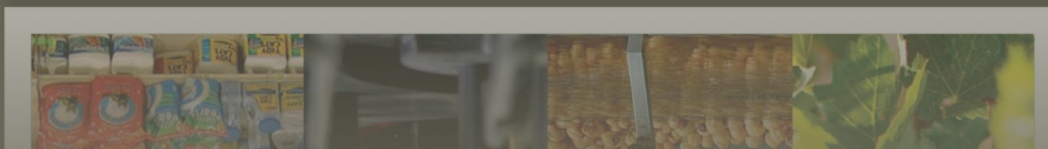


A Report Prepared for the California League of  
Food Processors

# The Economic Impact of Food and Beverage Processing in California and Its Cities and Counties

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## Executive Summary

California's food and beverage processing sector is responsible for acquiring the bounty of agricultural produces grown on California's farms and ranches and converting it to the food and beverage products demanded by consumers worldwide. This study represents a comprehensive evaluation of the economic impact of the food and beverage processing industries on the California economy and the economies of key counties and metropolitan areas in State.

Food and beverage processing is California's third largest manufacturing sector, following computers and electronics and chemicals, and thus represents a key engine driving the California economy and an indispensable complement to California's agricultural production sector. Key economic impacts for California's food and beverage processors for 2012 are as follows:

- **\$25.2 billion in *direct* value-added**
- **\$56.7 billion in *additional* value-added through indirect and induced impacts**
- **\$82 billion of *total* value added**
  
- **198,000 *direct* full- and part-time jobs**
- **562,000 jobs through indirect and induced activity**
- **760,000 *total* jobs**
  
- **\$220 billion in total value output**
  
- **\$10.5 billion in Federal tax revenue**
- **\$8.2 billion in State/local tax revenue**

Food and beverage processing in California accounts directly for \$25.2

billion in value added and 198,000 jobs. The remainder of its impact is comprised of multiplier effects created as the economic activity generated by California's food and beverage processors reverberates through the local and regional economies, building additional income and employment for the businesses that supply them inputs, and for commercial enterprises generally, as income earned is spent on a multitude of products and services in the local or regional economy.

We estimated these impacts using the highly regarded Impact Analysis for Planning (IMPLAN) model. On average, across all food and beverage processing sectors and statewide, we estimate that each dollar of value added in food and beverage processing generates \$3.25 dollars in additional economic activity, once multiplier impacts are included. Each additional job in food and beverage processing generates 3.84 jobs in total. Food and beverage processing is also a key contributor to funding state and local governments in California. We estimate that each million dollars in output created directly or indirectly by the sector generates nearly \$100,000 in additional Federal taxes and nearly \$78,000 in additional state and local taxes.

Milk production is California's largest agricultural industry and also its leading food processing industry. Dairy processing accounted directly for \$3.37 billion in value added in 2012. Once the multiplier impacts are included, the total economic impact of dairy processing in California is \$15.6 billion. Over 139,000 California jobs can be traced directly or indirectly to the dairy-processing sector. Wineries represent California's second-leading food and beverage processing sector, accounting for

\$3.65 billion in direct value added and an additional \$7.4 billion in value added through multiplier impacts in 2012. California wineries were directly or indirectly responsible for just over 100,000 jobs in 2012.

Rounding out the top five California food and beverage processing industries for 2012 in terms of value-added were baking (comprised of bread and bakery product manufacturing; cookie, cracker, and pasta manufacturing; and tortilla manufacturing); fruit and vegetable canning, pickling, and drying; and soft drink and ice manufacturing. These sectors were responsible for \$2.64 billion, \$2.22 billion, and \$1.72 billion in direct valued-added activity, respectively, in 2012. The baking sector accounted directly or indirectly for more than 89,000 jobs, the fruit and vegetable canning, pickling, and drying sector was responsible for another 73,000 jobs, and total employment due to the soft drink and ice-manufacturing sector was about 58,000 jobs.

Food and beverage processing is a key driver of county and metropolitan area economies in many parts of California, most notably its Central Valley, where the sector contributes nearly \$20 billion in value added to the regional economy and

nearly 205,000 jobs. The largest relative impact of food and beverage processing is in Colusa County, where the sector is responsibly for nearly half (48%) of all jobs. Food and beverage processing is responsible for 20% or more of all jobs in Kings, Merced, and Stanislaus Counties. The comparable story can be told for many metropolitan areas in California, where food and beverage processing is directly or indirectly responsible for a third or more of total employment in cities such as Williams, Corning, and Turlock. Food and beverage processing accounts for 28% of total employment in Tulare, and, even in the large and diversified city of Fresno, food and beverage processing is responsible for 14% of total employment—nearly 27,000 jobs.

The results from this study can be valuable input into understanding the impacts of legislation, regulations, and other policies that impact the food and beverage industries in California and for assessing the benefits derived from new economic activity in the sector. Estimates of primary impacts on value added of such actions can be readily extended to capture overall impacts on employment, value added, output, and tax revenues using the multipliers reported in the study.

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## 1 Introduction

Many Californians are aware that our state is the nation's leading producer of agricultural products. In 2012 California's farms and ranches accounted for \$42.6 billion in output. California produced 15% of the nation's total value of crop production and 7.1% of the value of livestock and livestock products. Milk production is the State's largest agricultural industry, with production valued at \$6.90 billion in 2012, followed by grapes at \$4.45 billion, and almonds at \$4.35 billion. Nursery plants with \$3.54 billion in value and cattle and calves at \$3.30 billion rounded out the top five.<sup>1</sup>

Californians, however, are probably less familiar with the state's vitally important food and beverage processing sector, which is responsible for acquiring the bounty produced on California's farms and ranches and converting it to the food, beverage, and fiber products demanded by consumers worldwide. Our study quantifies the economic impact of this integral component of California's economy. Food and beverage processing is California's third largest manufacturing sector, following computers and electronics and chemicals, and California's total of 3,421 food manufacturing establishments is the largest in the nation.<sup>2</sup> We find that for 2012 California's food

and beverage processors accounted for \$82 billion of value added and 760,000 full- and part-time jobs. We estimate the total value of output generated directly or indirectly by the food and beverage processors in 2012 at \$220 billion.<sup>3</sup>

## 2 Methodology

The study seeks to isolate the economic value added by the food and beverage processing sectors in California. We derived value added as the value of the products produced by the food and beverage sector, less the cost of inputs used in producing those products. By deducting input costs, we avoid double counting the economic impact of agricultural production and are able to focus solely on the processing sector.

### 2.1 Multiplier Impacts

A key part of any impact study is estimating the secondary or multiplier impacts from economic activity. These impacts occur as the value added from the primary economic activity, food and beverage processing in our case, reverberates through the local and regional economies, creating additional income and employment for the businesses that supply inputs to the primary activity, and for commercial enterprises generally, as income earned is spent on a multitude of products and services in the local or regional economy.

We estimated secondary impacts derived from the primary activities of the food processing industry using regional and interregional input-output models.

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<sup>1</sup> California Department of Food and Agriculture. 2012. "California Agricultural Production Statistics." Available at: <http://www.cdfa.ca.gov/statistics/>, accessed 12/20/14.

<sup>2</sup> United States Census Bureau. 2012. County Business Patterns, Industry Code Comparison 311, Food Manufacturing. Available at: <http://www.census.gov/econ/cbp/index.html>, accessed 11/15/14.

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<sup>3</sup> The impacts reported in this study exclude the production of foods for animals.



The validity of this approach is well established, with a history dating back to the Nobel Prize winning work of Leontief.<sup>4</sup> Input-output models provide a snapshot of a state or regional economy by tracing relationships among commercial sectors, as well as government, households, and the rest of the world.

Input-output models provide measures of the multiplier or spillover effects attributable to a primary economic activity. These spillover impacts are broken down into two main categories: indirect and induced effects. Indirect effects are changes in local inter-industry spending transmitted through economic linkages among the different sectors of the economy. For example, a food processor who contracts with local businesses to provide containers and packing materials or to ship farm products to the plant and finished products to markets creates income and value added for those enterprises.

Induced effects are the result of spending household incomes generated from the sectors directly and indirectly affected by the primary economic activity. Thus businesses, such as retail shops and service providers, that may seem quite disconnected to food and beverage processing, benefit from the presence of these enterprises in the local economy through the income they generate that is then spent in their establishments.

The magnitudes of both indirect and induced impacts are determined by the degree to which income “leaks” from the local economy by being spent outside its boundary. Naturally, the larger and more economically developed the area of consideration, the smaller is the rate at

which economic activity leaks beyond its boundary. Thus, multiplier impacts will be greater when we are considering California as a whole, than when we are examining individual counties or metropolitan regions within a county.

We utilized the Impact Analysis for Planning (IMPLAN) model to estimate the multiplier impacts generated by the food and beverage processing industry in California. The IMPLAN model is one of the most widely used and respected models for regional economic analysis, and it is utilized extensively in economics, planning, and engineering studies to estimate the full economic impacts of injections or withdrawals of economic activity from regions of interest. Several Federal agencies utilize the IMPLAN model including the Army Corps of Engineers, Forest Service, and Department of Transportation. The IMPLAN model has also been utilized by key California state agencies including the Department of Water Resources and the Water Resources Control Board.

## 2.2 *Scope of Analysis*

We estimated direct, indirect, and induced impacts of the food and beverage processing sector for (i) the entire state of California, (ii) California’s Central Valley and Southern California regions, (iii) key food and beverage processing counties within the State, and (iv) selected metropolitan areas (MAs) within California. Table 1 details the regions, MAs, and counties included in the study. Figure 1 provides a map delineating the cities and MAs analyzed in this study. All measures of impact reported in this study are annual estimates for 2012 (the most recent year for which full information is available), with all impact measures reported in nominal U.S. dollars and all

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<sup>4</sup> Leontief, W. 1941. *The Structure of the American Economy, 1919-1939*. Oxford University Press: Oxford, UK.

employment estimates reported as annual jobs (number of people employed).<sup>5</sup>

### **3 Economic Impact of Food and Beverage Processing in CA**

Tables 2, 3, and 4 summarize the economic impacts of the food and beverage processing by industry sector in California in 2012.<sup>6</sup> Table 2 reports direct, indirect, induced, and total value added from food and beverage processing activities in the State. Table 3 provides the same information for employment by sector, and Table 4 delineates, by sector, the total value of sales or output for the food and beverage processing sector in California. Figures 2, 3, and 4 depict total value added, employment, and output in graphical form for the top 10 sectors in each category.

With milk production being California's largest agricultural industry, it is no surprise that dairy is the State's leading food processing industry. Across the four dairy products sectors contained in the table (fluid milk and butter; cheese; dry, condensed, and evaporated products; and ice cream and frozen desserts), dairy processing directly accounted for \$3.37 billion in value added. Once the multiplier impacts from the sector's activities are included, the total economic impact of dairy processing in California is \$15.6 billion. As to jobs, we estimate that the dairy sector directly accounts for 18,000 jobs, and that another nearly 122,000 jobs are generated from the indirect and induced impacts, resulting in over 139,000

California jobs that can be traced directly or indirectly to the dairy-processing sector. Finally, the total value of output generated directly and indirectly in the dairy sector is \$46.5 billion, roughly 20 percent, of total food and beverage processing sector output.

California's grape production, the State's second largest agricultural industry, goes into producing wine and other grape beverages, table grapes, and raisins. Wineries represent California's second-leading food and beverage processing sector. Wineries accounted for \$3.65 billion in direct value added in 2012. The multiplier for wineries is estimated to be 3.05, meaning indirect and induced impacts accounted for an additional \$7.4 billion in value added in 2012. California wineries were directly or indirectly responsible for just over 100,000 jobs in 2012 and generated nearly \$26 billion in sector output in the State.

Rounding out the top five California food and beverage processing sectors for 2012 in terms of value-added were baking (comprised of bread and bakery product manufacturing; cookie, cracker, and pasta manufacturing; and tortilla manufacturing); fruit and vegetable canning, pickling, and drying; and soft drink and ice manufacturing. These sectors were responsible for \$2.64 billion, \$2.22 billion, and \$1.72 billion in direct valued-added activity, respectively. In terms of employment, the baking sector accounted directly or indirectly for more than 89,000 jobs, the fruit and vegetable canning, pickling, and drying sector was responsible for another 73,000 jobs, and total employment due to the soft drink and ice-manufacturing sector was about 58,000 jobs.

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<sup>5</sup> Employment estimates thus include full-time, part-time, and seasonal jobs.

<sup>6</sup> The food and beverage processing sectors included in these tables are from IMPLAN. The sectors utilized by IMPLAN are in turn closely related to the definition of industry sectors utilized by the U.S. Census Bureau.

An interesting omission from the list of California's leading food and beverage processing sectors is animal processing, excluding poultry. As noted, production of cattle and calves is California's fifth leading agricultural industry, but the state has little processing capacity. Thus, most of the cattle and calves raised in California leave the state for feedlots and processing plants located elsewhere, depriving the State of that economic activity. Processing activity in California for all animals except poultry directly accounted for only \$535 million in value added in 2012 and 13,000 jobs.

Total impacts of food and beverage processing for California are obtained by summing values across the economic sectors and are contained at the bottom of Tables 2 - 4. In 2012, the food and beverage processing sector directly accounted for nearly \$25.2 billion in value-added activity and a total value added of \$82 billion once indirect and induced impacts are included. The food and beverage processing sector was responsible for over 760,000 jobs in 2012, over 198,000 of them being directly in food and beverage processing and another nearly 563,000 through indirect and induced employment impacts. Finally, the total value of output generated in the State by the food and beverage processing industries was nearly \$105 billion, with indirect and induced impacts totaling over \$116 billion, for a grand total value of output due to food and beverage processing of \$221.4 billion in California in 2012.

Based upon its direct value-added contribution, the food and beverage processing sector is the third largest manufacturing sector in California. Figure 5 depicts the leading manufacturing sectors in the State. Food and beverage

processing's 9.2% share of manufacturing value added trails only electronic and computer equipment (34.5%) and chemical manufacturing (15.8%). Based upon total employee compensation food and beverage processing's 9.6% share ranks second in the state, behind only electronic and computer equipment.

### ***3.1 Economic Impact by Select CA Counties***

Tables 5, 6, and 7 report economic impacts from food and beverage processing for 30 individual counties in California, the Central Valley, and Southern California regions, and the state as a whole.<sup>7</sup> The Statewide total is not the aggregation of the 30 counties delineated in the table, but rather, the total food and beverage processing sector impact for all 58 counties in the State.<sup>8</sup> The individual counties represented in the tables were chosen based upon the importance of food and beverage processing in these local economies and the presence of CLFP members in them. Figures 6, 7, and 9 summarize direct and multiplier impacts for valued added, employment, and sector output, respectively, for the top 10 counties among those included in Tables 5 - 7.

The direct value-added due to food and beverage processing in these 30 counties accounts for 72% (\$34.4 billion) of the

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<sup>7</sup> Table 1 indicates the counties included in each of these regions.

<sup>8</sup> The total statewide impacts obtained from totaling the sector analysis differ slightly from the statewide impact calculated in the county analysis. This is due to the different multiplier impacts associated with revenues flowing across food and beverage processing sectors (in the sector analysis) and revenues flowing across county lines (in the county analysis). The relative closeness of the total impacts arrived through the two different approaches provides a useful check on the veracity of our methodology.

Statewide total, with Los Angeles County individually accounting for 24% of the State's direct value added. These 30 counties are responsible for 86% of direct food and beverage processing sector jobs in the State.<sup>9</sup>

Among the 30 counties included in Tables 5 - 7, Stanislaus County is second in terms of total value-added activity, employment, and sector output. Stanislaus accounted for nearly \$1.3 billion in direct value-added economic activity in 2012. Its multiplier was estimated to be 1.87, meaning indirect and induced impacts accounted for another more than \$1 billion in value added output. Food and beverage processing in Stanislaus County was responsible for nearly 25,000 total jobs in 2012 and generated more than \$8.6 billion in sector output.

Rounding out the top five food and beverage processing counties included in the study in terms of direct value-added economic activity are Orange (\$1.13 billion), Sonoma (\$1.05 billion), and Fresno (\$967 million). Food and beverage processing in Fresno County was directly and indirectly responsible for over 24,500 jobs; the comparable number for Sonoma County is 21,700 jobs. Alameda County, responsible for about 20,700 jobs, replaces Orange County in the top five based on the employment metric.

Column 6 in Table 6 contains the total number of jobs in each county as reported by the U.S. Census Bureau in its *County Business Patterns* publication. Column 7 reports the percentage of jobs due directly

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<sup>9</sup> Because most of the counties included in our analysis are relatively rural, their multiplier impacts are less than those for more urban counties. Thus, the share of total impacts, including indirect and induced effects, for this group of counties is somewhat lower.

or indirectly to the food and beverage processing sector. Here we see vividly the importance of food and beverage processing to the economies of many California counties, particularly those that are most rural and which were hit hardest by the prolonged economic downturn and have also been impacted most by California's drought.

The largest relative impact of food and beverage processing is in Colusa County, where the sector is responsibly for nearly half (48%) of all jobs in the County. Food and beverage processing is responsible for 20% or more of all jobs in Kings, Merced, and Stanislaus Counties. Figure 8 provides a color-coded map based upon the percentage of total employment in the county that is directly or indirectly due to the food and beverage processing sector. The greatest impacts on a percentage basis are in rural counties and counties in the Central Valley. The importance of food and beverage processing to the Central Valley is also affirmed in the regional aggregation of impacts provided in Tables 6, 7, and 9. The processing sector contributes nearly \$20 billion in value added to the Central Valley economy and nearly 205,000 jobs. The impacts of food and beverage processing on the Southern California economy are rather comparable—nearly \$28 billion in total value added and 267,000 jobs.

### ***3.2 Economic Impact in Selected Metropolitan Areas***

We also analyzed the impact of food and beverage processing in 20 metropolitan areas. IMPLAN does not provide models of city economies. However, some information is provided at the zip-code level of aggregation. Thus, we defined the metropolitan area (MA) for each city included in the study as the geographic

area encompassed by zip codes either wholly or partially included within a city's legal boundary. This approach has the advantage of enabling us to capture impacts of many food and beverage processing facilities that may be located just outside a city's boundary, but that, nonetheless, contribute importantly to the city's economy.<sup>10</sup>

Tables 8, 9, and 10 contain results of the MA analysis for value added, employment, and total output, respectively. Comparisons across the MAs included in the study makes little sense because the analysis was done for relatively large cities, such as Fresno (pop. 494, 465), and much smaller cities and towns, such as Corning (pop. 7,663) and Huron (pop. 6,754).

A more helpful comparison is employment generated directly or indirectly by the food and beverage processing sector relative to total employment in the MA. Column 6 in Table 9 contains 2012 annual average employment for each MA as reported by the California Employment Development Department, and column 7 provides the percentage of employment due to food and beverage processing.<sup>11</sup> From this comparison, we see the importance of the food and beverage processing sector to

many California communities. The sector is directly or indirectly responsible for a third or more of total employment in Williams, Corning, and Turlock. Food and beverage processing accounts for 28% of total employment in Tulare, and, even in the large and rather diversified city of Fresno, food and beverage processing is responsible for 14% of total employment—nearly 27,000 jobs.

### ***3.3 Contribution of Food and Beverage Processing to Tax Revenues***

California's food and beverage processing sector is also an important contributor to tax revenues at all levels of government. Table 11 provides estimates of tax revenues generated by food and beverage processors in each of the 30 counties included in the study and for the entire state.<sup>12</sup> The results are presented as total tax revenues generated per million dollars of direct output in the food and beverage processing sector. The tax revenues in the table account for the taxes generated from direct, indirect, and induced impacts.<sup>13</sup> This presentation is convenient for policy analysis because any policies that will impact sales in the food and beverage processing sector, either positively or negatively, can be readily converted into impacts on tax revenues.<sup>14</sup>

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<sup>10</sup> We caution that this analysis at the MA level is less precise than the analysis done for the entire State and for the counties due to the less detail being provided by IMPLAN at the zip-code level. In addition food and beverage processing activities that are near a city's boundary but are located in zip codes not included within the boundary will be excluded, even though they may represent a major source of jobs and income for residents of the city.

<sup>11</sup> Note that the employment numbers reported by the California Employment Development Department pertain to the city per se based upon its official boundary, whereas the employment numbers for food and beverage processing follow the zip code definition noted in the text.

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<sup>12</sup> We are unable to estimate tax revenues from food and beverage processing at the metropolitan area level of aggregation.

<sup>13</sup> Federal taxes include social insurance taxes, corporate profits tax, personal income tax, and excise taxes and duties. State and local taxes include personal income taxes, corporate profits tax, motor vehicle taxes, revenue from licenses and fees, property taxes, sales and excise taxes, and social insurance taxes.

<sup>14</sup> In this regard the tax impacts contained in Table 11 are conservative because they represent averages. Marginal impacts are certain to be larger due to the progressive nature of both the Federal and State income taxes.

We see that Statewide each million dollars in output by the sector generates nearly \$100,000 in additional Federal taxes and nearly \$78,000 in additional state and local taxes. Applying these numbers to the value of output contained in table 7, column 2, we see that Statewide the sector is responsible, directly or indirectly, for \$10.5 in Federal tax revenues and 8.2 billion in State and local tax revenues.

Results vary for the individual counties based upon a number of factors, including types of food and beverage processors located in the county, structure of taxation at the local level, and income distribution within the population base. The greatest impact on Federal tax revenues per million dollars in output is in Sonoma County, with nearly \$136,000 in tax revenues generated. The greatest impacts on State and local tax revenues occur in San Luis Obispo and Santa Barbara Counties, where a million dollars in output generates nearly \$100,000 in State and local tax revenues.

#### **4 Conclusion**

This study represents a comprehensive evaluation of the economic impact of the food and beverage processing industries on the California economy and the economies of key counties and metropolitan areas in California. The study demonstrates the value of the food and beverage processing sector as a key engine of the California economy and as an indispensable complement to California's agricultural production sector. In 2012 California's food and beverage processors contributed directly or indirectly, through multiplier

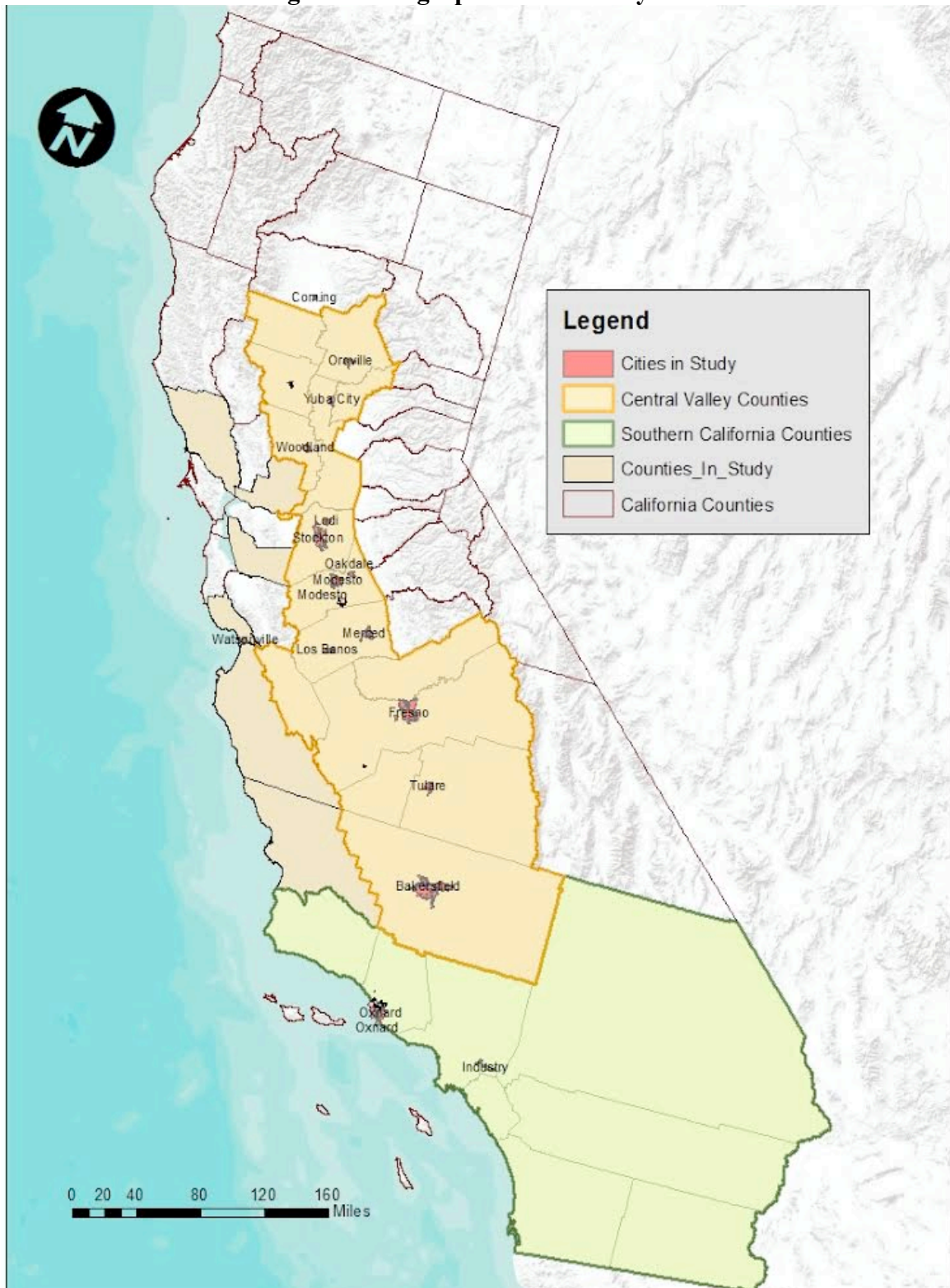
impacts, \$82 billion of value added and 760,000 jobs to the California economy. Food and beverage processing is a key driver of many county and metropolitan-area economies, in several instances accounting for a quarter of more of total employment in these jurisdictions.

This study can be a valuable asset for evaluating the impacts of legislation, regulations, and other policies that impact the food and beverage industries in California and for assessing the benefits derived from new economic activity in the sector. Estimates of primary impacts on value added of such actions can be readily extended to capture overall impacts on employment, value added, and output using the multipliers reported here.

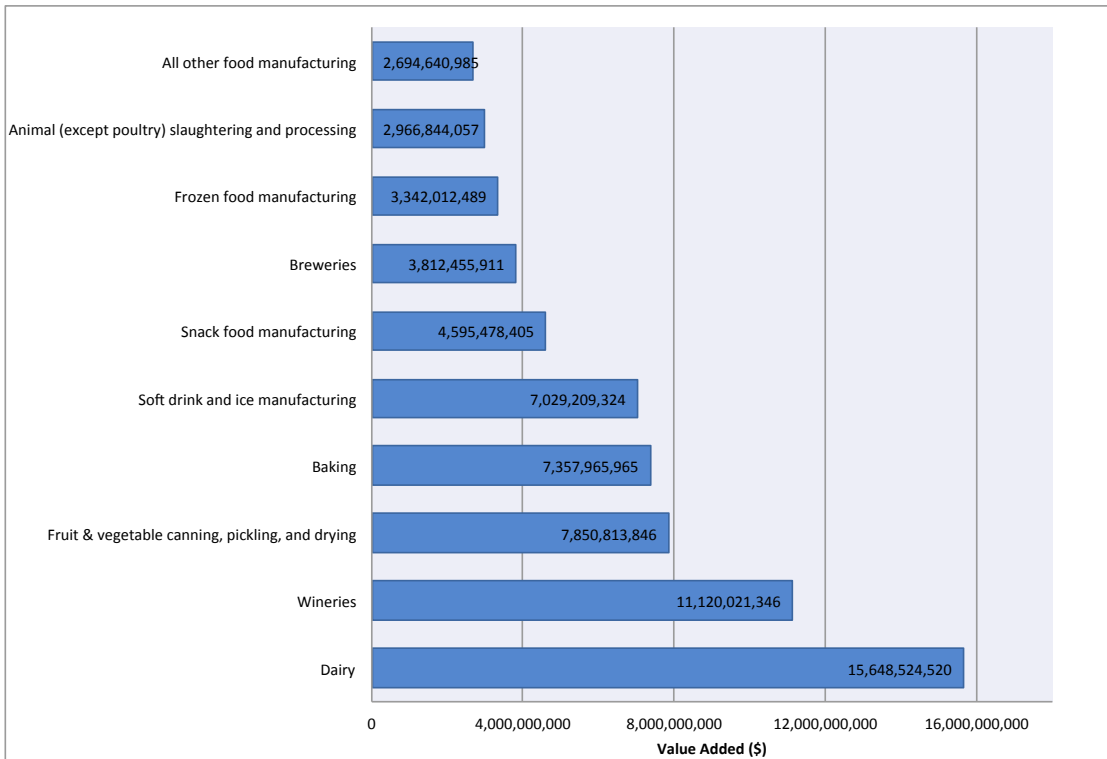
At the time of this writing, December 2014, the study is as up-to-date as possible, given the unavoidable lags in reporting data. If food and beverage production and demand growth trends continue, as we expect they will, the impacts of the sector on value added, output, and employment reported here will soon understate the sector's true impacts. However, the multiplier values included in this report reflect the underlying fundamentals of the state and local economies analyzed in the study and should be relatively stable over time. Thus, it will be possible for future analysts to update this work by applying the multipliers to current information on the value of production in the different jurisdictions and industrial sectors included in this study.

## 5 Figures and Tables

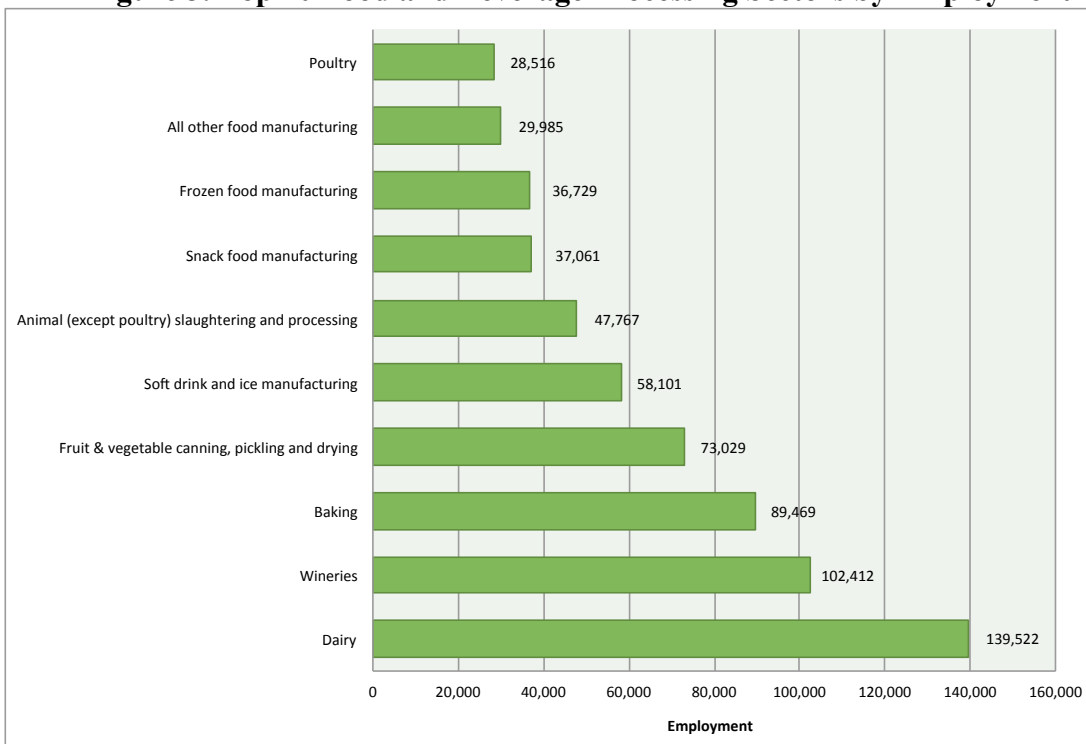
Figure 1. Geographic Areas Analyzed



**Figure 2. Top 10 Food and Beverage Processing Sectors by Value Added**

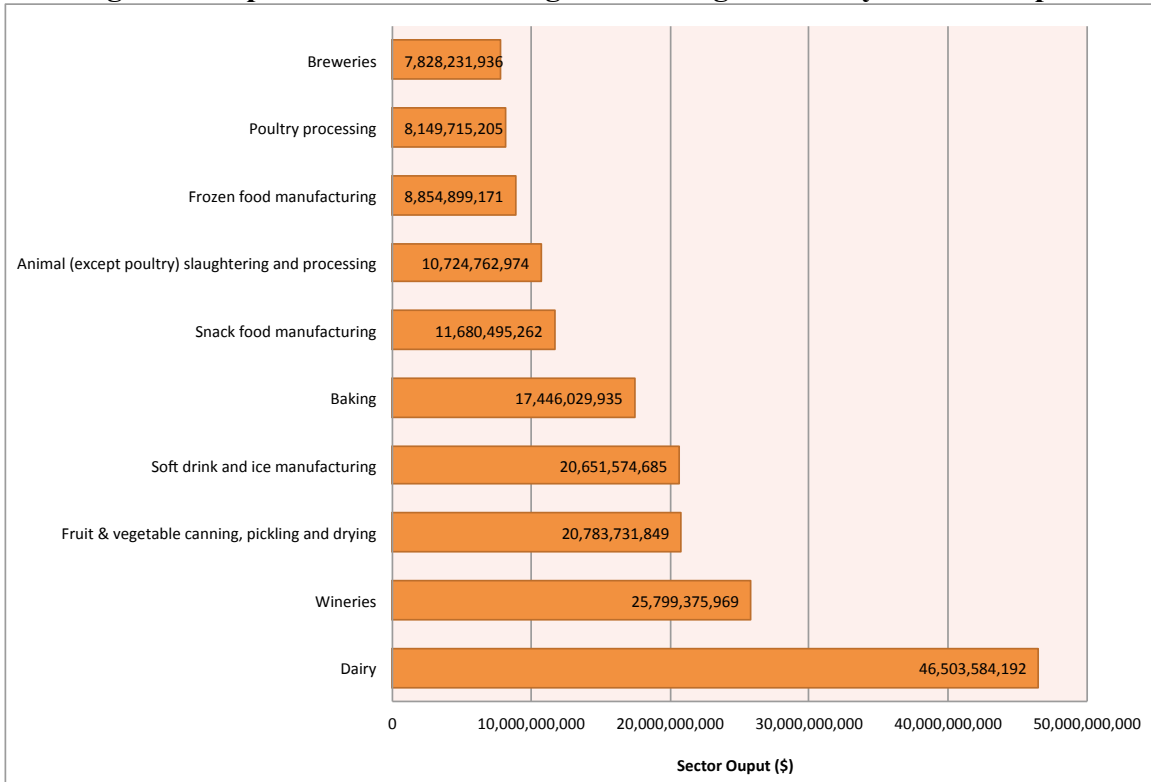


**Figure 3. Top 10 Food and Beverage Processing Sectors by Employment**

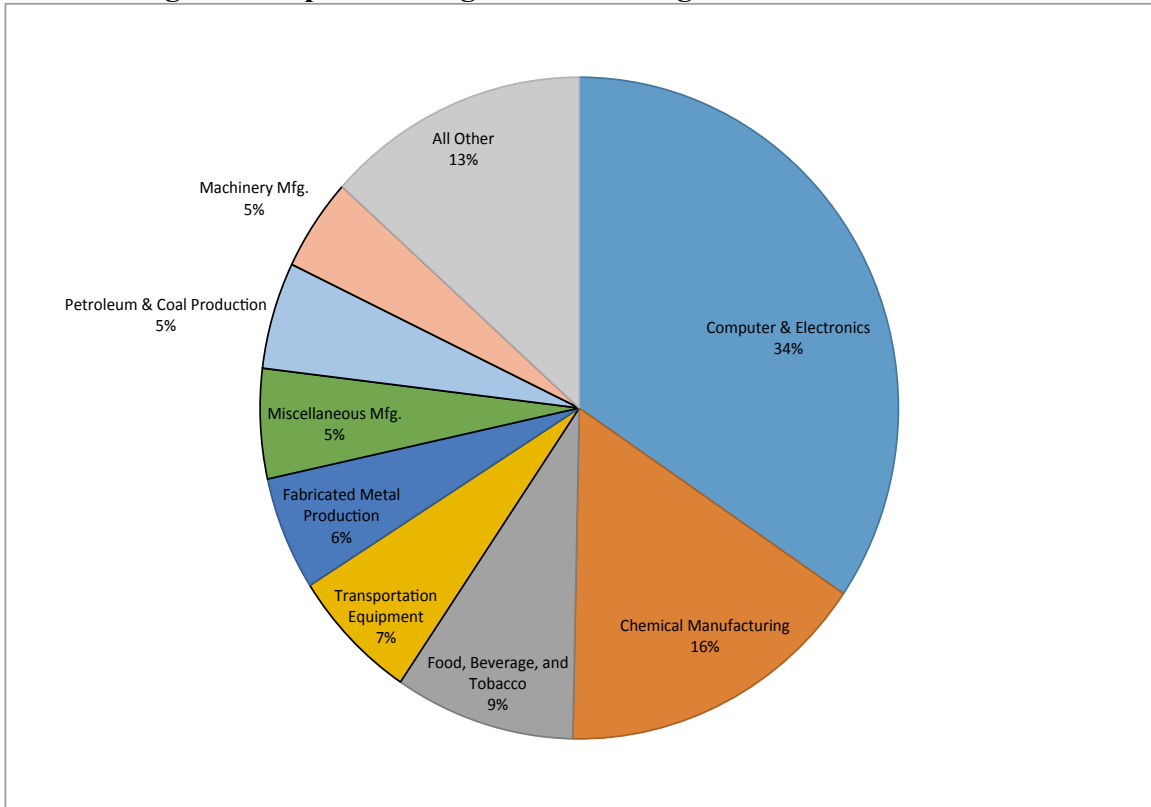




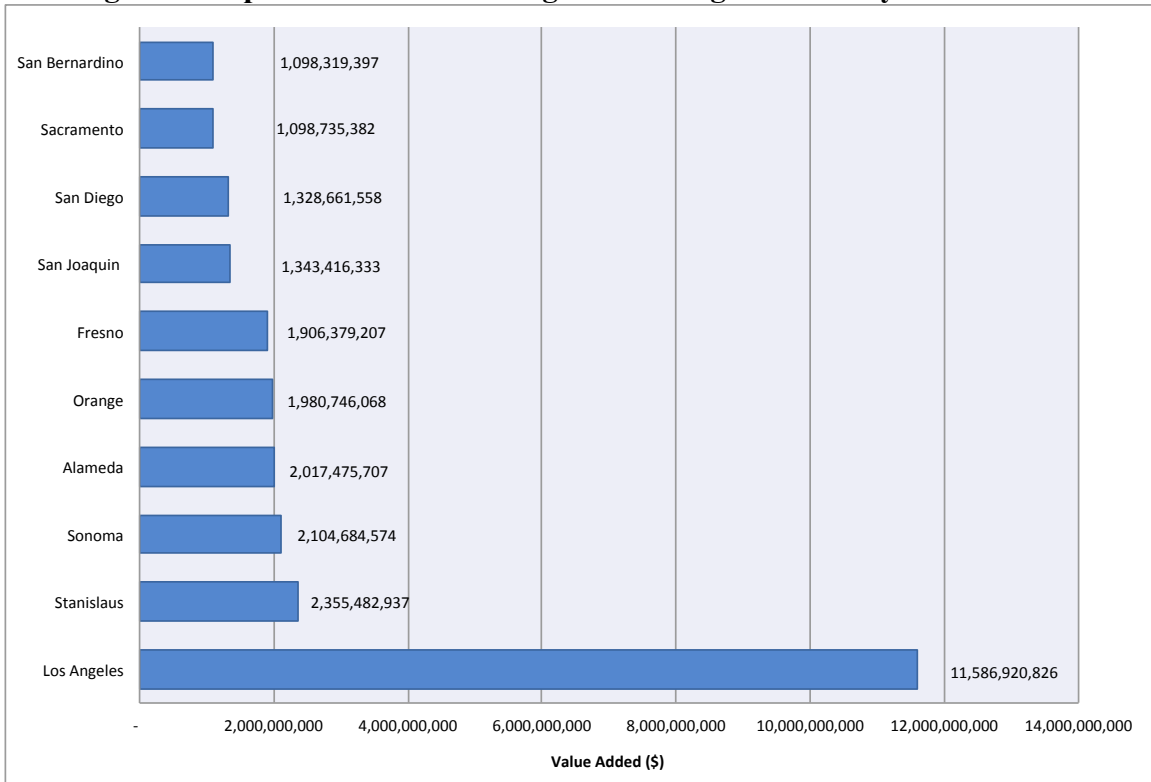
**Figure 4. Top 10 Food and Beverage Processing Sectors by Sector Output**



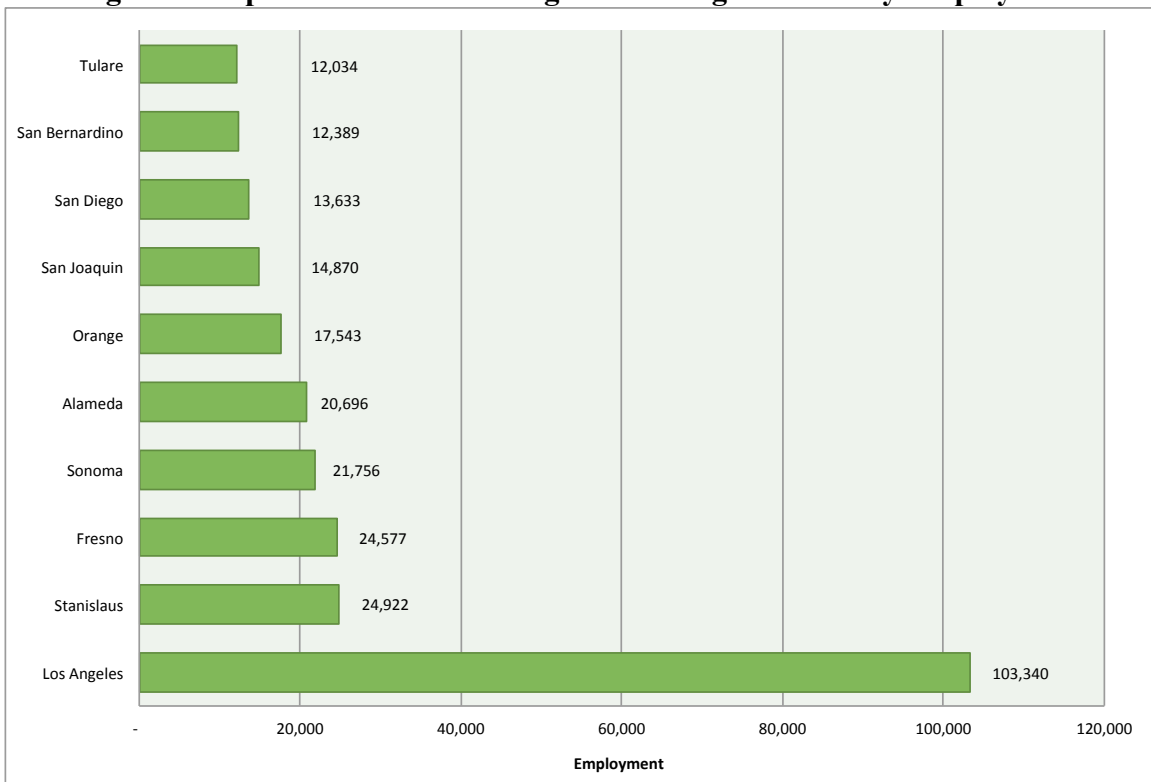
**Figure 5. Top Processing/Manufacturing Industries in California**



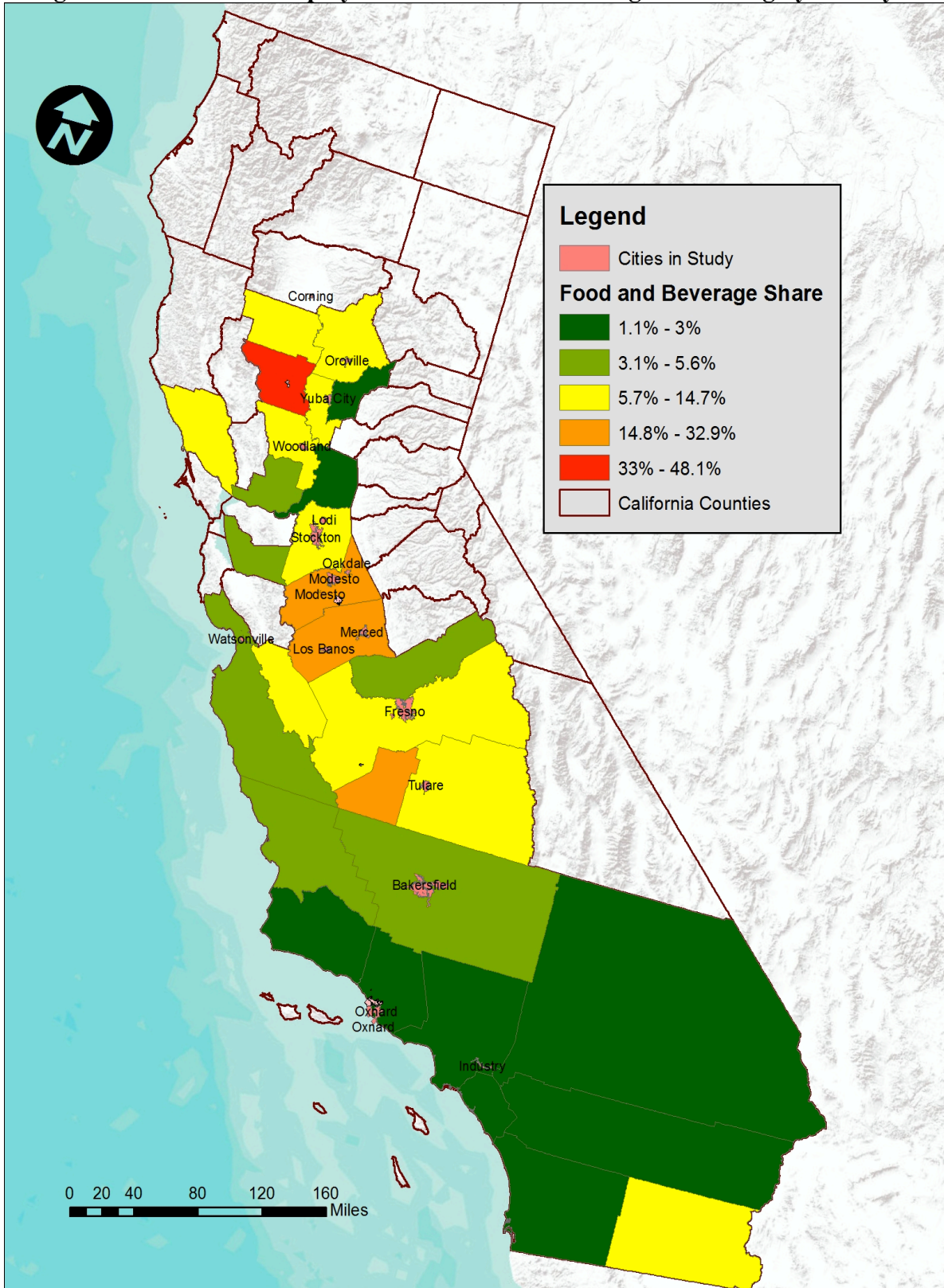
**Figure 6. Top 10 Food and Beverage Processing Counties by Value Added**



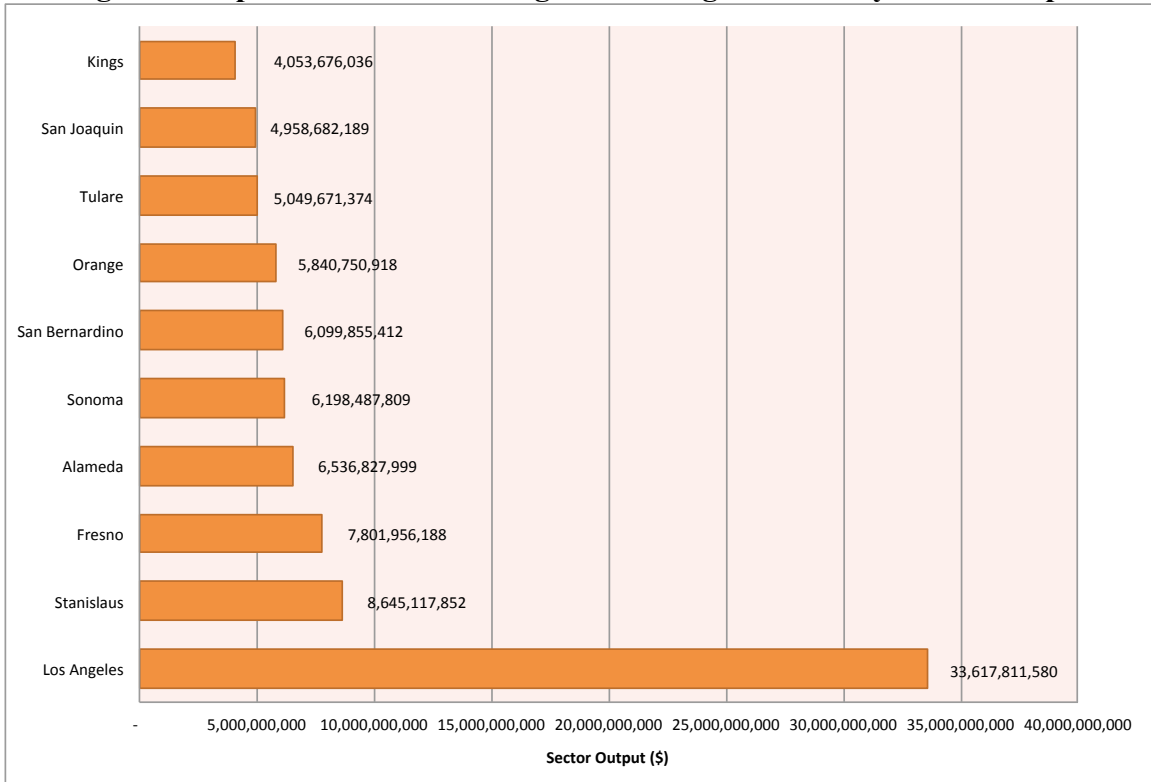
**Figure 7. Top 10 Food and Beverage Processing Counties by Employment**



**Figure 8. Fraction of Employment in Food and Beverage Processing by County**



**Figure 9. Top 10 Food and Beverage Processing Counties by Sector Output**



**Table 1. Geographic Coverage of Each Impact Analysis Performed**

Analysis for:	Geographic Coverage	Method
Statewide	58 California Counties	Aggregation of all counties
Counties (30)	Alameda, Butte, Colusa, Fresno, Glenn, Imperial, Kern, Kings, Los Angeles, Madera, Merced, Monterey, Orange, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Joaquin , San Luis Obispo, Santa Barbara, Santa Cruz, Solano, Sonoma, Stanislaus, Sutter, Tulare, Ventura, Yolo, and Yuba	Individual counties
Regions (2)	<p><b>Central Valley:</b> Butte, Colusa, Fresno, Glenn, Kern, Kings, Madera, Merced, Sacramento, San Benito, San Joaquin, Stanislaus, Sutter, Tulare, Yolo, and Yuba</p> <p><b>Southern California:</b> Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, and Ventura</p>	Aggregation of specific counties
Metropolitan Areas (MAs) (20)	Bakersfield, City of Industry, Corning, Fresno, Huron, Lodi, Los Banos, Merced, Modesto, Oakdale, Oroville, Oxnard, Stockton, Tulare, Turlock, Ventura, Watsonville, Williams, Woodland, and Yuba City	A MA is comprised of all zip codes wholly or partially included in the city boundary

**Table 2. Food & Beverage Processing Value Added by Sector (thousands of dollars)**

<i>Sector</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>Multiplier</i>
Flour milling and malt manufacturing	297,430	790,768	338,535	1,426,734	4.80
Wet corn milling	58,968	169,337	71,345	299,650	5.08
Soybean and other oilseed processing	58,121	166,822	81,246	306,189	5.27
Fats and oils refining and blending	334,200	707,620	250,526	1,292,347	3.87
Breakfast cereal manufacturing	200,621	118,198	72,900	391,719	1.95
Sugar cane mills and refining	111,925	268,198	136,286	516,408	4.61
Beet sugar manufacturing	15,264	34,938	17,218	67,420	4.42
Chocolate and confectionery manufacturing from cacao beans	160,162	323,458	163,604	647,223	4.04
Confectionery manufacturing from purchased chocolate	284,590	272,714	164,177	721,481	2.54
Nonchocolate confectionery manufacturing	176,333	256,766	138,859	571,959	3.24
Frozen food manufacturing	972,450	1,460,846	908,717	3,342,012	3.44
Fruit and vegetable canning, pickling, and drying	2,220,905	3,726,972	1,902,937	7,850,814	3.53
Fluid milk and butter manufacturing	2,312,040	4,935,992	1,833,058	9,081,090	3.93
Cheese manufacturing	648,127	3,124,760	1,116,586	4,889,473	7.54
Dry, condensed, and evaporated dairy product manufacturing	148,346	447,044	178,915	774,305	5.22
Ice cream and frozen dessert manufacturing	257,093	418,428	228,136	903,656	3.51
Animal (except poultry) slaughtering, rendering, and processing	535,129	1,589,124	842,591	2,966,844	5.54
Poultry processing	717,824	1,267,400	676,910	2,662,135	3.71
Seafood product preparation and packaging	68,791	121,188	73,163	263,143	3.83
Bread and bakery product manufacturing	1,673,560	1,645,785	1,274,654	4,594,000	2.75
Cookie, cracker, and pasta manufacturing	455,112	679,739	359,042	1,493,893	3.28
Tortilla manufacturing	511,661	431,368	327,044	1,270,073	2.48
Snack food manufacturing	1,701,458	1,916,252	977,768	4,595,478	2.70
Coffee and tea manufacturing	271,383	672,465	322,333	1,266,180	4.67
Flavoring syrup and concentrate manufacturing	1,415,387	598,554	228,639	2,242,581	1.58
Seasoning and dressing manufacturing	442,154	921,740	475,253	1,839,147	4.16
All other food manufacturing	778,410	1,216,618	699,613	2,694,641	3.46
Soft drink and ice manufacturing	1,720,053	3,570,442	1,738,715	7,029,209	4.09
Breweries	2,123,427	1,108,675	580,353	3,812,456	1.80
Wineries	3,648,947	4,446,960	3,024,114	11,120,021	3.05
Distilleries	912,396	81,042	43,453	1,036,892	1.14
<b>Total</b>	<b>25,232,267</b>	<b>37,490,214</b>	<b>19,246,691</b>	<b>81,969,173</b>	<b>3.25</b>

**Table 3. Food & Beverage Processing Employment by Sector (number of full- and part-time jobs)**

<i>Sector</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>Multiplier</i>
Flour milling and malt manufacturing	2,008	8,302	3,849	14,159	7.05
Wet corn milling	254	1,853	811	2,918	11.50
Soybean and other oilseed processing	572	1,616	924	3,112	5.44
Fats and oils refining and blending	710	5,958	2,848	9,517	13.40
Breakfast cereal manufacturing	631	1,105	829	2,564	4.07
Sugar cane mills and refining	808	3,191	1,550	5,548	6.87
Beet sugar manufacturing	151	508	196	855	5.67
Chocolate and confectionery manufacturing from cacao beans	1,101	2,944	1,861	5,905	5.36
Confectionery manufacturing from purchased chocolate	2,395	2,370	1,866	6,632	2.77
Nonchocolate confectionery manufacturing	1,839	2,213	1,579	5,630	3.06
Frozen food manufacturing	12,324	14,071	10,334	36,729	2.98
Fruit and vegetable canning, pickling, and drying	19,702	31,685	21,641	73,029	3.71
Fluid milk and butter manufacturing	8,072	45,864	20,850	74,785	9.27
Cheese manufacturing	6,183	29,928	12,700	48,811	7.89
Dry, condensed, and evaporated dairy product manufacturing	1,036	4,058	2,035	7,128	6.88
Ice cream and frozen dessert manufacturing	2,605	3,599	2,594	8,797	3.38
Animal (except poultry) slaughtering, rendering, and processing	13,079	25,107	9,582	47,767	3.65
Poultry processing	8,976	11,841	7,699	28,516	3.18
Seafood product preparation and packaging	1,237	1,277	832	3,346	2.71
Bread and bakery product manufacturing	28,635	16,622	14,489	59,746	2.09
Cookie, cracker, and pasta manufacturing	5,032	6,059	4,082	15,173	3.02
Tortilla manufacturing	6,689	4,144	3,717	14,550	2.18
Snack food manufacturing	8,518	17,422	11,121	37,061	4.35
Coffee and tea manufacturing	1,800	6,145	3,669	11,614	6.45
Flavoring syrup and concentrate manufacturing	1,154	4,423	2,601	8,178	7.09
Seasoning and dressing manufacturing	4,165	7,896	5,404	17,465	4.19
All other food manufacturing	10,468	11,559	7,957	29,985	2.86
Soft drink and ice manufacturing	13,557	24,766	19,778	58,101	4.29
Breweries	3,827	8,882	6,601	19,310	5.05
Wineries	30,441	37,576	34,396	102,412	3.36
Distilleries	358	637	494	1,488	4.16
<b>Total</b>	<b>198,326</b>	<b>343,619</b>	<b>218,888</b>	<b>760,833</b>	<b>3.84</b>

**Table 4. Food & Beverage Processing Output by Sector (thousands of dollars)**

<i>Sector</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>Multiplier</i>
Flour milling and malt manufacturing	2,575,887	1,447,061	552,034	4,574,982	1.78
Wet corn milling	594,906	319,688	116,341	1,030,935	1.73
Soybean and other oilseed processing	1,151,090	342,611	132,486	1,626,187	1.41
Fats and oils refining and blending	3,133,327	2,329,581	408,520	5,871,428	1.87
Breakfast cereal manufacturing	495,323	258,442	118,872	872,638	1.76
Sugar cane mills and refining	819,790	623,627	222,235	1,665,652	2.03
Beet sugar manufacturing	105,668	68,971	28,077	202,717	1.92
Chocolate and confectionery manufacturing from cacao beans	932,762	730,932	266,785	1,930,479	2.07
Confectionery manufacturing from purchased chocolate	877,914	607,144	267,710	1,752,769	2.00
Nonchocolate confectionery manufacturing	757,201	546,006	226,427	1,529,635	2.02
Frozen food manufacturing	4,114,893	3,258,188	1,481,818	8,854,899	2.15
Fruit and vegetable canning, pickling, and drying	9,730,820	7,949,838	3,103,074	20,783,732	2.14
Fluid milk and butter manufacturing	10,380,922	11,890,428	2,989,154	25,260,505	2.43
Cheese manufacturing	6,036,492	8,662,836	1,820,808	16,520,137	2.74
Dry, condensed, and evaporated dairy product manufacturing	961,623	1,105,973	291,752	2,359,348	2.45
Ice cream and frozen dessert manufacturing	1,012,279	979,309	372,006	2,363,594	2.33
Animal (except poultry) slaughtering, rendering, and processing	4,244,186	5,106,589	1,373,988	10,724,763	2.53
Poultry processing	3,830,357	3,215,534	1,103,824	8,149,715	2.13
Seafood product preparation and packaging	439,764	208,062	119,304	767,130	1.74
Bread and bakery product manufacturing	5,000,682	3,297,094	2,078,473	10,376,249	2.07
Cookie, cracker, and pasta manufacturing	2,002,897	1,550,179	585,466	4,138,542	2.07
Tortilla manufacturing	1,490,277	907,680	533,282	2,931,239	1.97
Snack food manufacturing	5,926,102	4,159,956	1,594,438	11,680,495	1.97
Coffee and tea manufacturing	1,501,674	1,214,148	525,657	3,241,479	2.16
Flavoring syrup and concentrate manufacturing	2,887,081	1,240,734	372,842	4,500,656	1.56
Seasoning and dressing manufacturing	2,449,512	2,088,578	774,974	5,313,063	2.17
All other food manufacturing	3,258,407	2,400,601	1,140,852	6,799,860	2.09
Soft drink and ice manufacturing	10,359,595	7,456,667	2,835,313	20,651,575	1.99
Breweries	4,532,918	2,348,941	946,373	7,828,232	1.73
Wineries	12,201,193	8,666,803	4,931,380	25,799,376	2.11
Distilleries	1,107,479	139,679	70,858	1,318,016	1.19
<b>Total</b>	<b>104,913,022</b>	<b>85,121,881</b>	<b>31,385,124</b>	<b>221,420,027</b>	<b>2.11</b>



**Table 5. Food & Beverage Processing Value Added by County and Region (thousands of dollars)**

<i>County</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>Multiplier</i>
Alameda	877,097	700,900	439,479	2,017,476	2.30
Butte*	188,632	130,934	61,888	381,454	2.02
Colusa*	67,035	63,700	15,395	146,130	2.18
Fresno*	967,685	536,945	401,749	1,906,379	1.97
Glenn*	13,071	14,394	3,209	30,675	2.35
Imperial~	82,817	56,052	22,424	161,293	1.95
Kern*	483,405	242,100	140,648	866,153	1.79
Kings*	347,577	251,439	90,796	689,812	1.98
Los Angeles~	6,085,688	3,313,278	2,187,955	11,586,921	1.90
Madera*	48,460	13,523	9,401	71,384	1.47
Merced*	403,797	214,762	111,888	730,447	1.81
Monterey	290,951	121,159	90,233	502,343	1.73
Orange County~	1,125,840	504,086	350,820	1,980,746	1.76
Riverside~	354,527	131,205	101,590	587,322	1.66
Sacramento*	592,753	321,597	184,386	1,098,735	1.85
San Benito*	67,995	14,222	9,134	91,351	1.34
San Bernardino~	693,931	220,551	183,838	1,098,319	1.58
San Diego~	619,630	436,790	272,242	1,328,662	2.14
San Joaquin*	682,654	402,501	258,261	1,343,416	1.97
San Luis Obispo	202,673	98,897	62,510	364,080	1.80
Santa Barbara~	237,736	88,242	67,603	393,582	1.66
Santa Cruz	116,566	84,512	44,336	245,415	2.11
Solano	266,296	105,301	70,435	442,032	1.66
Sonoma	1,048,163	648,488	408,033	2,104,685	2.01
Stanislaus*	1,259,509	622,451	473,523	2,355,483	1.87
Sutter*	71,316	51,359	27,840	150,516	2.11
Tulare*	528,591	354,948	138,656	1,022,194	1.93
Ventura~	161,235	69,185	55,441	285,861	1.77
Yolo*	173,228	176,598	62,925	412,751	2.38
Yuba*	4,663	2,964	1,055	8,682	1.86
<b>Central Valley (*)</b>	<b>7,746,123</b>	<b>8,495,301</b>	<b>3,483,906</b>	<b>19,725,330</b>	<b>2.55</b>
<b>Southern California (~)</b>	<b>10,387,169</b>	<b>11,687,242</b>	<b>6,749,446</b>	<b>28,823,856</b>	<b>2.77</b>
<b>Statewide</b>	<b>25,232,267</b>	<b>35,789,514</b>	<b>18,927,011</b>	<b>79,948,792</b>	<b>3.17</b>

**Table 6. Food & Beverage Processing Employment by County and Region (number of full- and part-time jobs)**

<i>County</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>Total Employment<sup>a</sup></i>	<i>% F&amp;B</i>	<i>Multiplier</i>
Alameda	9,971	5,992	4,733	20,696	587,140	4%	2.08
Butte*	1,345	2,016	839	4,201	53,701	8%	3.12
Colusa*	850	839	188	1,878	3,906	48%	2.21
Fresno*	13,798	5,907	4,873	24,577	234,997	10%	1.78
Glenn*	193	196	39	427	4,571	9%	2.22
Imperial~	1,847	666	305	2,818	30,146	9%	1.53
Kern*	5,926	2,615	1,730	10,271	189,978	5%	1.73
Kings*	4,051	2,479	1,127	7,657	23,303	33%	1.89
Los Angeles~	46,587	30,678	26,075	103,340	3,661,816	3%	2.22
Madera*	611	170	111	892	24,789	4%	1.46
Merced*	5,241	2,428	1,385	9,054	40,720	22%	1.73
Monterey	3,214	1,308	1,047	5,569	99,143	6%	1.73
Orange County~	8,904	4,582	4,058	17,543	1,349,188	1%	1.97
Riverside~	3,288	1,620	1,289	6,197	477,065	1%	1.88
Sacramento*	4,491	3,501	2,227	10,219	406,240	3%	2.28
San Benito*	887	202	108	1,197	9,476	13%	1.35
San Bernardino~	7,015	3,030	2,344	12,389	520,686	2%	1.77
San Diego~	6,418	4,072	3,143	13,633	1,157,453	1%	2.12
San Joaquin*	7,329	4,438	3,104	14,870	162,644	9%	2.03
San Luis Obispo	2,052	1,111	758	3,921	83,834	5%	1.91
Santa Barbara~	2,020	1,106	870	3,997	134,241	3%	1.98
Santa Cruz	1,401	1,031	558	2,989	68,500	4%	2.13
Solano	2,111	1,162	836	4,109	99,866	4%	1.95
Sonoma	9,477	7,351	4,928	21,756	147,777	15%	2.30
Stanislaus*	11,918	7,190	5,814	24,922	125,773	20%	2.09
Sutter*	846	798	372	2,016	19,153	11%	2.38
Tulare*	6,022	4,161	1,852	12,034	87,055	14%	2.00
Ventura~	1,383	695	653	2,731	240,958	1%	1.98
Yolo*	1,656	2,380	734	4,770	59,880	8%	2.88
Yuba*	57	48	11	117	8,706	1%	2.04
<b>Central Valley (*)</b>	<b>66,138</b>	<b>93,666</b>	<b>44,825</b>	<b>204,628</b>			<b>3.09</b>
<b>Southern California (~)</b>	<b>77,763</b>	<b>109,847</b>	<b>79,433</b>	<b>267,043</b>			<b>3.43</b>
<b>Statewide</b>	<b>198,326</b>	<b>337,687</b>	<b>215,163</b>	<b>751,176</b>	<b>12,952,818</b>	<b>6%</b>	<b>3.79</b>

<sup>a</sup> United States Census Bureau, County Business Patterns, Total Employment by County, available at: <http://www.census.gov/econ/cbp/>.

**Table 7. Food & Beverage Processing Sector Output by County and Region (thousands of dollars)**

<i>County</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>Multiplier</i>
Alameda	4,715,321	1,187,293	634,214	6,536,828	1.39
Butte*	1,054,802	272,643	94,141	1,421,585	1.35
Colusa*	742,847	144,320	23,716	910,883	1.23
Fresno*	6,251,231	965,144	585,582	7,801,956	1.25
Glenn*	138,150	37,246	4,875	180,272	1.30
Imperial~	730,875	156,965	33,804	921,644	1.26
Kern*	2,980,705	412,364	206,821	3,599,890	1.21
Kings*	3,196,974	714,677	142,025	4,053,676	1.27
Los Angeles~	24,151,071	6,038,579	3,428,161	33,617,812	1.39
Madera*	325,149	25,404	13,808	364,362	1.12
Merced*	2,883,481	440,030	165,726	3,489,237	1.21
Monterey	1,316,992	211,663	128,544	1,657,199	1.26
Orange County~	4,505,764	807,743	527,244	5,840,751	1.30
Riverside~	1,826,474	229,875	149,057	2,205,406	1.21
Sacramento*	2,455,909	578,222	280,759	3,314,890	1.35
San Benito*	394,163	32,695	19,340	446,197	1.13
San Bernardino~	5,388,502	446,963	264,390	6,099,855	1.13
San Diego~	2,885,049	743,564	404,837	4,033,450	1.40
San Joaquin*	3,855,105	723,963	379,614	4,958,682	1.29
San Luis Obispo	864,109	190,500	93,509	1,148,118	1.33
Santa Barbara~	831,713	156,477	102,362	1,090,551	1.31
Santa Cruz	656,145	152,020	65,901	874,066	1.33
Solano	1,307,019	200,451	104,551	1,612,021	1.23
Sonoma	4,257,947	1,333,841	606,700	6,198,488	1.46
Stanislaus*	6,716,159	1,235,240	693,719	8,645,118	1.29
Sutter*	446,447	98,636	41,524	586,606	1.31
Tulare*	3,978,654	863,130	207,888	5,049,671	1.27
Ventura~	780,022	110,179	80,346	970,546	1.24
Yolo*	1,324,426	331,965	92,744	1,749,135	1.32
Yuba*	31,152	6,019	1,568	38,739	1.24
<i>Central Valley (*)</i>	<i>37,001,639</i>	<i>21,198,062</i>	<i>5,605,444</i>	<i>63,805,145</i>	<i>1.72</i>
<i>Southern California (~)</i>	<i>41,601,348</i>	<i>25,105,847</i>	<i>10,959,433</i>	<i>77,666,628</i>	<i>1.87</i>
<i>Statewide</i>	<i>104,913,022</i>	<i>80,706,322</i>	<i>30,822,041</i>	<i>216,441,385</i>	<i>2.06</i>

**Table 8. Food & Beverage Processing Value Added by Metropolitan Area**  
*(thousands of dollars)*

<i>City/MA</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>Multiplier</i>
Bakersfield	232,507	348,514	154,137	735,158	3.16
City of Industry	893,331	867,606	397,771	2,158,709	2.42
Corning	28,743	22,603	5,050	56,395	1.96
Fresno	593,137	1,041,460	487,990	2,122,587	3.58
Huron	4,043	2,065	550	6,659	1.65
Lodi	221,069	129,997	78,715	429,781	1.94
Los Banos	80,999	30,163	13,717	124,880	1.54
Merced	15,642	23,868	9,943	49,453	3.16
Modesto	679,548	381,639	228,678	1,289,865	1.90
Oakdale	43,546	38,742	14,885	97,172	2.23
Oroville	9,032	6,564	2,465	18,062	2.00
Oxnard	127,735	86,787	57,903	272,425	2.13
Stockton	307,879	329,208	145,467	782,555	2.54
Tulare	220,563	302,100	77,716	600,379	2.72
Turlock	322,173	315,980	136,469	774,622	2.40
Ventura	66,466	32,416	27,062	125,945	1.89
Watsonville	65,211	57,712	25,644	148,567	2.28
Williams	25,031	11,526	3,348	39,905	1.59
Woodland	95,144	80,217	25,700	201,061	2.11
Yuba City	72,704	61,272	32,660	166,635	2.29

**Table 9. Food & Beverage Processing Employment by Metropolitan Area (number of full- and part-time jobs)**

<i>City/MA</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>Employment<sup>a</sup></i>	<i>% F&amp;B</i>	<i>Multiplier</i>
Bakersfield	3,557	3,869	1,870	9,296	150,900	6%	2.61
City of Industry	6,586	7,419	4,159	18,164	NA	NA	2.76
Corning	373	445	59	877	2,450	36%	2.35
Fresno	9,365	11,630	5,990	26,985	199,000	14%	2.88
Huron	53	26	4	83	2,400	3%	1.57
Lodi	2,028	1,494	976	4,498	28,100	16%	2.22
Los Banos	639	361	174	1,174	11,400	10%	1.84
Merced	278	105	51	434	27,400	2%	1.56
Modesto	5,198	4,579	3,096	12,873	89,400	14%	2.48
Oakdale	503	465	159	1,127	7,700	15%	2.24
Oroville	127	85	30	243	4,500	5%	1.91
Oxnard	1,134	886	665	2,684	80,900	3%	2.37
Stockton	2,957	3,611	1,729	8,297	102,900	8%	2.81
Tulare	1,770	3,049	989	5,808	20,700	28%	3.28
Turlock	3,314	3,521	1,645	8,479	25,700	33%	2.56
Ventura	471	380	315	1,166	57,400	2%	2.47
Watsonville	826	734	286	1,846	18,200	10%	2.24
Williams	419	121	42	582	1,420	41%	1.39
Woodland	763	893	313	1,970	25,100	8%	2.58
Yuba City	856	776	422	2,054	16,100	13%	2.40

<sup>a</sup> Data from the California Employment Development Department, Labor Force and Unemployment Rates for Cities and Census Designated Areas, 2012 Annual Average, available at: [http://www.labormarketinfo.edd.ca.gov/CES/Labor\\_Force\\_Unemployment\\_Data\\_for\\_Cities\\_and\\_Census\\_Areas.html#CCD](http://www.labormarketinfo.edd.ca.gov/CES/Labor_Force_Unemployment_Data_for_Cities_and_Census_Areas.html#CCD)

**Table 10. Food & Beverage Processing Sector Output by Metropolitan Area**  
*(thousands of dollars)*

<i>City/MA</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>Multiplier</i>
Bakersfield	1,413,313	798,441	243,977	2,455,731	1.74
City of Industry	4,549,074	1,957,843	615,982	7,122,899	1.57
Corning	275,016	57,636	7,745	340,397	1.24
Fresno	4,163,985	2,579,576	772,195	7,515,755	1.80
Huron	26,472	5,364	758	32,593	1.23
Lodi	922,592	282,256	120,007	1,324,856	1.44
Los Banos	372,934	83,941	21,123	477,999	1.28
Merced	108,683	60,054	15,362	184,099	1.69
Modesto	2,597,247	852,308	355,782	3,805,337	1.47
Oakdale	259,827	93,894	22,203	375,923	1.45
Oroville	60,632	15,937	3,751	80,320	1.32
Oxnard	611,501	153,063	87,123	851,687	1.39
Stockton	1,899,300	671,768	220,157	2,791,225	1.47
Tulare	1,845,011	961,626	127,587	2,934,224	1.59
Turlock	1,860,880	908,763	216,012	2,985,655	1.60
Ventura	284,830	54,934	40,370	380,135	1.33
Watsonville	383,991	104,844	37,680	526,515	1.37
Williams	218,580	24,285	5,029	247,893	1.13
Woodland	622,296	149,244	39,597	811,138	1.30
Yuba City	450,528	117,839	49,204	617,570	1.37

**Table 11. County and State Tax Impacts**  
*(per million dollars of direct Sector Output)*

<i>County</i>	<i>Federal</i>	<i>State and Local</i>
Alameda	60,993	43,800
Butte	47,124	83,433
Colusa	26,804	22,209
Fresno	42,258	29,554
Glenn	28,079	16,474
Imperial	31,027	21,427
Kern	40,046	22,465
Kings	26,406	17,293
Los Angeles	62,350	51,651
Madera	29,066	36,085
Merced	34,764	21,881
Monterey	52,968	52,691
Orange	58,444	35,270
Riverside	42,570	56,557
Sacramento	53,299	38,556
San Benito	30,936	29,270
San Bernadino	27,378	15,118
San Diego	61,185	71,277
San Joaquin	48,915	42,467
San Louis Obispo	60,355	98,561
Santa Barbara	60,268	98,554
Santa Cruz	51,209	40,033
Solano	45,049	59,359
Sonoma	135,550	51,071
Stanislaus	49,068	40,846
Sutter	47,205	27,194
Tulare	33,580	20,404
Ventura	52,663	34,713
Yolo	38,055	32,342
Yuba	30,912	29,353
<b>California Total<sup>a</sup></b>	<b>99,783</b>	<b>77,940</b>

<sup>a</sup> California total is the statewide impact, therefore the sum of the counties in the table does not equal the state total.

## 6 Investigator Bios

Richard J. Sexton is a Professor and Chair in the Department of Agricultural and Resource Economics at the University of California, Davis. Sexton previously served as President of the Agricultural and Applied Economics Association (AAEA), Department chair at Davis from 1994-1998, Director of the Giannini Foundation of Agricultural Economics from 2000-03, and co-editor of the *American Journal of Agricultural Economics (AJAE)* from 1998-2000. Professor Sexton teaches and conducts research on a wide range of issues pertaining to marketing of agricultural products. He is an expert on production and marketing of California agricultural products, with particular focus on produce commodities and tree fruit and nut crops. His research has been published in a broad range of journals including *Agricultural Economics*, *American Journal of Agricultural Economics*, *American Economic Review*, *European Economic Review*, *Journal of Agricultural and Resource Economics*, *Journal of Environmental Economics and Management*, *Journal of Industrial Economics*, *Journal of Regulatory Economics*, *Land Economics*, *Rand Journal of Economics*, and *Review of Industrial Organization*. Sexton's research has been recognized with awards from the AAEA, European Economics Association, and Western Agricultural Economics Association. He is a 2004 Fellow of the AAEA.

Josué Medellin-Azuara is a Research Fellow in the Department of Civil and Environmental Engineering at the University of California, Davis. He holds a M.S. degree in Agricultural & Resource Economics and a Ph.D. degree in Ecology, both from UC Davis. He works currently in the Delta Solutions Program of the Center for Watershed Sciences at UC Davis. Dr. Medellin-Azuara is an expert in modeling agricultural production and water use in California and in the application of the SWAP and IMPLAN models. His research has been published in several scientific journals including *Climate Change*, *Water Resources Research*, *Journal of Hydrology*, and *Journal of Environmental Management*.

Tina L. Saitone is a Project Economist in the Department of Agricultural and Resource Economics at the University of California, Davis. Dr. Saitone conducts research on a broad range of topics in agricultural economics including food quality and safety, industrial organization, agricultural marketing, and antitrust. Tina has published papers in academic journals including the *American Journal of Agricultural Economics*, *Canadian Journal of Agricultural Economics*, *Journal of Agricultural and Resource Economics*, *Annual Review of Resource Economics*, *Journal of Industrial Organization Education*, and *Journal of Rural Cooperation*. Dr. Saitone has taught courses at the University of California, Davis and Sonoma State University in business and antitrust regulation, microeconomics, and environmental economics.