# Food & Beverage Manufacturing *in Central California*


AUTHORS

**Todd Lone, PhD**
Assistant Professor
Department of Agricultural Business
California State University, Fresno

**Srini Konduru, PhD**
Chair
Department of Agricultural Business
California State University, Fresno

**Patrick Berends**
Lecturer
Department of Agricultural Business
California State University, Fresno


## KEY POINTS

- Food and beverage manufacturing contributes over $123 billion to California's economy.
- In the Central Valley, food and beverage manufacturing generates $21 billion in economic activity, employs over 30,000 people, and represents more than half of all jobs in manufacturing.
- Each value-added dollar created by food and beverage manufacturing creates a total economic activity of $1.83, and each additional job created by food and beverage manufacturing results in 1.77 jobs in total.

## Overview

California is the nation's leading producer of agricultural products, with farmers and ranchers growing over a third of the country's vegetables and two-thirds of the country's fruits and nuts. (California Department of Food and Agriculture.) The top five agricultural commodities in the state by value of production are: milk ($6.1 billion), grapes ($5.6 billion), almonds ($5.2 billion), cattle and calves ($2.5 billion), and lettuce ($2.0 billion).

The majority of farm products are processed before reaching the final consumer. For products such as eggs or fresh oranges, this process is relatively simple (e.g., cleaning, sizing/grading, packaging, and shipping). For other products, such as string cheese or canned soups, a great deal of processing is needed to convert the farm product to a final consumer product. These activities are included in a sector of the economy known as "food processing" or "food manufacturing."

This article explores the food-and-beverage manufacturing sector within the five counties of Fresno, Madera, Merced, Kings, and Tulare and includes data on production, employment, and issues facing the sector.

*The sector contributed $123 billion to California's GDP in 2017, and accounted for just over 5% of the state's total GDP.*

**Dairy, fruit/vegetable, and animal processing of the five-county area REPRESENTS OVER ONE-THIRD of the state's total sector GDP.**

## Food and Beverage Manufacturing Output

The contribution of the food and beverage sector to the economy is significant. The sector contributed $123 billion to California's GDP in 2017, and accounted for just over 5% of the state's total GDP. This sector is also an important economic driver in the Central Valley. The total GDP value for the area comprising the five counties of Fresno, Madera, Merced, Kings, and Tulare is $21 billion or 17% of California's total food-manufacturing output.

Table 1 provides details regarding the contribution to GDP made by different counties relative to their food manufacturing activities. The table indicates that for some sectors (dairy, fruit/vegetable, and animal processing), the five-county area represents over one-third of the state's total sector GDP.



**Table 1**
**Food & Beverage Manufacturing Sectors in 2016 GDP Dollars (Millions)**

| Manufacturing Sector | California | Fresno | Madera | Merced | Kings | Tulare | Five-County Area | Percent of California GDP from the Five-County Area |
|---|---|---|---|---|---|---|---|---|
| Animal Processing | 10,542 | 2,895 | 17 | 817 | 426 | 84 | 4,239 | 40.2% |
| Dairy | 15,821 | 211 | 89 | 1,292 | 1,481 | 2,378 | 5,451 | 34.5% |
| Fruit/Vegetable | 14,062 | 1,919 | 12 | 1,214 | 530 | 1,083 | 4,758 | 33.8% |
| Animal Food | 5,903 | 89 | 199 | 199 | 100 | 907 | 1,493 | 25.3% |
| Grain/Oil Seed | 6,574 | 285 | 177 | 15 | 879 | 16 | 1,372 | 20.9% |
| Other Food | 25,074 | 432 | 142 | 188 | 460 | 427 | 1,650 | 6.6% |
| Soft Drink/Ice | 11,219 | 538 | 4 | 20 | 18 | 18 | 598 | 5.3% |
| Bakery/Tortilla | 12,231 | 385 | 24 | 43 | 27 | 101 | 581 | 4.8% |
| Wineries/Distilleries | 15,666 | 470 | 82 | 100 | 0 | 59 | 712 | 4.5% |
| Breweries | 6,479 | 84 | 3 | 32 | 0 | 0 | 119 | 1.8% |
| **Total Food & Beverage** | **123,571** | **7,308** | **749** | **3,920** | **3,921** | **5,073** | **20,973** | **17.0%** |

Source: IMPLAN Model 7 - 2016 Dataset

# Food & Beverage Manufacturing
## *in Central California*

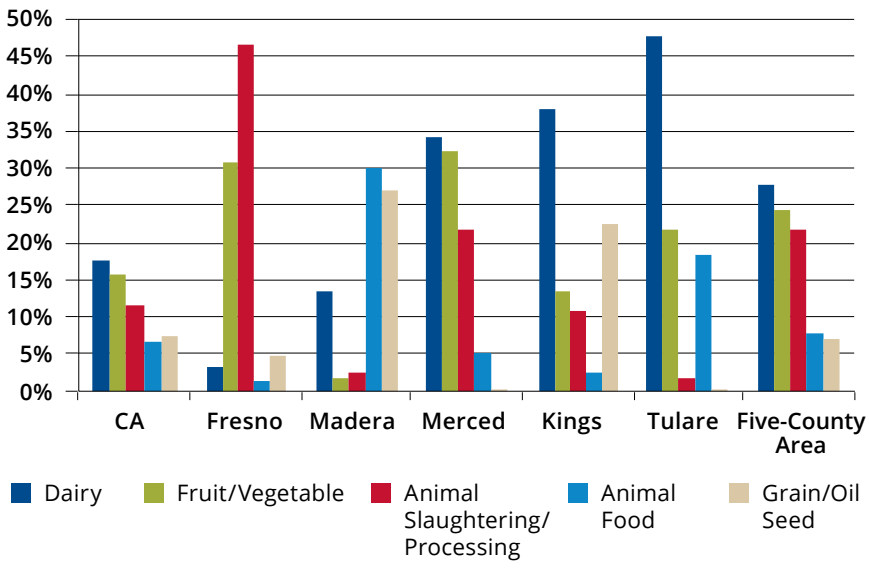
Figure 1 displays the dominant sectors of food manufacturing for each county. The color bars indicate the percent of a county's total food manufacturing production each category represents. Sectors vary in importance across counties. While animal processing is the largest sector in Fresno County for example, dairy is the largest for Tulare County.

### Dairy Product Manufacturing

The five-county region accounts for about 35% of total dairy product manufacturing in California. Dairy food manufacturing has a particularly strong foothold in Tulare, Merced, and Kings counties. In Tulare County, dairy food manufacturing contributes almost half of the county's total food manufacturing GDP; and the county is home to some of the largest dairy plants in the United States, operated by companies such as Land O'Lakes Inc., Saputo, Kraft Foods, and California Dairies Inc.

Over the years, the utilization of milk produced in California has been shifting toward Class 4b products (cheese and whey products) and away from Class 1 products (fluid milk). This is expected to continue in the future and may enhance the sector's impact on food and beverage manufacturing as more attention and resources are focused on more processed dairy products like cheese as opposed to fluid milk. Another factor that may impact the dairy processing sector is the recent adoption of the California Federal Milk Marketing Order, which is expected to create changes in the prices for different categories of milk (Sumner, 2018). (Some categories like milk destined for cheese may garner a higher price; other categories may remain the same.) The new United States-Mexico-Canada Agreement (USMCA) is supposed to provide more opportunities for U.S. dairy products in the Canadian market, which will be beneficial to Central California.

**Figure 1**
**Sector Proportion of Total County Food Manufacturing**




Data Source: IMPLAN Model 7 - 2016 Dataset

**FRUIT AND VEGETABLE MANUFACTURING**
**in the five-county area accounts for over one-third of California's total production.**

### Fruits and Vegetable Preserving and Specialty Industry

Fruit and vegetable manufacturing in the five-county area accounts for over one-third of California's total production, not surprising considering the prevalence of crops like grapes.

The volume of processing for packaging in dried, canned, or frozen forms fluctuates significantly due to the seasonal nature of agricultural production. This fluctuation results in varying levels of energy usage and employment, creating variations in production costs. This fluctuation

also impacts employment. Because many workers would prefer steady employment versus seasonal work, quantity of workers and quality of work can vary dramatically.

While the total number of fruit and vegetable processing firms in Central California has decreased somewhat, the number of people employed by those firms has increased by more than 50%. This increase reflects higher consumer demand for fresh processed fruits and vegetables. Increasing awareness about healthy lifestyles and improving the nutrition of an aging population are projected to create significant growth opportunities for the fruit and vegetable processing sector in Central California.

## Animal Slaughtering and Processing

A significant amount of processing and manufacturing is needed to create edible animal products, processing that generates significant value-added activity. Animal slaughtering and processing represents over 20% of food manufacturing GDP in the five-county region. This sector is also important in terms of employment and represents over 25% of all manufacturing jobs in Fresno and Merced counties. These two counties are home to some of the largest meat processing plants west of the Rocky Mountains, including Cargill Beef, Harris Ranch Beef, Central Valley Meat Company, Foster Farms, and Zacky Farms. (Although Zacky Farms recently announced it will close in January 2019.)

The sector is facing a number of challenges including increased food safety, perceived health risk of eating meat, attracting and retaining talented personnel, and the rising costs of raw materials. The sector is expected to grow due to strong consumer demand for protein-rich food. This optimistic scenario will help Central California expand the animal slaughtering and processing industry.

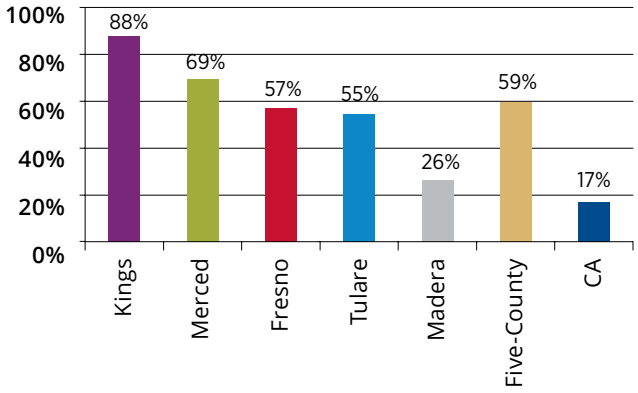
*With the exception of Madera County, food and beverage manufacturing represents well over 50% of all manufacturing in the five counties and in Kings County is nearly 90% of all manufacturing jobs.*

## Food and Beverage Manufacturing Employment

The manufacturing sector as a whole represents a relatively small portion of employment in the five-county region (roughly 8% to 16% of total employment). Of overall manufacturing employment, however, food and beverage manufacturing dominates. With the exception of Madera County, food and beverage manufacturing represents well over 50% of all manufacturing in the five counties and in Kings County is nearly 90% of all manufacturing jobs.



**Figure 2**
**Food and Beverage Manufacturing as a Percentage of All Manufacturing Employment**




Data Source: U.S. Bureau of Labor Statistics. Accessed October 10, 2018
https://data.bls.gov/PDQWeb/en

# Food & Beverage Manufacturing *in Central California*

**Table 2**
**Food and Beverage Employment for the Period 2010-2017**

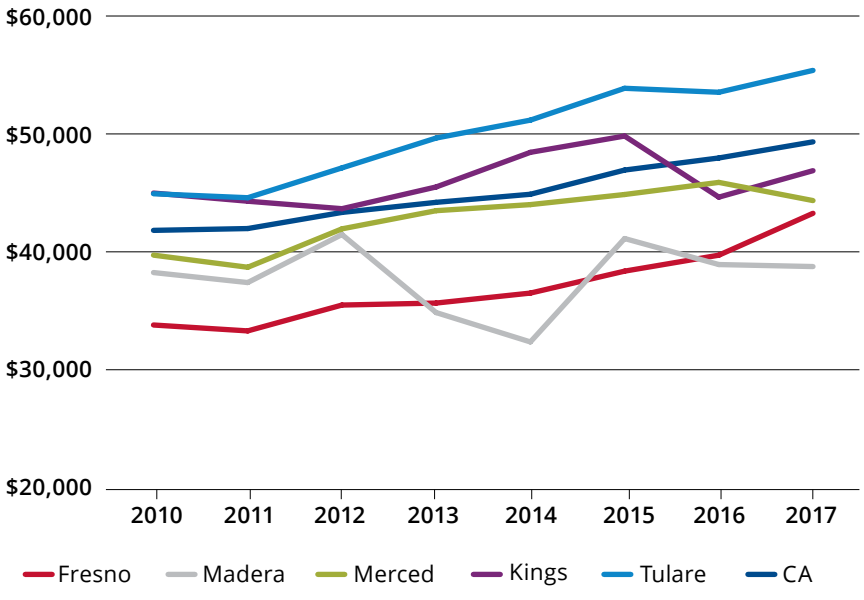
| Year | Fresno | Kings | Madera | Merced | Tulare | Five-County Area | California | Five-County Area Percent of California Manufacturing Jobs |
|---|---|---|---|---|---|---|---|---|
| 2010 | 13,453 | 3,511 | 576 | 5,766 | 5,787 | 29,093 | 187,787 | 15.5% |
| 2011 | 13,190 | 3,743 | 602 | 5,795 | 6,328 | 29,658 | 190,846 | 15.5% |
| 2012 | 13,021 | 3,841 | 797 | 5,934 | 6,391 | 29,984 | 193,597 | 15.5% |
| 2013 | 12,549 | 3,898 | 1,374 | 5,760 | 6,466 | 30,047 | 196,611 | 15.3% |
| 2014 | 12,704 | 4,030 | 1,658 | 6,716 | 6,567 | 31,675 | 202,021 | 15.7% |
| 2015 | 14,349 | 4,233 | 859 | 6,858 | 6,617 | 32,916 | 208,278 | 15.8% |
| 2016 | 14,329 | 4,169 | 918 | 6,555 | 7,155 | 33,126 | 214,782 | 15.4% |
| 2017 | 14,520 | 4,242 | 896 | 6,587 | 6,939 | 33,184 | 222,246 | 14.9% |
| **Gain in Jobs over the Period** | **1,067** | **731** | **320** | **821** | **1,152** | **4,091** | **34,459** | |
| **Percent Growth over the Period** | **8%** | **21%** | **56%** | **14%** | **20%** | **14%** | **18%** | |

Data Source: U.S. Bureau of Labor Statistics. Accessed October 10, 2018 • https://data.bls.gov/PDQWeb/en

Table 2 provides data for food and beverage manufacturing jobs from 2010 to 2017. During this seven-year period, California gained over 34,000 jobs in food and beverage manufacturing, while the five-county region gained over 4,000, an increase in employment for the state of 18% and an increase of 14% for the five counties. While job numbers vary significantly among counties, the five-county region averaged about 15.5% of California's total food and beverage manufacturing jobs for the period.

Wages in food and beverage manufacturing have risen in all five counties since 2010. (See Figure 3.) Average annual pay across the five counties is currently $45,672, with

**Figure 3**
**Annual Pay in Food & Beverage Manufacturing**




Data Source: U.S. Bureau of Labor Statistics. Accessed October 10, 2018
https://data.bls.gov/PDQWeb/en

*The overall economic (direct and secondary) impact of the food and beverage manufacturing sector to the Central Valley may be over $38 billion.*

Tulare County having the highest pay at $55,274 and Madera County the lowest at $38,869. Some counties have experienced double-digit increases since 2010 (Fresno 27.1%, Tulare 22.6%, and Merced 11.2%), while others have experienced more modest increases (Kings 3.8% and Madera 1.2%). Variability in annual earnings is dependent on economic conditions unique to each county.

## Multiplier Effects

To understand the true impact of food and beverage manufacturing on an economy, it is necessary to account for the secondary impacts resulting from the industry's activities. The Impact Analysis for Planning model can be utilized to estimate these multiplier-effect impacts. The multipliers vary depending on whether output is measured as value of products produced or value added. The latter approach accounts for the cost of inputs used in production and is commonly used for manufacturing sectors. According to a study for the California League of Food Processors, on average, across all food and beverage processing sectors in the five counties, it is estimated that each dollar of value added in food and beverage processing generates a total economic activity of $1.83, and each additional job in food and beverage processing generates 1.77 jobs in total, once multiplier impacts are included.

There are also impacts on tax revenues from the output created through multiplier effects. The report authors noted the multipliers are not expected to change significantly unless underlying fundamentals change. Hence, the overall economic (direct and secondary) impact of the food and beverage manufacturing sector to the Central Valley may be over $38 billion ($21 billion in direct food/beverage manufacturing impact times the 1.83 economic multiplier), and it may be responsible for over 58,000 jobs (33,184 times the 1.77 jobs multiplier).

## References


California Agricultural Statistics Review 2016-17. Accessed October 20, 2018. https://www.nass.usda.gov/Statistics_by_State/California/Publications/Annual_Statistical_Reviews/2017/2016cas-all.pdf

California Energy Commission, 2004. "California Food Processing Industry Technology Roadmap," California Energy Commission, Sacramento, CA.

California Manufacturing and Export Facts, Center for Manufacturing Research. Accessed October 22, 2018. http://www.nam.org/Data-and-Reports/State-Manufacturing-Data/State-Manufacturing-Data/January-2018/Manufacturing-Facts---California/

IMPLAN Model 7 Analysis Using 2016 Data

Sexton, R.J., J. Medellin-Azuara, and T.L. Saitone. "The Economic Impact of Food and Beverage Processing in California and Its Cities and Counties." Report Prepared for the California League of Food Processors, January 2015.

Sumner, D.A. 2018. "New California Milk Marketing Regulations Will Not Change Economic Fundamentals." Choices. Quarter 4. Available online: http://www.choicesmagazine.org/choices-magazine/theme-articles/americas-dairy-industry-adapting-to-long-running-structural-pressures/new-california-milk-marketing-regulations-will-not-change-economic-fundamentals

U.S. Bureau of Labor Statistics. Accessed October 10, 2018 https://data.bls.gov/PDQWeb/en