

Kansas

Estimated Economic Impact of Agriculture, Food, and Food Processing Sectors 06/06/2018

Using the most recent IMPLAN data available (2016) adjusted for 2018, 64 agriculture, food, and food processing sectors were analyzed to determine their overall contribution to the Kansas economy.¹

These 64 sectors have a total direct output of approximately **\$ 46.4 billion** and support **125,411 jobs** in Kansas.

Running the model for all 64 sectors simultaneously produces the following results:

2018 Adjusted Agriculture, Food, and Food Processing Sector Contribution to Overall Kansas Economy						
Impact Type ²	Employment	% Employment	Total Value Added ³	% of Gross Regional Product ⁴	Output ⁵	% of Gross Regional Product
Direct Effect	125,411.3	6.5%	9,812,194,270	6.0%	46,384,549,519	28.5%
Indirect Effect	69,078.6	3.6%	6,549,963,452	4.0%	12,080,816,993	7.4%
Induced Effect	53,726.4	2.8%	4,188,381,388	2.6%	7,266,713,167	4.5%
Total Effect	248,216.3	12.9%	20,550,539,110	12.6%	65,732,079,679	40.4%

As shown in the above table, agriculture, food, and food processing supports **248,216 jobs, or 12.9%** of the entire workforce in the state. These industries provide a total economic contribution of approximately **\$ 65.7 billion, roughly 40.4% of the total economy.**

The **5-year average (2012-2016)** economic contribution of the agriculture, food, and food processing sectors is roughly **\$63.8 billion per year or 42.3% of the Kansas economy.** Due to the fact that these industries are highly dependent on commodity and input prices, the 2018 total output of the industry is still in line with the industry average.

5-Year Average Agriculture, Food, and Food Processing Sector Contribution to Overall Kansas Economy						
Impact Type	2012 Adjusted	2013 Adjusted	2014 Adjusted	2015 Adjusted	2016 Adjusted	5-Year Average
Total Output	58,256,593,118	62,861,174,235	64,569,778,638	67,461,102,358	65,732,079,679	63,776,145,606
Total Value Added	19,306,629,983	20,663,080,094	23,267,618,021	20,437,750,071	20,550,539,110	20,845,123,456

Another metric used to calculate the importance of sectors in an economy is their value added as a percentage of GRP. Total value added by the 64 agriculture, food, and food processing sectors is approximately **\$ 20.6 billion, or 12.6% of the GRP.** This indicates that personal income, business income, and taxes generated by these sectors account for **12.6% of the total economy.**

The average value added by agriculture, food, and processing sectors in Kansas since 2012 is **\$20.8 billion, or 13.8% of the GRP of the state.**

The following tables document top industries affected by employment and output, as well as a listing of all industries that were analyzed.

In the top ten by employment, Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming is the top employer in the agriculture industry with 42,501 employees. This table also shows the amount of jobs that are created by the agriculture industry in Kansas.

Description	Total Employment	Total Output
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	42,500.8	7,879,642,455
Wholesale trade	11,759.7	2,750,094,561
Landscape and horticultural services	11,652.8	686,084,492
Animal, except poultry, slaughtering	10,575.1	7,599,458,632
Support activities for agriculture and forestry	10,136.0	458,479,349
Grain farming	9,926.5	4,443,242,750
Truck transportation	7,855.4	1,324,592,418
Meat processed from carcasses	6,716.7	3,574,493,472
Real estate	6,371.0	1,203,341,945
All other crop farming	4,717.3	333,778,387

The Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming industry directly contributes approximately \$ 7.9 billion to the Kansas economy. This table also shows how much revenue is generated in other industries by having a strong agriculture industry.

Description	Total Employment	Total Output
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	42,500.8	7,879,642,455
Animal, except poultry, slaughtering	10,575.1	7,599,458,632
Grain farming	9,926.5	4,443,242,450
Dog and cat food manufacturing	2,426.0	3,637,545,703
Meat processed from carcasses	6,716.7	3,574,493,472
Wholesale trade	11,759.7	2,750,094,561
Farm machinery and other equipment manufacturing	4,716.4	2,336,532,908
Oilseed farming	1,997.7	1,819,867,462
Other animal food manufacturing	1,345.1	1,806,687,768
Truck transportation	7,855.4	1,324,592,418

Below is a summary of all agriculture data with employment levels and output level. These values can tell how many jobs are represented by each agriculture sector and the output they contributed to the Kansas economy.

Description	Employment	Output
Oilseed farming	1,997.7	1,819,867,462
Grain farming	9,926.5	4,443,242,750
Vegetable and melon farming	142.7	23,569,680
Fruit farming	139.4	9,397,399
Tree nut farming	61.9	8,753,734
Greenhouse, nursery, and floriculture production	682.8	76,855,432
Cotton farming	124.8	25,837,000
All other crop farming	4,717.3	333,778,387
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	42,500.8	7,879,642,455
Dairy cattle and milk production	1,337.3	532,610,376
Poultry and egg production	94.7	64,989,688
Animal production, except cattle and poultry and eggs	3,879.5	525,855,737
Commercial logging	204.9	9,609,160
Commercial hunting and trapping	481.1	7,809,179
Other chemical and fertilizer mineral mining	124.9	23,418,532
Dog and cat food manufacturing	2,426.0	3,637,545,703
Other animal food manufacturing	1,345.1	1,806,687,768
Flour milling	901.1	1,270,110,646
Malt manufacturing	32.6	48,307,687
Wet corn milling	31.8	63,049,523
Soybean and other oilseed processing	205.5	931,037,423
Fats and oils refining and blending	272.1	472,441,959
Breakfast cereal manufacturing	135.8	107,392,908
Nonchocolate confectionery manufacturing	142.6	56,867,691
Chocolate and confectionery manufacturing from cacao beans	185.9	128,299,835
Confectionery manufacturing from purchased chocolate	1,224.8	427,989,287
Frozen fruits, juices and vegetables manufacturing	94.4	40,941,890
Frozen specialties manufacturing	1,169.9	430,859,154
Canned fruits and vegetables manufacturing	181.6	89,833,411
Dehydrated food products manufacturing	73.5	35,323,490
Fluid milk manufacturing	166.6	125,023,107
Dry, condensed, and evaporated dairy product manufacturing	198.2	281,900,097
Animal, except poultry, slaughtering	10,575.1	7,599,458,632
Meat processed from carcasses	123.5	3,574,493,472
Rendering and meat byproduct processing	114.4	62,452,302
Poultry processing	20.0	5,893,458
Bread and bakery product, except frozen, manufacturing	3,431.3	463,274,624
Frozen cakes and other pastries manufacturing	117.1	19,000,053
Cookie and cracker manufacturing	364.7	152,662,383
Dry pasta, mixes, and dough manufacturing	291.6	191,101,378
Tortilla manufacturing	133.6	25,712,576
Other snack food manufacturing	785.5	472,643,032

Coffee and tea manufacturing	75.7	46,321,093
Flavoring syrup and concentrate manufacturing	446.6	1,287,259,593
Mayonnaise, dressing, and sauce manufacturing	107.1	73,257,519
Spice and extract manufacturing	576.3	337,420,154
All other food manufacturing	1,794.2	631,284,154
Bottled and canned soft drinks & water	621.5	527,026,766
Breweries	115.3	58,394,681
Wineries	112.5	32,233,839
Distilleries	15.1	15,600,014
Fiber, yarn, and thread mills	13.8	4,066,505
Sawmills	53.1	12,613,112
Paper mills	28.6	23,512,552
Paperboard mills	142.3	121,075,196
Nitrogenous fertilizer manufacturing	209.4	309,763,062
Fertilizer mixing	118.2	81,105,580
Pesticide and other agricultural chemical manufacturing	121.1	170,472,153
Farm machinery and equipment manufacturing	4,716.4	2,336,532,908
Lawn and garden equipment manufacturing	733.2	387,897,117
Food product machinery manufacturing	619.9	195,946,596
All other industrial machinery manufacturing	1,195.9	320,121,645
Veterinary services	4,190.2	428,649,954
Landscape and horticultural services	11,652.8	686,084,492

All 105 counties in Kansas have IMPLAN models and an agricultural contribution summary report. These values do not factor in the retail environment of food sales. Food retail is important, but in order to provide the most accurate picture of the impact of production agriculture and processing to Kansas, the retail sector was omitted. Furthermore, animal health pharmaceuticals were not included in the model due to the lack of availability of data.

****Calculations Including Food Retail and Restaurants****

Estimated Impact of Agriculture, Food, Food Processing and Food Retail Sectors on the Kansas Economy

The agriculture industry makes up a substantial part of the overall Kansas economy. These values do not factor in the retail environment of food sales. Food retail is important, but in order to provide the most accurate picture of the impact of production agriculture and processing to Kansas, the retail sector was omitted. If we were to include the food retail sector, the contribution from agriculture increases to **\$78.9 billion**, represents **21.4% of the jobs**, and increases total value added to **\$ 28.0 billion** in Kansas. The **5-year average (2012-2016)** economic contribution including food retail and restaurants is **\$75.4 billion per year or 50.0% of the Kansas economy**.

Agriculture, Food, Food Processing, and Food Retail Sector Contribution to Overall Kansas Economy						
Impact Type	Employment	% Employment	Total Value Added	% of Gross Regional Product	Output	% of Gross Regional Product
Direct Effect	280,333.3	14.6%	15,263,974,204	9.4%	55,870,916,111	34.4%
Indirect Effect	71,813.4	3.7%	7,504,167,155	4.6%	13,994,542,299	8.6%
Induced Effect	60,321.8	3.1%	5,219,048,730	3.2%	9,014,366,101	5.5%
Total Effect	412,468.4	21.4%	27,987,190,089	17.2%	78,879,824,511	48.5%

****Calculations Including Ethanol Production****

Estimated Impact of Agriculture, Food, Food Processing and Ethanol Production on the Kansas Economy

In 2016, Kansas produced **550.5 million gallons** of ethanol worth an estimated **\$853.3 million** dollars. The impact on page one includes by-products from ethanol plants such as distiller's dried grain with solubles (DDGS), but does not account for the economic activity generated by ethanol fuel production. Namely, this is because ethanol fuel production is included in sector 165, other basic organic chemical manufacturing, which encompasses more than ethanol production and was not modeled in the original scenario. Therefore, utilizing the full sector value would inflate the results. If we were to include sector 165 in the analysis with a direct value of \$853.3 million, the total contribution of agriculture increases to **\$66.9 billion**, represents **13.0% of the jobs**, and increases total value added to **\$20.8 billion** in Kansas. The **5-year average (2012-2016)** economic contribution including ethanol is **\$65.3 billion per year or 43.4% of the Kansas economy**.

Agriculture, Food, Food Processing, and Ethanol Production Sector Contribution to Overall Kansas Economy						
Impact Type	Employment	% Employment	Total Value Added	% of Gross Regional Product	Output ¹³	% of Gross Regional Product
Direct Effect	125,945.7	6.5%	9,908,318,792	6.1%	47,237,824,522	29.0%
Indirect Effect	70,194.6	3.6%	6,665,794,881	4.1%	12,315,812,599	7.6%
Induced Effect	54,499.1	2.8%	4,248,629,570	2.6%	7,371,168,535	4.5%
Total Effect	250,639.4	13.0%	20,822,743,243	12.8%	66,924,805,655	41.1%

****Calculations Including Food Retail, Restaurants, and Ethanol Production****

Estimated Impact of Agriculture, Food, Food Processing, Food Retail, Restaurants, and Ethanol Production on the Kansas Economy

As stated above, ethanol production is not included in our primary Kansas Agriculture, Food, and Food Processing economic analysis due to the fact that there is not a single sector in IMPLAN for ethanol. The above analysis was completed based on KDA estimates of industry impact, and from a brief review of the model we can see the important and substantial contribution of the ethanol industry. If we were to complete a contribution analysis including both sector 165 (ethanol) and sectors 19, 400, 501, 502, and 503 (food retail and restaurants) in our original state agriculture, food, and food processing model, the total contribution from agriculture increases to **\$80.1 billion**, represents **21.5% of the jobs**, and increases total value added to **\$28.3 billion** in Kansas.

The **5-year average (2012-2016)** economic contribution of the agriculture, food, food processing sectors, including food retail, restaurants, and ethanol production, is approximately **\$77.4 billion per year or 51.4% of the Kansas economy**. The average value added by agriculture, food, and processing sectors, including food retail, restaurants, and ethanol production, in Kansas since 2012 is **\$28.1 billion, or 18.6% of the GRP of the state**.

Agriculture, Food, Food Processing, Food Retail, Restaurants, and Ethanol Production Sector Contribution to Overall Kansas Economy						
Impact Type	Employment	% Employment	Total Value Added	% of Gross Regional Product	Output	% of Gross Regional Product
Direct Effect	280,867.7	14.6%	15,360,098,726	9.4%	56,724,191,114	34.9%
Indirect Effect	72,887.7	3.8%	7,618,386,457	4.7%	14,226,439,938	8.7%
Induced Effect	60,930.7	3.2%	5,271,734,656	3.2%	9,105,257,193	5.6%
Total Effect	414,686.1	21.5%	28,250,219,748	17.4%	80,055,888,245	49.2%

¹ Article on building a contribution analysis in IMPLAN that avoids double counting:
http://www.implan.com/index.php?option=com_content&view=article&id=660%3A660&catid=253%3AKB33&Itemid=70

² Direct, indirect, and induced effects sum together to estimate the total economic contribution in the state. **Direct effects** capture the contribution from agricultural and food products. **Indirect effects** capture the economic benefit from farms and agricultural businesses purchasing inputs from supporting industries within the state. **Induced effects** capture the benefits created when employees of farms, agricultural businesses, and the supporting industries spend their wages on goods and services within the state.

³ Value added = labor income + indirect business taxes + other property type income

⁴ GRP = final demand of households + governments expenditures + capital + exports - imports - institutional sales

⁵ Output = intermediate inputs + value added