

Kansas

Estimated Economic Impact of Agriculture, Food, and Food Processing Sectors

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Using the most recent IMPLAN data available (2015) adjusted for 2017, 65 agriculture, food, and food processing sectors were analyzed to determine their overall contribution to the Kansas economy.¹

These 65 sectors have a total direct output of approximately **\$ 47.9 billion** and support **125,714 jobs** in Kansas. Running the model for all 65 sectors simultaneously produces the following results:

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	125,714.5	6.6%	9,805,298,245	6.5%	47,940,354,172	31.6%
Indirect Effect	64,206.6	3.4%	6,419,450,787	4.2%	11,957,098,963	7.9%
Induced Effect	56,956.2	3.0%	4,213,001,039	2.8%	7,563,649,223	5.0%
Total Effect	246,877.2	13.0%	20,437,750,071	13.5%	67,461,102,358	44.5%

As shown in the above table, agriculture, food, and food processing supports **246,877 jobs, or 13.0%** of the entire workforce in the state. These industries provide a total economic contribution of approximately **\$ 67.5 billion, roughly 44.5% of the total economy.**

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 65 agriculture, food, and food processing sectors is approximately **\$ 20.4 billion, or 13.5% of the GRP.** This indicates that personal income, business income, and taxes generated by these sectors account for **13.5% of the total economy.**

The following tables document the overall summary numbers of the model, top industries affected by employment and output, and a listing of all industries that were analyzed.

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.

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 42,228.4 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	42,228.4	8,857,751,387
Wholesale trade	11,700.7	2,824,834,123
Landscape and horticultural services	11,152.1	645,833,148
Animal, except poultry, slaughtering	10,692.0	7,992,778,951
Grain farming	9,421.9	4,613,027,909
All other crop farming	7,751.4	653,496,959
Truck transportation	7,713.3	1,317,414,292
Meat processed from carcasses	6,622.8	3,608,378,482
Farm machinery and equipment manufacturing	5,890.2	3,288,563,405
Real estate	5,885.1	1,094,542,956

The Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming industry directly contributes approximately \$ 8.9 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	42,228.4	8,857,751,387
Animal, except poultry, slaughtering	10,692.0	7,992,778,951
Grain farming	9,421.9	4,613,027,909
Meat processed from carcasses	6,622.8	3,608,378,482
Farm machinery and equipment manufacturing	5,890.2	3,288,563,405
Dog and cat food manufacturing	2,183.7	3,125,350,139
Wholesale trade	11,700.7	2,824,834,123
Other animal food manufacturing	1,363.1	1,956,342,433
Flour milling	908.1	1,365,782,759
Truck transportation	7,713.3	1,317,414,292

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	1,185.8	1,274,602,316
Grain farming	9,421.9	4,613,027,909
Vegetable and melon farming	56.5	11,288,222
Fruit farming	107.1	8,953,757
Tree nut farming	6.4	1,188,167
Greenhouse, nursery, and floriculture production	411.7	54,532,742
Cotton farming	40.6	10,454,001
All other crop farming	7,751.4	653,496,959
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	42,228.4	8,857,751,387
Dairy cattle and milk production	1,667.6	744,240,025
Poultry and egg production	150.9	115,830,495
Animal production, except cattle and poultry and eggs	3,454.8	531,878,565
Commercial logging	225.2	10,994,664
Commercial hunting and trapping	505.5	27,917,830
Other chemical and fertilizer mineral mining	117.4	19,024,904
Dog and cat food manufacturing	2,183.7	3,125,350,139
Other animal food manufacturing	1,363.1	1,956,342,433
Flour milling	908.1	1,365,782,759
Malt manufacturing	31.8	51,958,302
Wet corn milling	35.2	75,485,134
Soybean and other oilseed processing	242.3	1,278,043,262
Fats and oils refining and blending	268.0	528,563,935
Breakfast cereal manufacturing	93.2	76,816,181
Nonchocolate confectionery manufacturing	66.3	31,735,823
Chocolate and confectionery manufacturing from cacao beans	192.1	165,821,915
Confectionery manufacturing from purchased chocolate	1,281.7	391,089,598
Frozen fruits, juices and vegetables manufacturing	49.7	23,065,881
Frozen specialties manufacturing	1,238.1	441,638,389
Canned fruits and vegetables manufacturing	178.5	87,388,998
Dehydrated food products manufacturing	73.2	35,946,925
Fluid milk manufacturing	340.8	282,667,584
Dry, condensed, and evaporated dairy product manufacturing	7.9	13,739,875
Animal, except poultry, slaughtering	10,692.0	7,992,778,951
Meat processed from carcasses	6,622.8	3,608,378,482
Rendering and meat byproduct processing	114.4	66,071,481
Poultry processing	25.9	7,665,962
Bread and bakery product, except frozen, manufacturing	3,240.1	430,781,155
Frozen cakes and other pastries manufacturing	124.2	19,114,549
Cookie and cracker manufacturing	362.2	133,884,002
Dry pasta, mixes, and dough manufacturing	289.3	196,162,276
Tortilla manufacturing	115.2	25,359,251
Roasted nuts and peanut butter manufacturing	46.7	31,453,131
Other snack food manufacturing	711.5	437,125,116

Coffee and tea manufacturing	80.6	46,982,363
Flavoring syrup and concentrate manufacturing	405.1	881,460,254
Mayonnaise, dressing, and sauce manufacturing	89.0	59,647,357
Spice and extract manufacturing	610.8	364,792,958
All other food manufacturing	1,762.4	630,365,086
Bottled and canned soft drinks & water	576.7	448,480,628
Breweries	76.8	58,063,176
Wineries	113.7	29,378,748
Distilleries	47.4	49,150,850
Fiber, yarn, and thread mills	4.3	1,408,589
Sawmills	48.3	12,262,572
Paper mills	26.7	20,751,486
Paperboard mills	134.2	111,315,545
Nitrogenous fertilizer manufacturing	70.7	124,824,433
Fertilizer mixing	92.8	60,016,836
Pesticide and other agricultural chemical manufacturing	241.2	342,318,208
Farm machinery and equipment manufacturing	5,890.2	3,288,563,405
Lawn and garden equipment manufacturing	71.0	36,516,860
Food product machinery manufacturing	592.3	184,991,182
All other industrial machinery manufacturing	1,265.4	336,596,011
Veterinary services	4,142.2	397,114,002
Landscape and horticultural services	11,152.1	645,833,148

All 105 counties in Kansas have Implan models and agriculture contribution summary. 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 what production agricultural and processing contributes 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 Kansas's overall 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 what production agricultural and processing contributes to Kansas, the retail sector was omitted. If we were to include the food retail sector, the contribution to agriculture increases to **\$79.9 billion**, represents **21.5% of the jobs**, and increases total value added to **\$ 27.5 billion** in Kansas.

Agriculture, Food, Food Processing, and Food Retail Sector Contribution to Overall Kansas Economy						
Impact Type ⁶	Employment	% Employment	Total Value Added ⁷	% of Gross Regional Product ⁸	Output ⁹	% of Gross Regional Product
Direct Effect	274,417.0	14.47%	15,148,774,749	10.00%	57,011,350,506	37.63%
Indirect Effect	70,450.3	3.71%	7,158,363,964	4.72%	13,645,030,954	9.01%
Induced Effect	62,831.7	3.31%	5,145,905,766	3.40%	9,237,074,205	6.10%
Total Effect	407,699.0	21.50%	27,453,044,479	18.12%	79,893,455,665	52.73%

6 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.

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

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

9 Output = intermediate inputs + value added.

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

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

In 2015, Kansas produced **550.5 million gallons** of ethanol worth an estimated **\$886.3 million** dollars. The impact on page one includes by-products from ethanol plants such as distiller’s dried grain with solubles (DDGS), but do 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 \$886.3 million, the total contribution to agriculture increases to **\$68.7 billion**, represents **13.14% of the jobs**, and increases total value added to **\$20.7 billion** in Kansas.

Agriculture, Food, Food Processing, and Ethanol Production Sector Contribution to Overall Kansas Economy						
Impact Type ¹⁰	Employment	% Employment	Total Value Added ¹¹	% of Gross Regional Product ¹²	Output ¹³	% of Gross Regional Product
Direct Effect	126,171.9	6.65%	9,881,278,414	6.52%	48,826,659,175	32.23%
Indirect Effect	65,377.4	3.45%	6,539,461,811	4.32%	12,199,871,715	8.05%
Induced Effect	57,679.5	3.04%	4,266,514,896	2.82%	7,659,662,826	5.06%
Total Effect	249,228.8	13.14%	20,687,255,120	13.65%	68,686,193,716	45.34%

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

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

13 Output = intermediate inputs + value added.

****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 **\$81.1 billion**, represents **21.61% of the jobs**, and increases total value added to **\$27.7 billion** in Kansas.

Agriculture, Food, Food Processing, Food Retail, Restaurants, and Ethanol Production Sector Contribution to Overall Kansas Economy						
Impact Type¹⁴	Employment	% Employment	Total Value Added¹⁵	% of Gross Regional Product¹⁶	Output¹⁷	% of Gross Regional Product
Direct Effect	274,874.4	14.49%	15,224,754,917	10.05%	57,897,655,509	38.22%
Indirect Effect	71,575.8	3.77%	7,276,681,385	4.80%	13,884,555,094	9.16%
Induced Effect	63,401.8	3.34%	5,192,601,866	3.43%	9,320,787,897	6.15%
Total Effect	409,852.0	21.61%	27,694,038,168	18.30%	81,102,998,499	53.53%

14 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.

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