

# Help Wanted: How Agricultural Labor Shortages Affect the Kansas Economy

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## Executive Summary

*Motivation:* Employee recruitment and retention concern employers in Kansas and nationwide. For agricultural employers, they may face even greater obstacles to placing and keeping personnel due to the limited supply of agricultural workers and healthy demand for manual or specialized labor.

Many anecdotes describe how agricultural labor shortages affect individual Kansas businesses, but no one effort has been undertaken to quantify the broader economic impact of these shortages. Understanding the economic impact can inform business and policy decisions meant to address labor shortages.

*Approach:* This study focuses on understanding labor shortages affecting the 72 agriculture and agriculture-related subsectors included in the Kansas Department of Agriculture (KDA) economic contribution report for 2023 (see Appendix Table 1). Collectively, these subsectors encompass a broad set of businesses that contribute along food and agricultural products' value chains — from grain farming to landscaping to meat processing to snack food manufacturing. The study communicates the magnitude of estimated labor shortages across the industry using ranges.

Employment data are difficult to collect and represent accurately. Therefore, two approaches were used to estimate the impact of labor shortages. The first produced a conservative lower-bound estimate using publicly available national and state-level employment statistics. The lower bound estimate represents the share of unfilled jobs that would exist if all unemployed individuals filled all posted job openings. The second approach used data from a survey of Kansas agribusinesses and consultations with industry leaders to estimate their current versus desired levels of employment. The upper bound accounts for job openings that are not posted.

These upper and lower bounds, reported in shares, were used with the KDA Agriculture Economic Contribution IMPLAN Model to estimate direct, indirect and induced impacts of higher employment on jobs, value-added and output metrics. This method provides a reasonable range of labor shortages' economic impact.

### *Key Findings and Results:*

- **\$2 billion to \$6 billion** in additional economic output could be generated in sectors affected directly if shortages were alleviated.
- When including direct, indirect and induced effects, Kansas could generate **\$4.1 billion to \$11.7 billion** additional output across the state economy if agricultural labor shortages were alleviated.
- The unrealized economic impact caused by labor shortages represents **1% to 2%** of all Kansas economic output.
- In total, Kansas could add **39,000+ total jobs** to the economy.

Accepting the agricultural labor market’s current status quo is costly. The survey also found that over 60% of agribusinesses suffer from some degree of labor shortage, larger agribusinesses are considerably less likely to report labor shortages in some sectors, and the H-2A temporary agricultural worker program is critical for many businesses but poses challenges for others.

Businesses and governments at all levels are already acting to address labor shortages. This study’s findings heighten the urgency of these actions.

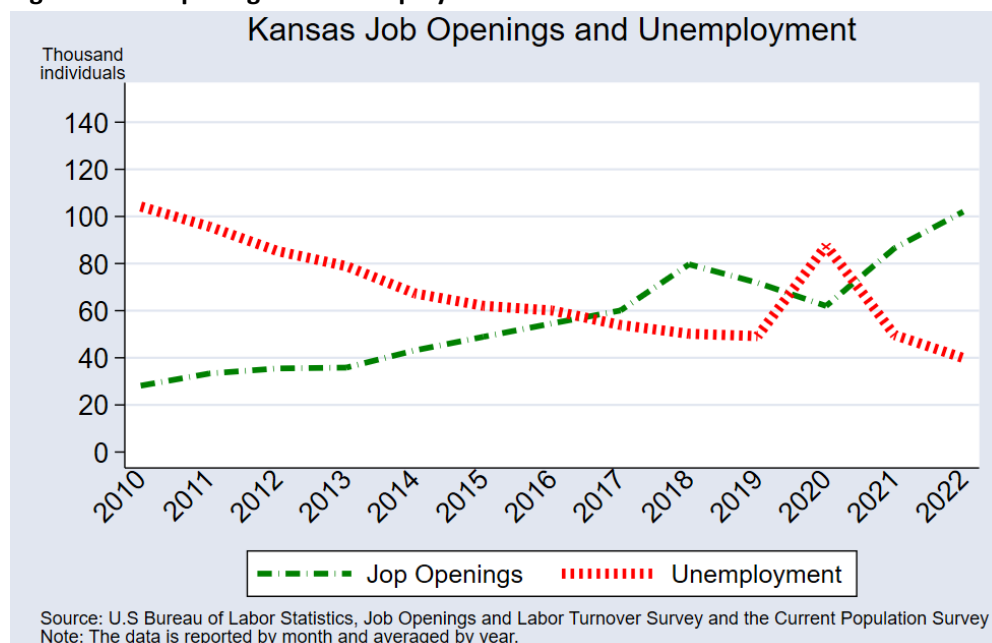
### Setting the Scene

Defined as an employer's inability to hire employees at prevailing wages, labor shortages have a major economic impact. USDA data indicate that the prevailing annual average gross wage rate increased by 5% during the past year.<sup>i</sup> This is a key indicator of supply pressure that exists in the labor market.

In Kansas, agriculture is a major industry. It and related businesses directly supported 140,000 jobs and contributed roughly \$57 billion to the state’s economic output in 2023.<sup>ii</sup> Therefore, the availability of skilled labor, or lack thereof, affects Kansas agriculture’s economic health. In 2022, the Kansas Department of Agriculture (KDA) conducted the Kansas Agriculture Workforce Needs Assessment and found nearly half of respondents expected their workforce needs to grow during the next 12 months.<sup>iii</sup> In addition to this growing demand, 84% of respondents indicated their hourly pay rates had increased during the past two years — additional evidence of the pressure agricultural employers feel to attract workers. These supply and demand trends in the market for human capital inhibit growth across the agriculture industry and significantly affect the state’s economy.

Like in agriculture, the overall Kansas labor market has experienced shortages, which emerged well before the COVID-19 pandemic began. Figure 1 shows Kansas job vacancies and unemployment since 2010, and it reinforces that labor shortages are not unique to the pandemic or current macroeconomic conditions.

**Figure 1. Job Openings and Unemployment Trends Since 2010**



The labor crunch in agriculture extends beyond Kansas' boundaries. Evidence of labor shortages in the U.S. agriculture industry has been prevalent for years across several subsectors.<sup>iv</sup> Of the farm employers surveyed for the 2021 Farm Journal Ag Labor Survey, 87% said they found it harder to fill positions.<sup>v</sup> Additionally, the Purdue University/CME Group Ag Economy Barometer identified labor shortages as a growing concern among respondents in 2021 when 66% of respondents reported “some” or “a lot of difficulty” in hiring labor — up from 30% in 2020.<sup>vi</sup> Finally, in 2018, a USDA publication referenced increasing farm wages, H-2A visa participation and producer reports as key indicators of the U.S. farm labor market significantly tightening.<sup>vii</sup>

Across industries, states and the country overall, labor shortages can directly and indirectly impact individual businesses and the greater economy. Without adequate staffing, a business may produce less, have lower income or delay investments. In turn, these impacts can affect other businesses. For example, farms with lower production may purchase fewer inputs from firms upstream in the agricultural products supply chain. Because of weaker demand for their products, those firms then require fewer personnel who would spend money and otherwise contribute to the economy if employed.

Although anecdotal reports describe how labor shortages affect individual businesses, the broader economic impacts have not been quantified. This study measures the economic impacts of agricultural labor shortages and details the challenges facing Kansas agricultural employers. The remainder of this report is organized as follows:

- I. This section outlines the **methods** to estimate the economic impact of ag labor shortages using a lower bound and an upper bound.
  - A. The **labor shortage lower bound** is based on unfilled jobs based on official employment statistics.
  - B. The **labor shortage upper bound** is based on unfilled jobs as reported by producers and business owners in a short survey
  - C. The Kansas Department of Agricultural **IMPLAN model** allows for estimating the economic impact of unfilled jobs.
- II. This study's **limitations and challenges** are discussed.
- III. Economic impact **results** based on the IMPLAN model are reported.
- IV. The report concludes with **key takeaways** for stakeholders.

## I. Methods

The following terms are used throughout this report:

- **Direct effect:** the contribution from agricultural and food products (e.g., wheat or corn sold from grain production)
- **Indirect effect:** the contribution from farms and agricultural businesses purchasing inputs and services from supporting industries within the state (e.g., a farmer purchasing a new pickup at a local dealership)
- **Induced effect:** the contribution from employees of farms, agricultural businesses and supporting industries spending their wages on goods and services within the state
- **Value added:** labor income + indirect business taxes + other property type income
- **Gross Regional Product:** final demand of households + government expenditures + capital + exports – imports – institutional sales

- **Output:** intermediate inputs + value added
- **Employment:** full-time/part-time annual average (i.e., 1 job lasting 12 months = 2 jobs lasting 6 months each = 3 jobs lasting 4 months each) (a job is neither full-time nor part-time).

Government agencies do not collect or report data on agricultural labor shortages that is sufficient for the purposes of this study. Thus, this study quantifies the economic impact of labor shortages using ranges. The lower bound figures are based on official government employment statistics, and the upper bounds are based on findings from a short online survey and industry and expert consultations.

The selected approach allows for timely and cost-effective assessment of labor shortages' economic impact, and it reflects how labor shortages can evolve over time and be difficult to observe and quantify. A detailed, representative analysis by agriculture subsector would have been unreliable or prohibitively expensive. For a subsector analysis, the ideal approach would require a costly, stand-alone, in-person, enumerated survey for a representative sample of all agricultural businesses. Only government agencies hold relevant lists or comprehensive farm or business information. Coordinating these resources for survey purposes is typically not allowed or requires substantial time and monetary investment. Mail surveys generally have extremely low response rates. A long, detailed online survey would likely face similar issues with response rates and representativeness.

As introduced earlier, labor shortages refer to the inability of firms to hire sufficient labor at prevailing wages or when "demand for workers for a particular occupation is greater than the supply of workers who are qualified, available and willing to do that job".<sup>viii</sup> In the case of widespread labor shortages, firms make investments in bigger or newer machinery and technology to increase productivity. However, labor shortages often are region- or industry-specific and cannot be fully attributed to wages. In some cases, even when wages increase, finding qualified employees can be particularly difficult due to geographic-specific factors or the degree of mismatch between existing competencies of workforce participants and skills demanded by employers.<sup>ix</sup> Further, it is not possible to observe what hiring would have been without a labor shortage.

Given these challenges, an approach was adopted that conservatively provides a credible range of estimates, while accounting for the uncertainty inherent in any effort to estimate the economic impact of labor shortages. In the range, the lower bound communicates the relationship between current job openings and current unemployment. It assumes all unemployed individuals could and would fill all current job openings. Remaining job openings as a share of total employment creates the lower bound. Said another way, even if all unemployed individuals accepted jobs, the lower bound quantifies the number of unfilled positions. This approach is conservative, as the labor market will always have some level of transitory unemployment, even when the economy would be considered at full employment.<sup>x</sup>

The range's upper bound accounts for firms potentially not posting jobs due to labor shortages. To determine how Kansas ag employers would view full employment in their organizations, a short online survey (see Appendix) was used. The findings establish the percentage of desired versus actual jobs by subsector. The survey results also informed estimates of the lower bound for subsectors not reported in official employment statistics, including farm-level and feedlot employment. Official employment statistics reported by the Bureau of Labor Statistics do not include farm-level employment or job openings.<sup>xi</sup>

To estimate the economic impact of staffing at the lower and upper bounds, the Kansas Department of Agriculture IMPLAN model was used. Annually, this model approximates agriculture's economic impact on the Kansas economy.

IMPLAN is a “general equilibrium” model that accounts for interlinkages among different parts of the economy. Thus, it is well-suited to this study.

IMPLAN captures ripple effects of economic activity. When firms suffer labor shortages, overall economic activity suffers. For example, if a cooperative is short on truck drivers, then farms may experience delays in moving grain. Farm production makes a direct contribution to the economy, but farms purchasing inputs and farm employees spending money at local businesses also generate economic activity. IMPLAN accounts for these “secondary impacts” as “indirect” or “induced” effects, depending on the level of interaction with the original direct sector impacted. Another benefit of using this model is that it defines the sectors (e.g., meat processing or beef cattle ranching/farming) in the Kansas agriculture industry.

#### **A. Labor shortage lower bound: Unfilled jobs based on official employment statistics**

The lower bound estimates approximate the number of jobs left unfilled, even if all unemployed individuals found jobs. It is presented as a share:  $(\text{number of job openings} - \text{number of unemployed individuals}) / \text{total employees}$ .

These estimates relied on official state and national employment statistics, including (1) state-level aggregate employment, unemployment and job openings; (2) national aggregate employment, unemployment and job openings; and (3) national industry-level employment, unemployment and job openings. Many publications note the number of recent U.S. job openings is greater than the number of unemployed individuals<sup>xii xiii</sup> All data are reported monthly but averaged for 2022 for this study.<sup>xiv</sup>

The number of job openings is based on Job Openings and Labor Turnover (JOLTS) data published monthly by the U.S. Bureau of Labor Statistics (BLS). JOLTS data include job openings, hires and separations; they are used to gauge labor demand, monitor dynamics between hires and separations and measure labor turnover.<sup>xv</sup> JOLTS data are available in aggregate for the U.S. and at the state level for Kansas. Industry-level data are reported at the national level. These industry-level statistics can be matched to the IMPLAN model by linking the direct economic sectors to the North American Industry Classification System codes. NAICS codes are used by Federal statistical agencies to classify business establishments and can be linked to JOLTS codes., which can be linked to JOLTS codes.<sup>xvi xvii</sup>

The number of unemployed individuals originate from the Current Population Survey (CPS), a monthly survey of U.S. households conducted by BLS. BLS uses CPS to estimate the national unemployment rate and other information about employment, unemployment and people who are not in the labor force and not seeking employment.<sup>xviii</sup> Similar to JOLTS, CPS data are available on an aggregate basis at the state level and nationally at the industry level. They are published monthly and aggregated to the annual level.

The number of employed individuals is available from the CPS and Current Employment Statistics (CES), a BLS product that details industry estimates of nonfarm employment, hours and earnings of workers on payrolls. When BLS uses JOLTS job opening numbers to estimate job opening rates, the Bureau uses CES employment estimates in the denominator.<sup>xix</sup> To estimate our lower bound labor shortage level, this study uses CES to gauge the total number of employees.

Industry-specific openings and employment estimates are not available for Kansas; therefore, national estimates were used. Aggregate unfilled jobs openings for Kansas (4.5%) in 2022 were slightly higher than the U.S. (4.1%), which

suggests this modeling choice likely would not inflate the lower bound estimates. For subsectors not included in official statistics, similarly used data for the U.S. average of unfilled positions (4.1%) was utilized, which aligns with survey data and industry consultations discussed in the next section. The U.S. estimates were used in both cases for consistency and did not upward-adjust for Kansas given the minor difference.

### ***B. Labor shortage upper bound: Unfilled jobs based on survey data***

In the labor shortage range, the upper bound measures how many jobs agricultural employers would like to fill. These estimates were based on survey data and verified with industry and expert consultations. The survey (see Appendix demographic) was businesses in the top 10 agriculture sectors in Kansas by employment. There were 185 respondents from firms representing more than 10,500 employees.

Respondents had the option to answer one of two questions: "What is the current percentage of unfilled positions in your business?" or "How many employees do you have, and how many would you like to have?". They also had the opportunity to leave comments related to labor shortages and other challenges.

The survey was distributed broadly through sources including the AgManager.info mailing list, which has more than 10,000 recipients, and the newsletter or mailing lists of several Kansas producers, commodity groups and industry organizations. Specific firms across several sectors were identified and contacted directly to provide their responses. This step ensured the survey was accurately reflective of each sector. The survey was publicly available for two months. All online responses were collected anonymously.

Using survey responses, a unique upper bound was calculated for each sector that had quality responses provided. For all other sectors, the upper bound represents an aggregated weighted average of all survey responses. Industry experts and representatives from sectors with unique upper bound figures were consulted to verify these figures. To see the upper bounds and their origin, refer to Appendix Table 2.

### ***C. IMPLAN methodology***

Using the economic software IMPLAN, the equilibrium displacement model calculates estimated output and employment of all 546 economic sectors in Kansas if all vacant positions were filled within the agriculture and agriculture-related industries. Due to the estimation structure, two models calculate the upper and lower bound estimates for unfilled positions separately. The results are broken into direct, indirect and induced effects. IMPLAN sectors are based on North American Industry Classification System (NAICS) codes, and the framework avoids double counting. All agriculture and related sectors represented in these models use the most recent IMPLAN data available (2021), adjusted for 2023 dollars.

## **II. Limitations**

This study considers the impact of current agricultural labor shortages, which are consistent with shortages in other industries. However, the approach used cannot address whether these shortages would persist across industries and regions as macroeconomic conditions change or decline. Although industries in rural areas and agriculture-related industries may likely face persistent labor challenges, this question is beyond the scope of this study.

The survey relied on self-reported information from agricultural producers and agribusinesses and was also informed by several industry consultations. While every effort was made to get representative participation, especially from subsectors with larger employment, survey results still reflect voluntary participation.

In regard to IMPLAN, these results are based on estimated production and employment numbers and estimated potential sector-, industry- and economy-wide effects. Therefore, these results may differ from actual events. Due to confidentiality policies that exist within several agencies from which IMPLAN collects data, some sectors in some regions may not have all the data available. The IMPLAN data and dollar year also do not match the years for the economic statistics and survey. In addition, these models provide results related to agriculture and agriculture-related sectors. These results are not equal to the total effects of all 546 sectors but rather the total effects of agriculture sectors.

### III. Results

When the unfilled employment percentage range is applied to the 72 agriculture and agriculture-related sectors present in Kansas, the estimated number of unfilled jobs is between 5,627 and 15,873 jobs. Due to these unfilled agriculture positions, an estimated 8,466 to 23,843 additional unfilled positions exist through indirect and induced effects. In total, the Kansas economy has between 14,094 and 39,717 unfilled positions economy-wide — 1% to 2% of the state's workforce — as a result of the labor shortage in agriculture. For each job in agriculture that remains unfilled, roughly 1.5 positions remain unfilled throughout the rest of the state's economy.

If these agricultural positions were filled, then Kansas direct output economic activity in agriculture and agriculture-related sectors would potentially grow by \$2.2 billion to \$6.3 billion, and direct value added would increase by \$575.4 million to \$1.71 billion. Including indirect and induced effects, this opportunity would potentially create an estimated additional \$4.1 billion to \$11.8 billion in total output. Total value added would increase by \$1.4 billion to \$4.1 billion. These estimates represent roughly 1% to 2% of the state's gross regional product.

**Table 1: Unfilled Agriculture and Agriculture-Related Positions Contribution to the Kansas Economy, Lower Bound**

Contribution Type	Employment	Total Value Added	Output
Direct Effect	5,627	\$575,429,000	\$2,169,975,000
Indirect Effect	5,743	\$571,837,000	\$1,482,223,000
Induced Effect	2,723	\$263,053,000	\$473,917,000
Total Effect	14,094	\$1,410,320,000	\$4,126,117,000

**Table 2: Unfilled Agriculture and Agriculture-Related Positions Contribution to the Kansas Economy, Upper Bound**

Contribution Type	Employment	Total Value Added	Output
Direct Effect	15,873	\$1,712,749,000	\$6,300,555,000
Indirect Effect	16,058	\$1,612,391,000	\$4,114,874,000
Induced Effect	7,785	\$751,975,000	\$1,354,760,000
Total Effect	39,717	\$4,077,117,000	\$11,770,190,000

Although the ranges give a broad view of potential impacts, the individual results are just as important. The lower bound model produces more conservative estimated impacts, and the upper bound model reveals the highest limitations on expectations.

In the lower bound model, the 72 agriculture and agriculture-related sectors in Kansas directly experience an estimated 5,627 unfilled jobs and total direct output potential of \$2.17 billion. Including indirect and induced effects, the Kansas economy sustains a total estimated impact of 14,094 unfilled jobs, \$4.13 billion in output and \$1.41 billion in added value potential if open positions were filled.

The upper bound model found the 72 agriculture and agriculture-related sectors directly have an estimated 15,873 unfilled jobs and total direct output potential of \$6.3 billion in Kansas. Including indirect and induced effects, the Kansas economy sustains a total estimated impact of 39,717 unfilled jobs, \$11.77 billion in output and \$4.08 billion in added value potential if employers could staff organizations at the level they desire.

#### **IV. Key Takeaways and Additional Survey Findings**

*Labor shortages have a significant economic impact.*

If agricultural labor shortages were alleviated, then IMPLAN results indicate that the additional economic output generated directly in the affected sectors would be between \$2 billion and \$6 billion, and the total effect could be as high as \$11.7 billion if including direct, indirect and induced effects. This study shows accepting the labor market's status quo is costly. It also suggests continued pressure for managers and business owners to adapt and local, state and federal policymakers to act. In most cases, labor-related management and policy challenges are multifaceted and not easily solved.

*Employers rely on guest worker programs such as H-2A to alleviate some pressure, but there are tradeoffs.*

Although immigration policies can be politically fraught, many Kansas and U.S. farms rely on migrant or H-2A labor.<sup>xx</sup> When prompted for additional comments, several survey respondents indicated guest worker programs such as H-2A are important to their operations and labor shortages would be much worse without it. Other respondents, however, indicated they feel the program unfairly pressures prevailing wages and the costs are too high. Furthermore, some respondents indicated that the inability to hire native employees and for guest workers to have longer-term visas or immigrate permanently challenges their operations and has additional indirect and induced consequences in rural communities.

*Labor shortages are a widespread issue.*

The survey data suggests labor shortages are a common issue across all agricultural sectors; over 60% of respondents reported having at least some degree of shortage. This percentage varied across sectors, but at least half of the respondents in every sector reported a shortage. Several respondents commented that labor was the biggest challenge for their businesses. On the other hand, the experience of labor shortages is not uniform. A significant share of respondents reported being able to hire all the labor they need.

Labor shortages varied substantially by business size. For all survey respondents, the weighted average percentage of unfilled positions for firms with more than 20 employees was only 3% compared with 17% for firms with fewer than 20 employees. Although this held true across many subsectors and the entire survey, the percentage of unfilled positions



does not necessarily represent the full urgency of a business's labor challenges. Businesses small and large indicated that labor was one of their biggest challenges.

*This study's findings heighten the urgency of current public and private actions.*

Overall, businesses and governments at all levels are already acting to address labor shortages. Likewise, dialogue on labor and immigration policies has increased over the last few years. An array of policies and public goods influence labor shortages — both in terms of improving the business and regulatory environments and attractiveness of communities to potential employees. Investment in technology and labor-saving innovations can help firms adapt to labor shortages. Public investments, such as education and childcare, can make communities more attractive to potential workers.

Survey comments and discussion with business leaders indicate that competitive wages are essential to attract and retain employees but insufficient on their own. Many businesses make labor-saving or productivity-increasing advancements, invest in human resources or use other creative means to combat labor shortages. One business said providing benefits and creating a rewarding work environment had helped to retain employees for decades and compete with major employers in the region. Our results suggest these actions, and other intentional recruitment and retention efforts, are more important than ever.

Many state agencies and other institutions support workforce recruitment, development and well-being. For example, K-State 105 is designed to support economic prosperity in all Kansas counties through several initiatives, including childcare and workforce development.<sup>xxi</sup> Likewise, the KDA Agriculture Marketing, Advocacy and Outreach team works with secondary and post-secondary institutions to offer resources and programs to train individuals to meet the needs of agricultural employers. One unique program specific to agriculture is the KDA Immersion Experience, where local ag-centric businesses host high school students for a day of hands-on experiences with the business's employees. These opportunities offer students insights into what a career in agriculture could look like in their local communities that they otherwise might not have considered.

## Acknowledgements

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For the survey, Richard Llewelyn shared the survey with the AgManager mailing list. Several producer and industry groups provided feedback and shared the survey with their membership, including the Arthur Capper Cooperative Center, Kansas Agribusiness Retailers Association, Kansas Cooperative Council, Kansas Dairy Association, Kansas Farm Bureau, Kansas Grain and Feed Association, and the Kansas Livestock Association. Most importantly, several producers and business owners generously discussed their labor challenges and shared information on their business with us via the anonymous survey.

## Appendix

**Appendix Table 1.** KDA 2023 baseline agricultural subsectors with direct output and employment.

Agricultural Subsector	Output	Employment
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	\$10,042,212,229	34,506
Grain farming	\$8,393,127,048	18,135
Animal, except poultry, slaughtering	\$7,381,201,031	11,528
Meat processed from carcasses	\$4,234,460,737	9,762
Dog and cat food manufacturing	\$3,780,662,569	9,548
Farm machinery and equipment manufacturing	\$3,106,354,656	8,354
Oilseed farming	\$2,507,861,426	5,811
Other animal food manufacturing	\$1,839,751,954	5,479
Flour milling	\$1,616,653,195	4,293
Landscape and horticultural services	\$1,035,007,048	3,790
All other food manufacturing	\$961,526,120	3,303
Animal production, except cattle and poultry and eggs	\$891,355,893	2,998
Other snack food manufacturing	\$827,492,459	2,080
Fats and oils refining and blending	\$738,321,381	1,873
Dairy cattle and milk production	\$708,674,340	1,624
Confectionery manufacturing from purchased chocolate	\$614,868,675	1,482
Soybean and other oilseed processing	\$606,463,280	1,440
Support activities for agriculture and forestry	\$582,014,818	1,278
Bread and bakery product, except frozen, manufacturing	\$577,083,936	1,109
Bottled and canned soft drinks & water	\$566,855,163	1,071
Spice and extract manufacturing	\$552,614,774	905
Distilleries	\$507,932,373	749
Frozen specialties manufacturing	\$401,605,120	692
Cookie and cracker manufacturing	\$363,656,176	679
Nitrogenous fertilizer manufacturing	\$349,540,141	674
Lawn and garden equipment manufacturing	\$332,899,004	598
Fluid milk manufacturing	\$327,416,856	581
All other crop farming	\$306,918,682	478
Veterinary services	\$301,434,628	474
Wet corn milling	\$298,767,804	417
Food product machinery manufacturing	\$211,550,352	349
Frozen cakes and other pastries manufacturing	\$148,651,209	321
Dry, condensed, and evaporated dairy product manufacturing	\$148,312,939	310
Cheese manufacturing	\$135,741,961	251

Frozen fruits, juices and vegetables manufacturing	\$114,229,565	231
Cotton farming	\$107,997,602	179
Sugar cane mills and refining	\$104,387,839	162
Breweries	\$101,031,257	154
Tobacco product manufacturing	\$93,800,095	141
Canned fruits and vegetables manufacturing	\$93,168,214	139
Poultry and egg production	\$82,917,521	138
Paper mills	\$78,837,185	135
Greenhouse, nursery, and floriculture production	\$76,291,885	128
Pesticide and other agricultural chemical manufacturing	\$74,800,430	125
Fertilizer mixing	\$71,953,123	124
Roasted nuts and peanut butter manufacturing	\$63,538,064	120
Dry pasta, mixes, and dough manufacturing	\$55,406,419	119
Chocolate and confectionery manufacturing from cacao beans	\$50,169,001	110
Nonchocolate confectionery manufacturing	\$44,689,882	108
Paperboard mills	\$43,607,257	97
Wineries	\$37,541,969	85
Tortilla manufacturing	\$37,428,384	85
Poultry processing	\$35,670,557	82
Other chemical and fertilizer mineral mining	\$35,510,396	81
Ice cream and frozen dessert manufacturing	\$32,721,610	77
Rendering and meat byproduct processing	\$30,080,654	75
Phosphatic fertilizer manufacturing	\$29,986,925	69
Vegetable and melon farming	\$27,831,077	57
Commercial logging	\$24,092,830	54
Commercial hunting and trapping	\$16,728,381	42
Coffee and tea manufacturing	\$15,716,276	34
Dehydrated food products manufacturing	\$13,696,858	28
Forestry, forest products, and timber tract production	\$12,194,958	27
Fiber, yarn, and thread mills	\$8,176,236	27
Sawmill, woodworking, and paper machinery	\$7,280,623	26
Leather and hide tanning and finishing	\$4,732,914	26
Tree nut farming	\$4,150,743	24
Other leather and allied product manufacturing	\$3,938,651	24
Fruit farming	\$3,598,643	22
Sawmills	\$3,542,704	16
Knit fabric mills	\$3,183,856	11
Narrow fabric mills and schiffli machine embroidery	\$1,789,434	10

Appendix Table 2.

Direct Sector	% Share of Direct Ag Employment	Lower Bound % Unfilled Positions	Lower Bound Method and Notes	Upper Bound % Unfilled Positions	Upper Bound Method and Notes
<b>Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming</b>	24.6%	4.1%	Based on national average; consistent with survey estimates and industry consultations	10.0%	Based on survey responses; consistent with industry estimates
<b>Grain farming</b>	12.9%	4.1%	Based on national average; consistent with survey estimates and industry consultations	13.6%	Based on survey responses; combined with oilseed farming; consistent with industry estimates
<b>Animal, except poultry, slaughtering</b>	8.2%	3.5%	Based on national industry-level statistics, NAICS code 311611 and JOLTS code 340000	7.8%	Based on survey responses from combined slaughtering and processing; consistent with industry estimates. To account for the large disparity between vacancies in large vs. small slaughter/processing facilities, a weighted average of the unfilled positions and their estimated share of the sector was used. It was estimated that large plants make up approximately 80% of employment across slaughter and processing sectors.
<b>Meat processed from carcasses</b>	7.0%	3.5%	Based on national industry-level	7.8	*Based on survey responses from combined slaughtering

			statistics, NAICS code 311612 and JOLTS code 340000		and processing; consistent with industry estimates
<b>Farm machinery and equipment manufacturing</b>	6.0%	3.7%	Based on national industry-level statistics, NAICS code 333111 and JOLTS code 320000	11.1%	Based on survey responses
<b>Other animal food manufacturing</b>	2.4%	3.5%	Based on national industry-level statistics, NAICS code 311119 and JOLTS code 340000	14.7%	Based on survey responses
<b>Animal production, except cattle and poultry and eggs</b>	2.1%	4.1%	Based on national average; consistent with survey estimates and industry consultations	14.4%	Based on survey responses; consistent with industry estimates
<b>Dairy</b>	1.2%	4.1%	Based on national average; consistent with survey estimates and industry consultations,	12.0%	Survey weighted average aggregated across all sectors; consistent with industry estimates
<b>All other agriculture and agriculture-related sectors</b>	35.6%	4.1%	Based on national average	12.0%	Survey weighted average aggregated across all sectors

## Survey

### Start of Block: Default Question Block

Q5. Do you operate a farm, ranch, or agricultural business in the state of Kansas? ('Agricultural business' includes handling and processing agricultural commodities or any type of business that serves the agricultural sector)

Yes

No

*Skip To: End of Survey If Q5 = No*

Q1. In a few words, please describe the agricultural business that you operate in Kansas. For example, large feedlot, small dairy, medium-sized trucking operation, custom harvesting, etc.

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Q6. Which of the following two questions would you prefer to answer?

What is your current number of employees? What number of employees would you like to have?

What percent of jobs or positions in your agricultural business are currently not filled?

*Skip To: Q4 If Q6 = What percent of jobs or positions in your agricultural business are currently not filled?*

*Skip To: Q2 If Q6 = What is your current number of employees? What number of employees would you like to have?*

Q2. What is your current number of employees?

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Q3. What number of employees would you like to have?

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*Skip To: Q7 If Condition: What number of employees wo... Is Not Empty. Skip To: Do you have any feedback on the survey....*



Q4. What percent of jobs or positions in your agricultural business are currently not filled?

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Q7. Do you have any feedback on the survey or the labor challenges that your agricultural business faces?  
(feel free to leave blank)

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End of Block: Default Question Block

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