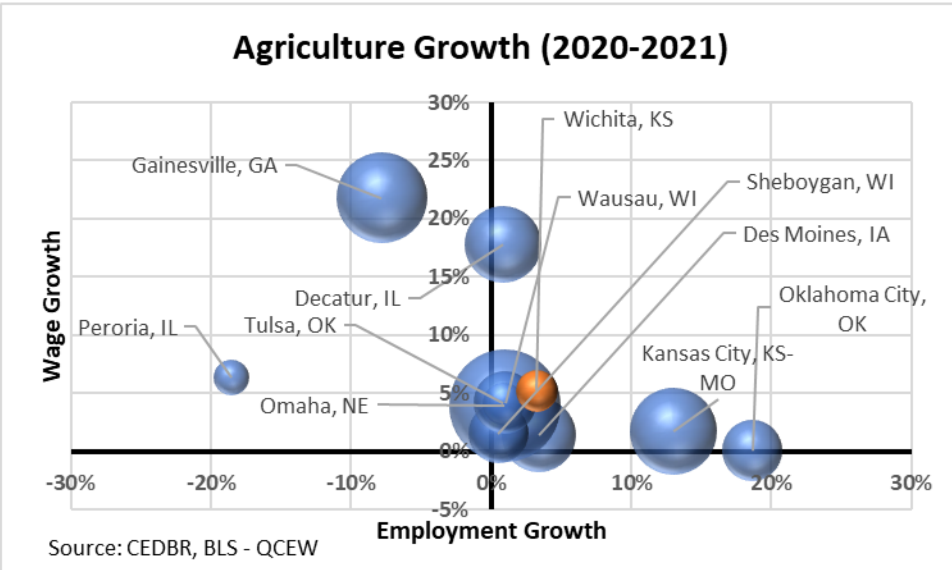
Agriculture		
NAICS	Description	Subsector
111	Crop Production	Crop and Animal Farming
112	Animal Production and Aquaculture	Crop and Animal Farming
1151	Support Activities for Crop Production	Crop and Animal Farming
1152	Support Activities for Animal Production	Crop and Animal Farming
3112	Grain and Oilseed Milling	Value-added Products
3115	Dairy Product Manufacturing	Value-added Products
3116	Animal Slaughtering and Processing	Value-added Products
3119	Other Food Manufacturing	Value-added Products
3274	Lime and Gypsum Product Manufacturing	Value-added Products
325193	Ethyl Alcohol Manufacturing	Value-added Products
325199	All Other Basic Organic Chemical Manufacturing	Value-added Products

Key Agriculture Communities
Decatur, IL MSA
Des Moines, IA MSA
Gainesville, GA MSA
Kansas City, KS-MO MSA
Oklahoma City, OK MSA
Omaha-Council Bluff, NE-IA MSA
Peoria, IL MSA
Sheboygan, WI MSA
Tulsa, OK MSA
Wausau, WI MSA
Wichita, KS MSA

The comparison cities were selected based on the following criteria: employment concentration, size of the town, and preference for Midwest. Furthermore, all of the communities were vetted with the Greater Wichita Partnership as communities that the Wichita area competes within the respective sector.

In order to capture the broad industry landscape and recent competitiveness of the aerospace manufacturing sector within the Wichita area, this study developed a growth matrix. The matrix captures the relative growth and size of the market compared to the selected comparable communities. Any city within the top right quadrant should be considered in a growth mode. Those in the bottom left quadrant are in declining sectors. The other two quadrants, bottom right and top left, identify economic weaknesses that must be addressed.

The WAMPO region saw increases in both wages and employment in the agriculture sector from 2020-2021. Of the cities being compared, the largest concentration of agricultural employment was in Omaha-Council Bluff area. While Kansas is known for its robust agricultural industry, the Wichita area is generally utilized for processing agricultural goods through firms such as Cargill and Smithfield Foods. Overall, Wichita remains relatively competitive compared to the other cities, with a balance of both employment and wage growth.



Labor

Among the listed cities, Wichita experienced fluctuations in its agriculture employment figures from 2015 to 2021. Starting at 2,280 jobs in 2015, the numbers decreased slightly to 2,198 in 2016 and 2,176 in 2017. However, there was a notable increase in 2018 when employment reached 2,607 jobs. Unfortunately, this growth was short-lived, dropping to 2,274 in 2019. The decline continued in 2020, with only 1,538 jobs available in the agriculture sector. Despite the challenges faced, there was a modest recovery in 2021, with employment rising to 1,588 jobs. When considering the period from 2015 to 2021, Wichita experienced an overall decrease of 4% in agriculture employment. However, there was a positive trend in 2021, with a 3% increase compared to the previous year. These figures reflect the dynamic nature of the agriculture industry in Wichita, highlighting the need for ongoing analysis and support to promote growth and stability in the sector.

Agriculture Employment

	2015	2016	2017	2018	2019	2020	2021	Annualized growth 2015-21	Annualized growth 2020-21
Decatur, IL MSA	5,331	5,662	5,791	5,532	5,645	5,655	5,702	1%	1%
Des Moines, IA MSA	4,555	4,663	4,828	4,975	4,974	5,022	5,193	2%	3%
Gainesville, GA MSA	8,504	8,716	9,025	9,023	8,891	8,564	7,897	-1%	-8%
Kansas City, KS-MO MSA	5,477	5,558	5,648	5,864	5,894	6,397	7,230	5%	13%
Oklahoma City, OK MSA	2,703	2,798	2,399	2,571	2,632	2,990	3,548	4%	19%
Omaha-Council Bluff, NE-IA MSA	10,063	10,054	11,249	11,735	12,117	12,001	12,118	3%	1%
Peoria, IL MSA	1,290	1,162	1,358	1,361	1,497	1,423	1,159	-1%	-19%
Sheboygan, WI MSA	2,298	2,025	2,141	2,017	3,383	3,422	3,440	7%	1%
Tulsa, OK MSA	1,506	1,567	1,572	1,564	1,618	1,654	1,668	2%	1%
Wausau, WI MSA	2,012	2,048	2,123	2,125	3,687	3,713	3,751	12%	1%
Wichita, KS MSA	2,280	2,198	2,176	2,607	2,274	1,538	1,588	-4%	3%

Source: CEDBR, BLS- QCEW

Looking at the larger sectors within agriculture employment, there were notable trends and changes between 2015 and 2021. In the crop production sector, employment figures remained relatively stable, starting at 176 jobs in 2015 and slightly decreasing to 173 jobs in 2021. This sector experienced a marginal annualized growth rate of 0% during the period, with a modest 2% increase in 2021 compared to the previous year. On the other hand, animal production and aquaculture witnessed fluctuations, with 400 jobs in 2015, peaking at 448 jobs in 2016, and then gradually declining to 193 jobs in 2020 and 2021. As a result, this sector experienced a significant overall decrease of 7% during the period. Support activities for crop and animal production also saw declines in employment, with the former experiencing a 9% decrease and the latter a 6% increase from 2015 to 2021. In terms of food manufacturing, animal slaughtering and processing saw a decline from 1,616 jobs in 2015 to 1,112 jobs in 2021, with an overall decline of 4%, although there was a slight increase of 3% in 2021 compared to the previous year. Other food manufacturing, however, experienced growth, with a notable 8% increase from 2015 to 2021 and a significant 24% increase from 2020 to 2021, reaching 78 jobs in the latter year.

Agriculture Employment

	2015	2016	2017	2018	2019	2020	2021	Annualized growth 2015-21	Annualized growth 2020-21
Crop production	176	171	158	163	169	170	173	0%	2%
Animal production and aquaculture	400	448	431	432	434	193	193	-7%	0%
Support activities for crop production	20	19	17	15	12	10	8	-9%	-21%
Support activities for animal production	17	15	23	19	25	23	24	6%	4%
Grain and oilseed milling									
Dairy product manufacturing									
Animal slaughtering and processing	1,616	1,494	1,491	1,914	1,571	1,079	1,112	-4%	3%
Other food manufacturing	51	51	56	65	62	63	78	8%	24%
Ethyl alcohol manufacturing									
All other basic organic chemical manufacturing									

Source: CEDBR, BLS- QCEW

Agriculture Establishments			
Communities	Annual 2020	Annual 2021	YR/YR %
Decatur, IL MSA	19	20	5%
Des Moines, IA MSA	175	181	3%
Gainesville, GA MSA	49	55	12%
Kansas City, KS-MO MSA	319	331	4%
Oklahoma City, OK MSA	228	286	25%
Omaha-Council Bluff, NE-IA MSA	257	266	4%
Peoria, IL MSA	131	138	5%
Sheboygan, WI MSA	73	75	3%
Tulsa, OK MSA	150	182	21%
Wausau, WI MSA	98	100	2%
Wichita, KS MSA	125	128	2%

Source: CEDBR, QCEW- BLS

Agriculture Wages							
Community	2015	2016	2017	2018	2019	2020	2021
Decatur, IL MSA	$96,178	$97,419	$98,577	$101,939	$101,145	$104,004	$122,525
Des Moines, IA MSA	$44,291	$46,226	$46,134	$48,457	$51,546	$53,944	$54,714
Gainesville, GA MSA	$30,549	$30,913	$32,381	$33,205	$33,697	$34,909	$42,516
Kansas City, KS-MO MSA	$50,601	$51,936	$53,907	$55,483	$55,514	$58,488	$59,498
Oklahoma City, OK MSA	$33,138	$34,542	$36,018	$36,749	$37,747	$39,137	$39,164
Omaha-Council Bluff, NE-IA MSA	$46,346	$46,734	$46,288	$47,131	$47,398	$52,286	$54,351
Peoria, IL MSA	$44,780	$44,660	$48,302	$48,906	$46,561	$48,965	$52,071
Sheboygan, WI MSA	$38,325	$40,533	$40,911	$42,782	$41,975	$43,628	$44,295
Tulsa, OK MSA	$41,511	$41,245	$42,531	$42,971	$43,839	$43,501	$45,281
Wausau, WI MSA	$33,793	$34,290	$35,883	$36,981	$39,693	$37,829	$39,407
Wichita, KS MSA	$41,623	$40,680	$42,820	$43,744	$39,676	$41,852	$44,028

Source: CEDBR - BLS, QCEW

When discussing the opportunities for growth, it is important to consider the agricultural sector's key occupations and labor costs. For the three key Agriculture occupations listed by the BLS, the Wichita MSA had a weak location quotient. It should be taken into consideration that this is largely due in part to the urban nature of the WAMPO region and that occupations for food processing weren't included in the reference list.

Key Occupations		
Occupation	Wichita MSA Employment	US Employment
Agricultural Equipment Operators	50	15,140
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	170	210,970
First-Line Supervisors of Farming, Fishing, and Forestry Workers	30	14,430

Source: CEDBR: BLS, OES

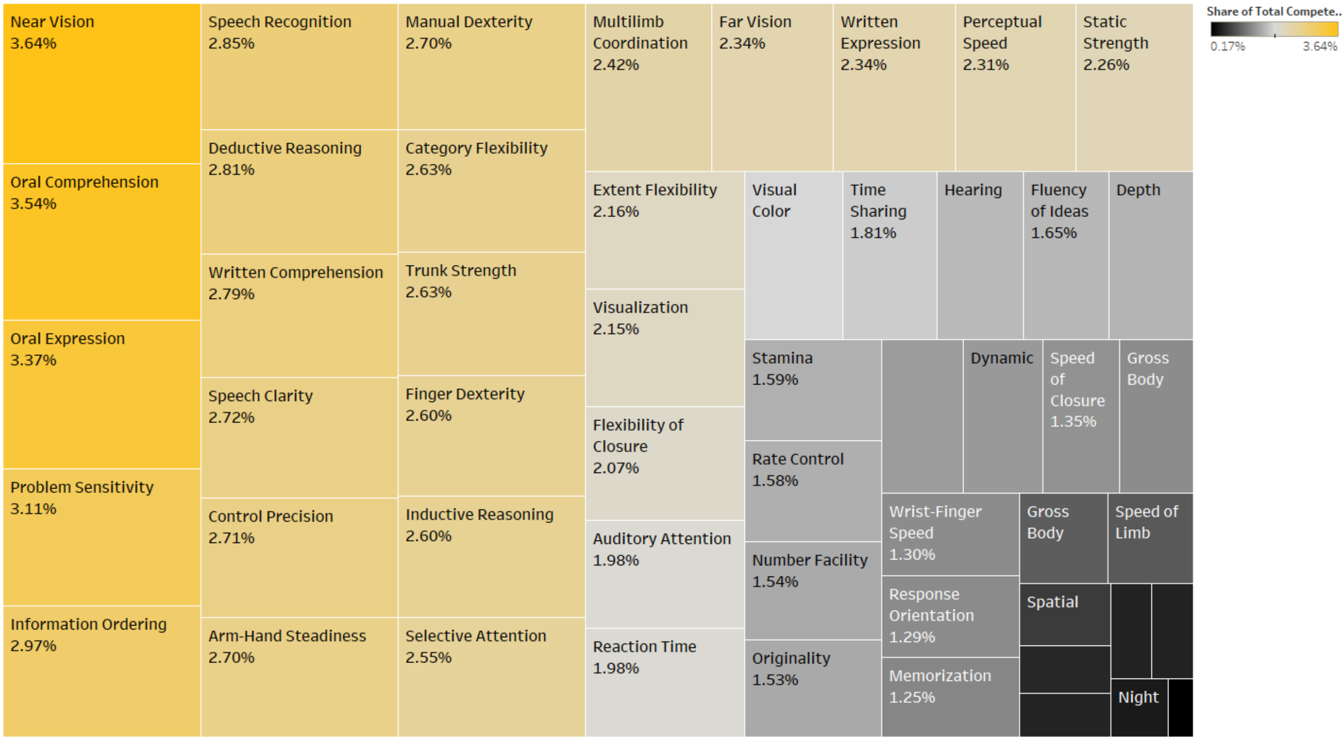
A location quotient is a statistical measure used to compare the concentration or specialization of a particular industry or occupation in a specific geographic area relative to its concentration in a larger reference area, typically a region or a nation. It is calculated by dividing the proportion of employment in a specific industry or occupation in the target area by the proportion of employment in the same industry or occupation in the reference area, and then comparing the result to a value of one. A location quotient greater than 1 indicates a higher concentration of the industry or occupation in the target area compared to the reference area, suggesting specialization or a comparative advantage in that particular sector. Conversely, a location quotient of less than 1 indicates a lower concentration, less specialization in the industry or occupation in the target area.

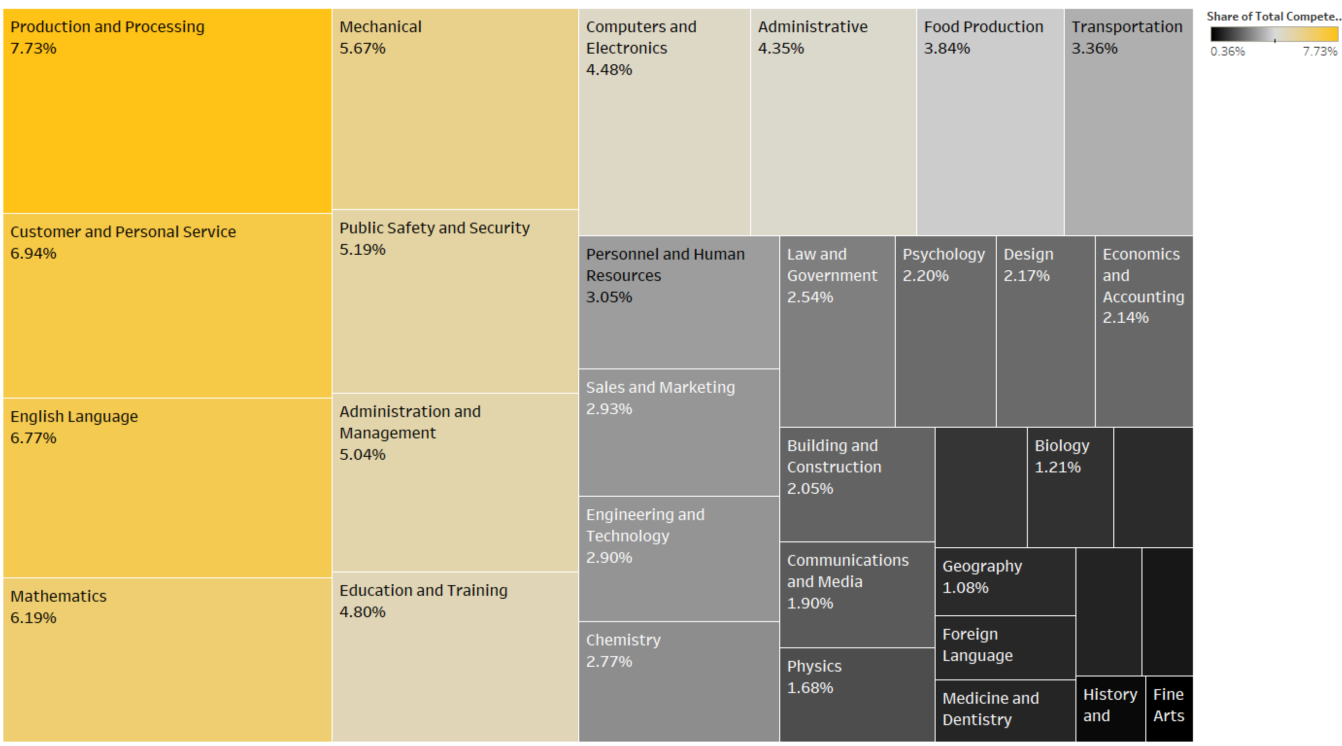
2021 Labor Costs - Agriculture

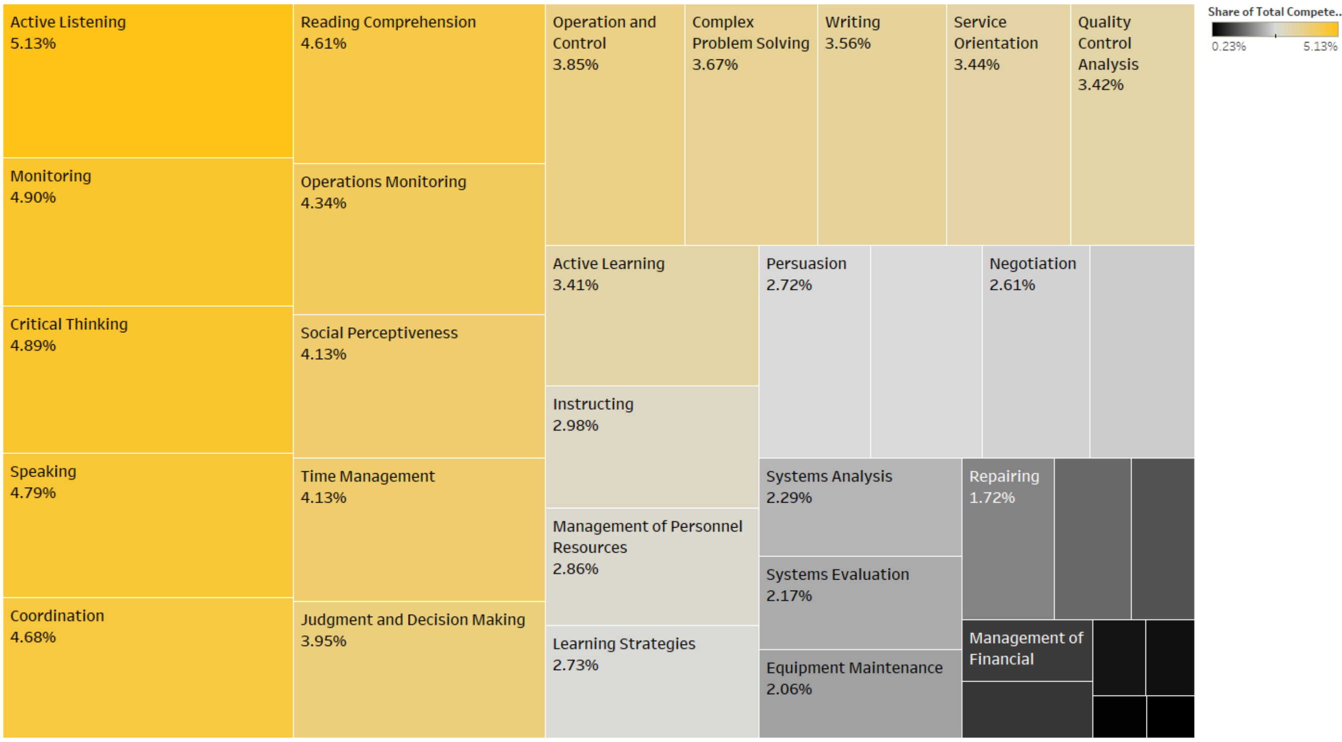
Occupation (SOC code)	Mean Wage	10th Percentile Wage	90th Percentile Wage	Location Quotient
First-Line Supervisors of Farming, Fishing, and Forestry Workers(451011)	$46,400	$37,330	$62,150	0.62
Agricultural Equipment Operators(452091)	$45,550	$29,530	$66,830	0.87
Farmworkers and Laborers, Crop, Nursery, and Greenhouse(452092)	$29,030	$18,370	$37,720	0.31

Source: CEDBR, BLS-OES

Another component of the labor discussion is the skills, knowledge, and abilities required for the sector of the workforce. For example, in the agricultural sector, the most important skills were near vision and oral comprehension. The most critical knowledge component was production and processing and customer and personal service. The most important abilities were active listening, monitoring, and critical thinking.


Near Vision 3.64%
Speech Recognition 2.85%
Manual Dexterity 2.70%
Multilimb Coordination 2.42%
Far Vision 2.34%
Written Expression 2.34%
Perceptual Speed 2.31%
Static Strength 2.26%
Share of Total Compete..
0.17%
3.64%
Deductive Reasoning 2.81%
Category Flexibility 2.63%
Oral Comprehension 3.54%
Extent Flexibility 2.16%
Visual Color
Time Sharing 1.81%
Hearing
Fluency of Ideas 1.65%
Depth
Written Comprehension 2.79%
Trunk Strength 2.63%
Visualization 2.15%
Oral Expression 3.37%
Stamina 1.59%
Dynamic
Speed of Closure 1.35%
Gross Body
Speech Clarity 2.72%
Finger Dexterity 2.60%
Flexibility of Closure 2.07%
Rate Control 1.58%
Problem Sensitivity 3.11%
Wrist-Finger Speed 1.30%
Gross Body
Speed of Limb
Control Precision 2.71%
Inductive Reasoning 2.60%
Auditory Attention 1.98%
Number Facility 1.54%
Response Orientation 1.29%
Spatial
Information Ordering 2.97%
Arm-Hand Steadiness 2.70%
Selective Attention 2.55%
Reaction Time 1.98%
Originality 1.53%
Memorization 1.25%
Night


Production and Processing 7.73%
Mechanical 5.67%
Computers and Electronics 4.48%
Administrative 4.35%
Food Production 3.84%
Transportation 3.36%
Share of Total Compete..
0.36%
7.73%
Customer and Personal Service 6.94%
Public Safety and Security 5.19%
Personnel and Human Resources 3.05%
Law and Government 2.54%
Psychology 2.20%
Design 2.17%
Economics and Accounting 2.14%
Sales and Marketing 2.93%
English Language 6.77%
Administration and Management 5.04%
Building and Construction 2.05%
Biology 1.21%
Engineering and Technology 2.90%
Communications and Media 1.90%
Geography 1.08%
Mathematics 6.19%
Education and Training 4.80%
Foreign Language
Chemistry 2.77%
Physics 1.68%
Medicine and Dentistry
History and
Fine Arts

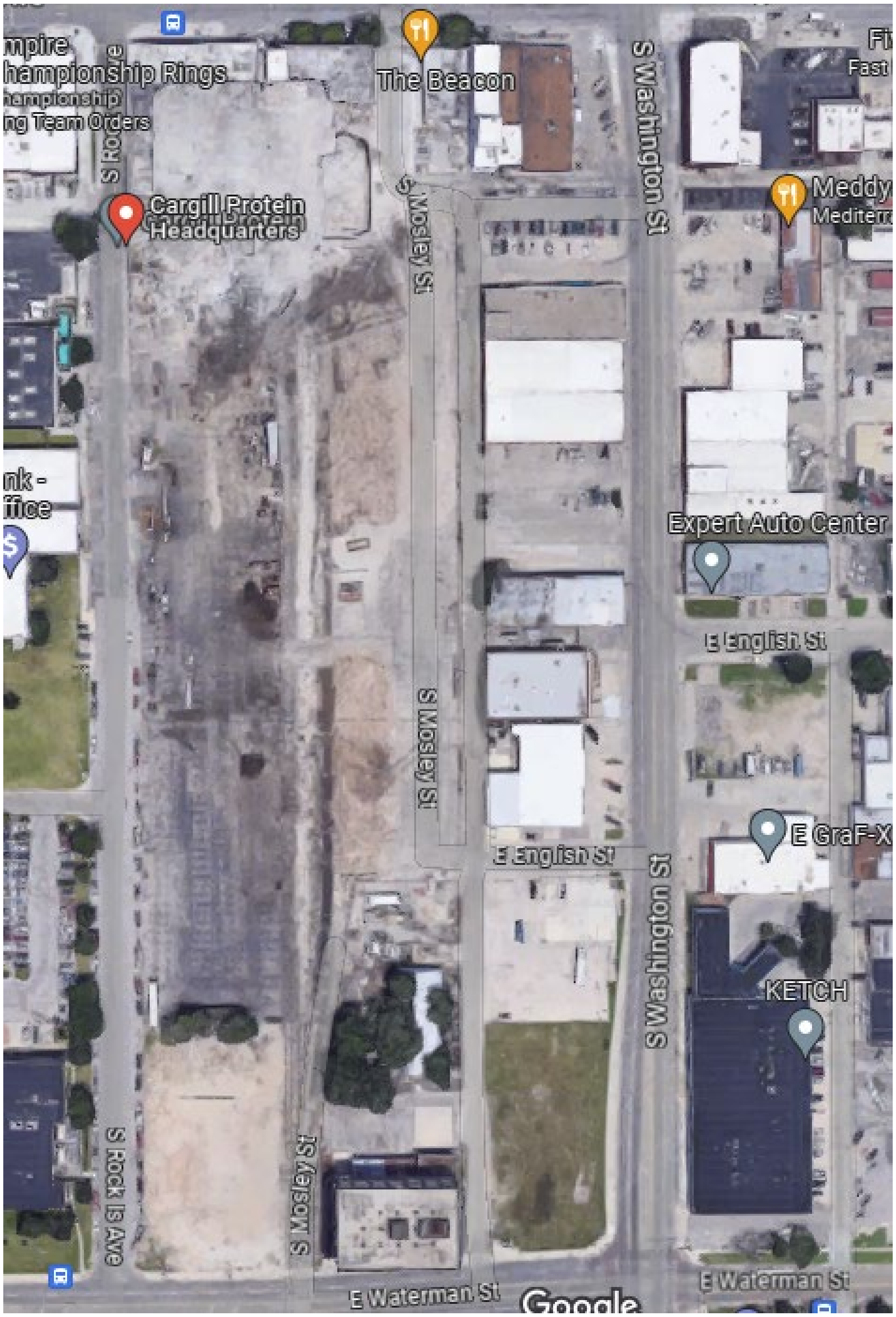


To summarize the labor conversation through the framework of this particular sector, it is important to consider where the workforce is commuting throughout the day. Therefore, a list of all organizations within this sector with 100 employees or more has been collected.

Key WAMPO players	
Company Name	Location Employee Size
Cargill Meat Solutions Inc	800
Smithfield Foods	425
Icm Inc	200
Hiland Dairy Foods Co	130
Dold Foods LLC	100
Source: CEDBR, Data Axle	

Main WAMPO Thoroughfares

Using the list of major firms in the WAMPO region, the demand on the transportation system can be evaluated through three parameters; inbound goods, outbound goods, and the labor movement. Cargill has three separate locations in the downtown Wichita area. The processing plant at 13th St & Mosely Ave is the most likely to have heavy highway traffic demands. Meanwhile, the other campuses have demand for labor access at the corners of Rock Island Ave & Douglas Ave along with 1st St and N Wichita St.



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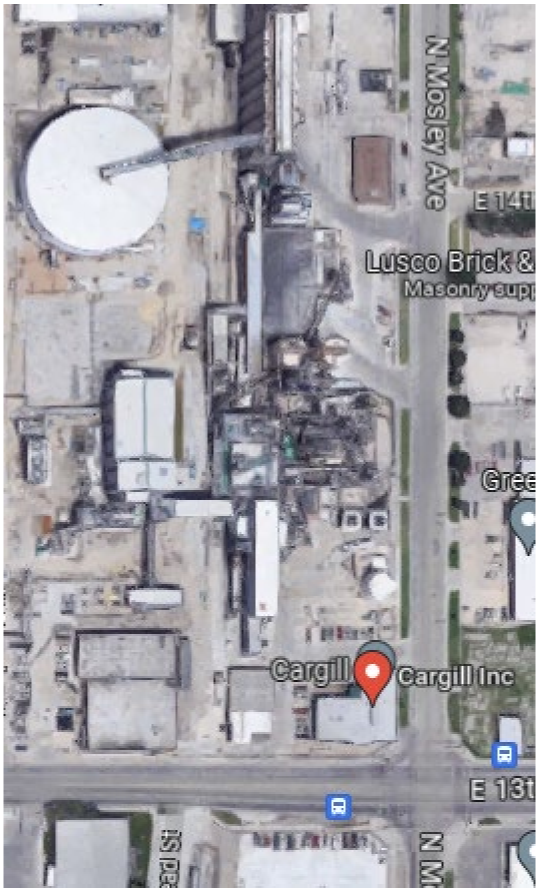
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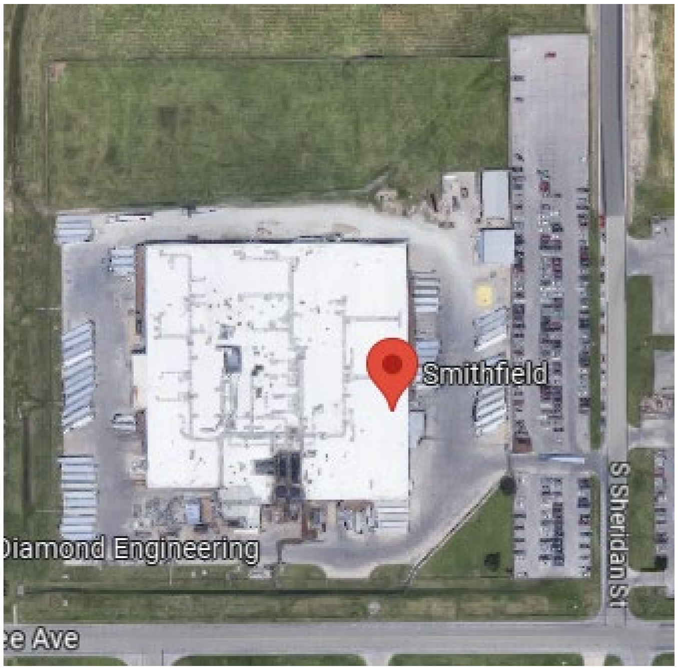
Masonry supp
Gree
Cargill
Cargill Inc
E 13t

Smithfield Foods has demand for both inbound and outbound heavy highway traffic along with labor access at the corner of Sheridan St and Pawnee Ave.



Balance of Trade

The total agriculture imports for Kansas were $356,075,429 in 2018, which increased to $546,508,677 in 2022, a significant growth of over $190 million in four years. This growth suggests an increasing demand for agricultural products in the state.

The chart also shows the import values for five specific agricultural subsectors, namely Grain & Oilseed Milling Products, Dairy Products, Meat Products & Meat Packaging Products, Foods Nesoi, and Lime & Gypsum Products. The Grain & Oilseed Milling Products subsector contributed the most to the total agricultural imports in all five years, with import values ranging from $218,892,679 in 2020 to $363,768,795 in 2022. The second largest subsector was Meat Products & Meat Packaging Products, which saw an increase in import values from $68,400,958 in 2018 to $111,540,546 in 2022, indicating increased demand for meat products.

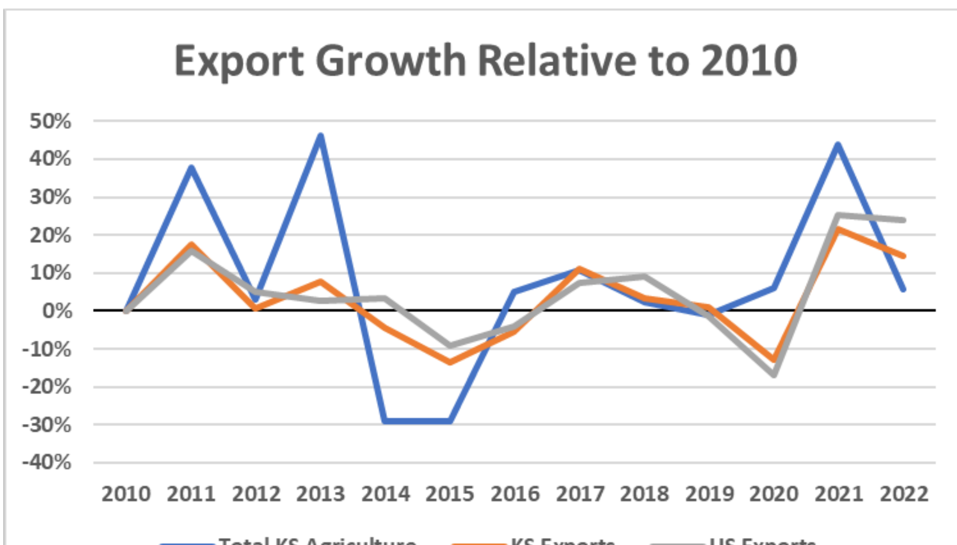
In contrast, Dairy Products and Foods Nesoi subsectors had lower import values than Grain & Oilseed Milling Products and Meat Products & Meat Packaging Products, with Dairy Products experiencing a decline in import values from $221,156 in 2018 to $667,965 in 2022. In addition, the Lime & Gypsum Products subsector had very low import values, indicating that it may not be a significant contributor to the overall agricultural imports for the state.

Imports - Agriculture					
Subsector	**2018**	**2019**	**2020**	**2021**	**2022**
3112 Grain & Oilseed Milling Products	$237,144,474	$236,187,941	$218,892,679	$280,284,254	$363,768,795
3115 Dairy Products	$221,156	$169,519	$406,201	$414,518	$667,965
3116 Meat Products & Meat Packaging Products	$68,400,958	$75,506,137	$81,199,322	$85,967,568	$111,540,546
3119 Foods, Nesoi	$50,302,961	$40,463,267	$24,629,165	$42,645,371	$67,307,763
3274 Lime & Gypsum Products	$5,880		$6,132	$157,404	$3,223,608
Total Agriculture	**$356,075,429**	**$352,326,864**	**$325,133,499**	**$409,469,115**	**$546,508,677**
Total Kansas Exports	**$12,291,983,874**	**$12,129,842,417**	**$10,393,505,709**	**$12,135,488,835**	**$13,438,371,455**
Total US Exports	**$2,536,145,273,678**	**$2,491,699,567,726**	**$2,330,836,392,063**	**$2,831,110,526,625**	**$3,246,431,588,450**

*Data not available for all subsectors
Source: CEDBR - USA Trade

Exports - Agriculture					
Subsector	**2018**	**2019**	**2020**	**2021**	**2022**
111 Agricultural Products	$1,394,230,697	$1,544,632,382	$1,625,664,875	$2,124,583,827	$2,107,030,753
112 Livestock & Livestock Products	$15,553,717	$5,972,118	$3,996,037	$13,674,784	$12,708,505
3112 Grain & Oilseed Milling Products	$205,862,867	$167,737,938	$169,274,633	$170,143,830	$190,762,822
3115 Dairy Products	$85,855,885	$118,587,285	$126,142,409	$112,705,944	$177,811,695
3116 Meat Products & Meat Packaging Products	$1,952,467,756	$1,786,729,136	$1,803,521,736	$2,331,654,390	$2,408,873,892
3119 Foods, Nesoi	$62,678,923	$54,181,647	$51,262,735	$58,562,727	$60,938,206
3274 Lime & Gypsum Products	$1,052,468	$853,538	$829,298	$1,173,675	$973,989
3251 Basic Chemicals	$393,287,687	$399,256,940	$463,115,102	$664,651,164	$676,274,590
Total KS Agriculture	$4,110,990,000	$4,077,950,984	$4,243,806,825	$5,477,150,341	$5,635,374,452
Total KS Exports	**$11,581,768,320**	**$11,681,205,948**	**$10,405,315,895**	**$12,540,570,549**	**$13,965,084,671**
Total US Exports	**$1,665,786,886,956**	**$1,645,940,338,649**	**$1,428,518,279,410**	**$1,754,300,367,662**	**$2,062,937,260,943**

*Data not available for all subsectors
Source: CEDBR - USA Trade

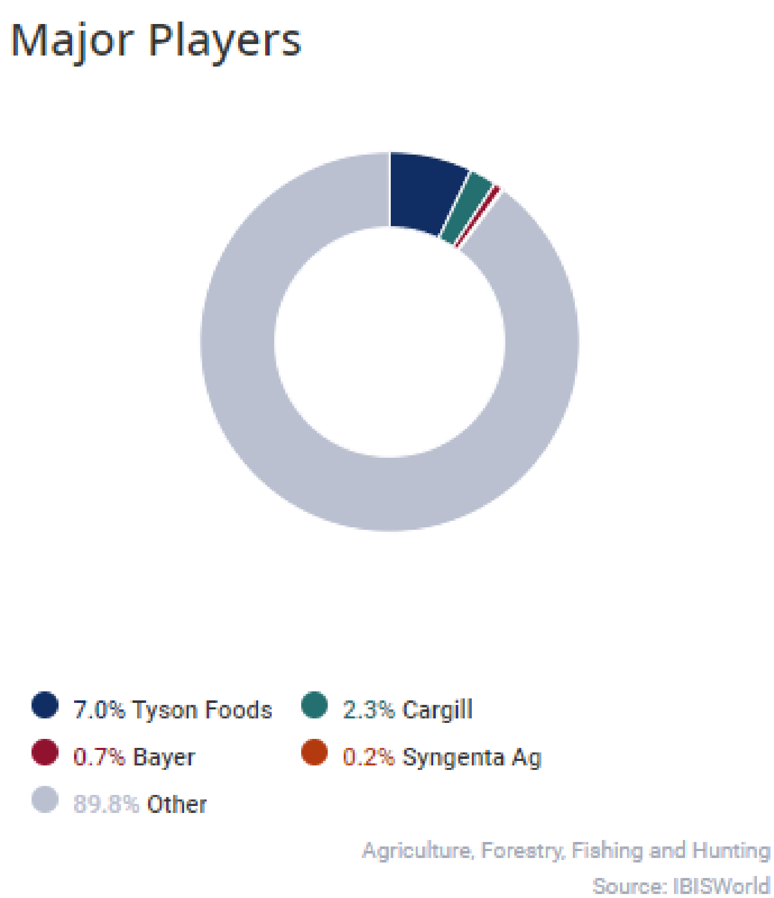


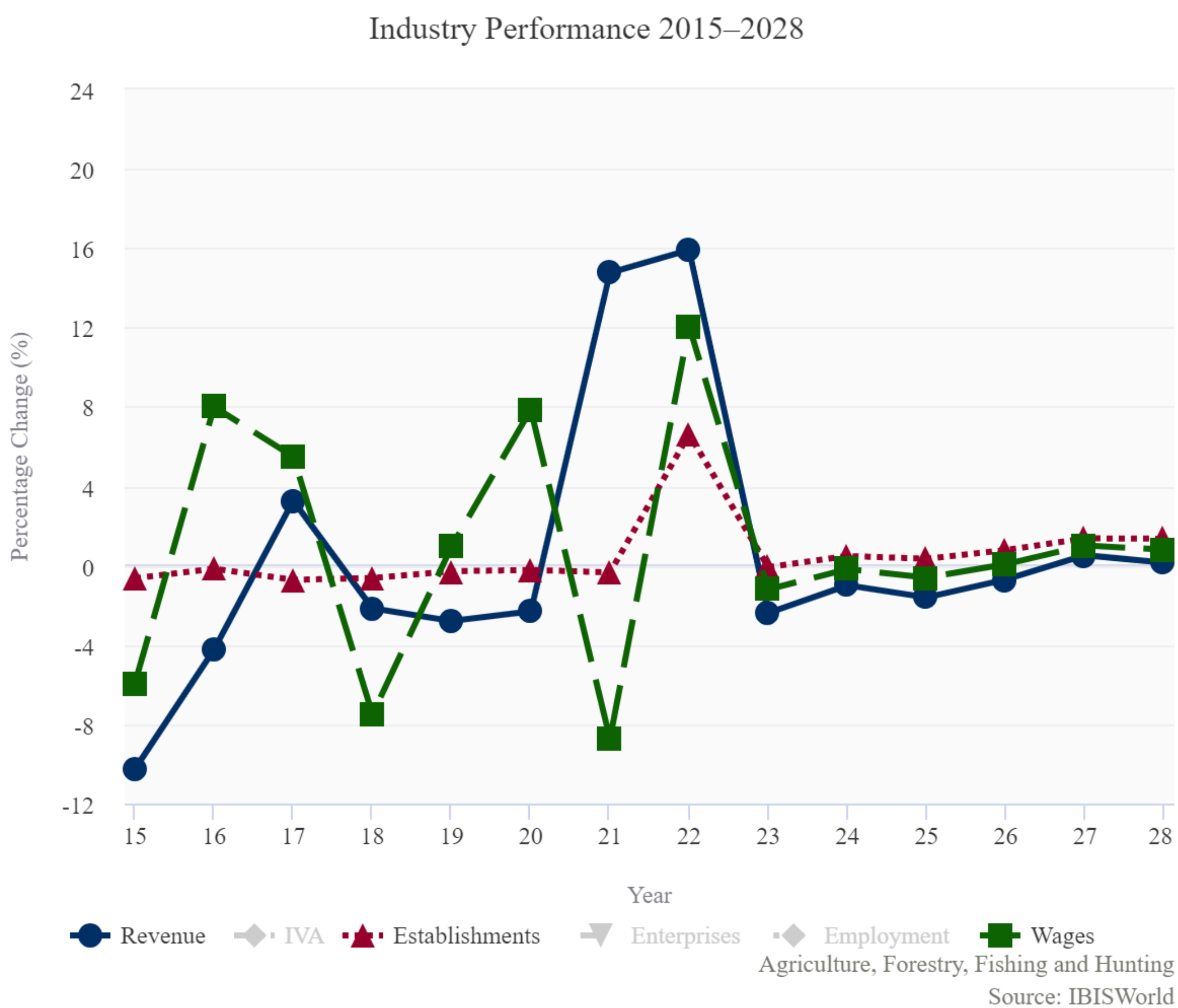
Source: CEDBR, USA Trade

General US Trends

To assess the potential growth of the agriculture sector, this study examined five economic forces at the national level. Those broad economic conditions were then applied to the regional market, firms, and trends to provide the context of its economic competitiveness.

The competitive landscape for the agricultural sector is strong, as only 2 companies maintain a proportion greater than 1% of the sector. Cargill is a key player to consider for the Wichita economy, as their global headquarters is located here. Per Data Axle, Cargill employs 800 people in the Wichita area. Their presence includes a beef processing plant, protein ingredients plant, feed mill, and multiple office and support facilities. It should also be noted that Cargill has deep economic ties across the state.





<u>Threat of new entrants</u>

- Mixed capital requirements: The farming portion of the agricultural industry is not capital-intensive, requiring relatively small investments in research and development, manufacturing, and marketing. For example, a small farmer can start a business with a relatively small land, equipment, and seed investment. However, when discussing the manufacturing and processing side of agriculture, the capital demands can be higher depending upon factors such as the scale of the facility and the specificity of the infrastructure.

- Few government regulations: The agricultural industry is not heavily regulated, which does not make it difficult for new companies to comply with all of the requirements. For example, there are relatively few regulations on the production of food crops.
- No proprietary technology: The agricultural industry is not characterized by proprietary technology, which does not give existing companies a competitive advantage. For example, there is no patent on the process of growing corn.

Threat of substitutes

- Moderate threat of substitutes: The threat of substitutes in the agricultural industry is moderate, as there are a number of alternative products and services available, such as imported food and food grown in other parts of the United States. For example, consumers can buy imported grains or meats instead of domestically grown ones. Additionally, consumers can experience dietary changes that will affect the demand for products.

Bargaining power of buyers

- High bargaining power of buyers: The bargaining power of buyers in the agricultural industry is high, as there are a large number of buyers, such as grocery stores, restaurants, and food processors. For example, grocery stores can negotiate with farmers for a lower product price.

Bargaining power of suppliers

- Moderate bargaining power of suppliers: The bargaining power of suppliers in the agricultural industry is moderate, as there are a limited number of major suppliers, such as seed companies, fertilizer companies, and agricultural equipment manufacturers. However, suppliers have some bargaining power, as they can choose to sell to other companies if they are unsatisfied with the price or volume of orders.

Rivalry among existing firms

- Moderate rivalry among existing firms: The rivalry among existing firms in the agricultural industry is moderate, as a large number of companies compete for a share of the market. However, the rivalry is not as intense as in some other industries, such as the pharmaceutical industry.

The agricultural industry in Wichita is a competitive industry, with a moderate level of rivalry among existing firms. The industry is also characterized by low barriers to entry, which make it relatively easy for new companies to enter the market. The threat of substitutes is moderate, as there are a number of alternative products and services available. The bargaining power of buyers is high, as there are a large number of buyers. The bargaining power of suppliers is moderate, as there are a limited number of major suppliers.

The agricultural industry is a vital part of the Wichita economy and a major employer in the area. The industry is also a source of food for the nation and the world, and it plays an important role in the national and global economy.