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Agricultural and Food Science Technicians
Labor Market Analysis: San Diego County

February 2019

Summary

According to available labor market information, there is a small demand for *Agricultural and Food Science Technicians* in San Diego County. *Agricultural and Food Science Technicians* has a labor market demand of 32 annual job openings, while the average demand for an occupation in San Diego County is 276 annual job openings. This occupation's entry-level and median wages are higher than the Self-Sufficiency Standard, suggesting that students who successfully complete a program and obtain employment in a related field may earn living wages. With only one related training program found in San Diego, the San Diego region could benefit from a small cohort program.

The following list summarizes findings from the labor market analysis for *Agricultural and Food Science Technicians*:

- Between 2018 and 2023, *Agricultural and Food Science Technicians* are projected to increase by 20 jobs or seven percent.
- Employers in San Diego County will need to hire 32 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.
- Between 2010 and 2018, there was an average of 12 online job postings per year for *Agricultural and Food Science Technicians*.
- *Agricultural and Food Science Technicians* earn median hourly earnings of $19.88; this is more than the Self-Sufficiency Standard for a single adult in San Diego County, which is $15.99 per hour.
- There are three Taxonomy of Programs (TOP) codes and five Classification of Instructional Programs (CIP) codes related to *Agricultural and Food Science Technicians*.
- According to TOP and CIP data, no community college supplies the region with awards for this occupation. Although San Diego State University offers food science and technology courses, no awards have been reported.
- Comparing labor demand (annual openings) with labor supply suggests that there is a supply gap for this occupation in San Diego County, with 23 annual openings and no awards. Comparatively, there are 307 annual openings in California and 255 completions.

- Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were County of San Diego, San Diego State University, Scripps Health, Brighthouse Financial, and California State University.
- The typical training for this occupation is moderate-term on-the-job training. The typical entry-level education is an associate degree.

Introduction

This report provides labor market information in San Diego County for the following occupational code in the Standard Occupational Classification (SOC)[1] system:

Agricultural and Food Science Technicians (SOC 19-4011): Work with agricultural and food scientists in food, fiber, and animal research, production, and processing; and assist with animal breeding and nutrition. Conduct tests and experiments to improve yield and quality of crops or to increase the resistance of plants and animals to disease or insects. Includes technicians who assist food scientists or technologists in the research and development of production technology, quality control, packaging, processing, and use of foods. Sample reported job titles include:

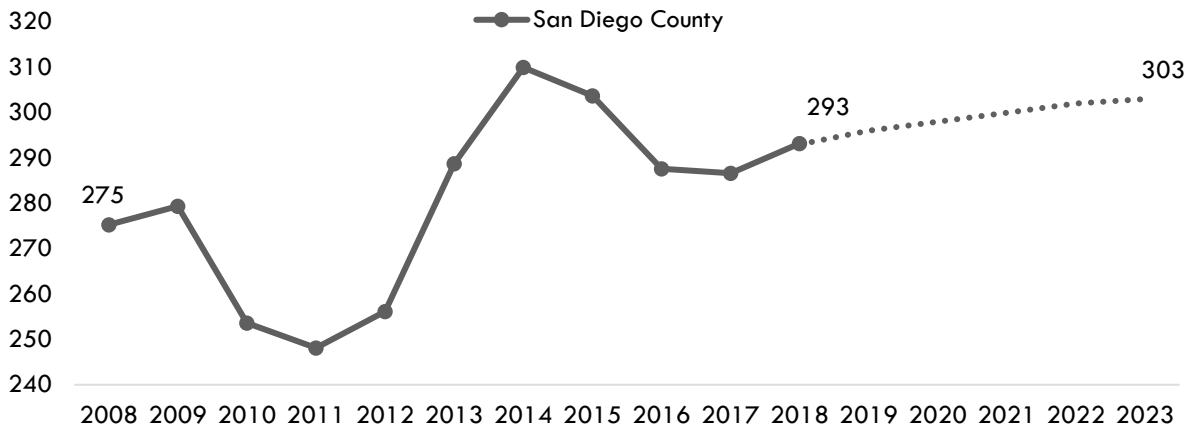
- Seed Analyst
- Extension Associate
- Agricultural Technician
- Senior Agricultural Assistant
- Research Technologist
- Quality Assurance Technician
- Technician
- Technical Services Analyst
- Quality Technician
- Quality Control Technician

Projected Occupational Demand

Between 2018 and 2023, *Agricultural and Food Science Technicians* are projected to increase by 10 jobs or seven percent (Exhibit 1). Employers in San Diego County will need to hire 32 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

[1] The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. bls.gov/soc.

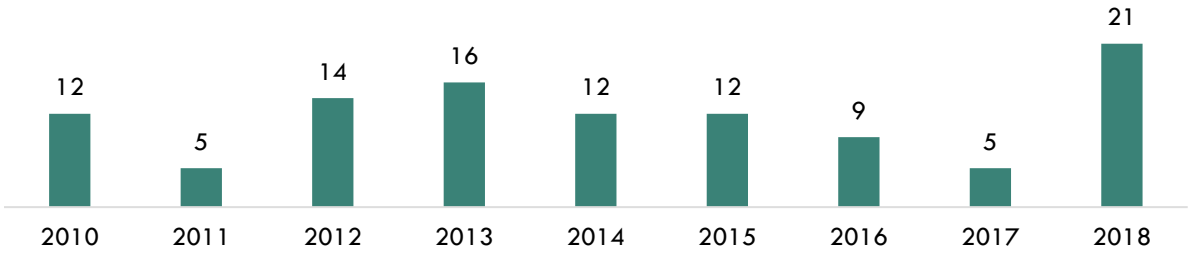
Exhibit 1: Number of Jobs for *Agricultural and Food Science Technicians* (2008-2023)[2]



Online Job Postings

Between 2010 and 2018, there was an average of 12 online job postings per year for *Agricultural and Food Science Technicians* (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Agricultural and Food Science Technicians* in San Diego County (2010-2018)[3]

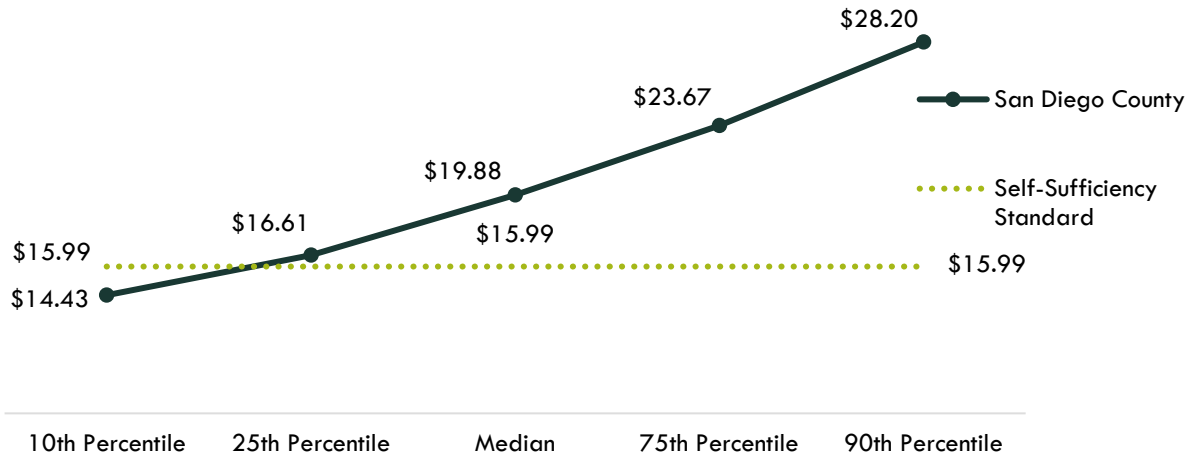


Earnings

Agricultural and Food Science Technicians earn median hourly earnings of $19.88; this is more than the Self-Sufficiency Standard for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[4]

[2] Emsi 2018.04; QCEW, Non-QCEW, Self-Employed.
[3] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[4] "Self-Sufficiency Standard," Insight: Center for Community Economic Development, last updated 2018. insightcced.org/2018-self-sufficiency-standard.

Exhibit 3: Hourly Earnings for *Agricultural and Food Science Technicians* in San Diego County[5]



Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[6] There are three TOP codes and five CIP codes related to *Agricultural and Food Science Technicians* (Exhibit 4).

Exhibit 4: Related TOP and CIP Codes in San Diego County

SOC 19-4011: Agricultural and Food Science Technicians
TOP 010100: Agriculture Technology and Sciences, General
TOP 010400: Viticulture, Enology, and Wine Business
TOP 011300: Food Processing and Related Technologies
CIP 01.0102: Agribusiness/Agricultural Business Operations
CIP 01.0309: Viticulture and Enology
CIP 01.0401: Agricultural and Food Products Processing
CIP 01.1002: Food Technology and Processing
CIP 12.0510: Wine Steward/Sommelier

[5] Emsi, 2018.04; QCEW, Non-QCEW, Self-Employed.
[6] TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data).

According to TOP and CIP data, no community college supplies the region with awards for this occupation. However, San Diego State University offers food science and technology courses, but no awards have been reported[7] (Exhibit 5).

Exhibit 5: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2013-14 through PY2016-17 Average)

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY14-15 to PY16-17)	Other Educational Institutions 3-Yr Annual Average Awards (PY13-14 to PY15-16)	3-Yr Total Average Supply (PY13-14 to PY16-17)
010100	Agriculture Technology and Sciences, General	0	0	0
010400	Viticulture, Enology, and Wine Business	0	0	0
011300	Food Processing and Related Technologies	0	0	0
01.0102	Agribusiness/Agricultural Business Operations	0	0	0
01.0309	Viticulture and Enology	0	0	0
01.0401	Agricultural and Food Products Processing	0	0	0
01.1002	Food Technology and Processing	0	0	0
12.0510	Wine Steward/Sommelier	0	0	0
			Total	**0**

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply[8] suggests that there is a supply gap for this occupation in San Diego County, with 32 annual openings and no awards. Comparatively, there are 307 annual openings in California and 255 completions[9] (Exhibit 6).

[7] "13 Institutions in California Offering On-Campus Food Science and Technology Courses," San Diego State University, Hotcoursesabroad: An IDP Company. hotcoursesabroad.com/study/training-degrees/california/food-science-and-technology-courses/loc/18/cgory/b11-3/sin/ct/programs.html

[8] Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

[9] Emsi, 2018.04; QCEW, Non-QCEW, Self-Employed.

Exhibit 6: Labor Demand (Annual Openings) Compared to Labor Supply (Average Annual Awards)

Community Colleges and Other Postsecondary Educational Institutions	**Demand** (Annual Openings)	**Supply** (Total Annual Average Supply)	**Supply Gap or Oversupply**
San Diego	32	0	**32**
California	307	255	**52**

Please note: This is a basic analysis of supply and demand of labor. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed. Additionally, the data does not include workers who are currently in the labor force who could fill these positions or workers who are not captured by publicly available data.

Student Outcomes

Based on the information available in the CTE LaunchBoard, students who took courses in the related TOP codes exhibited the following outcomes (Exhibit 7).

Exhibit 7: Strong Workforce Program Metrics for *TOP 011300: Food Processing and Related Technologies* in San Diego-Imperial Region *vs. California* (PY2015-16)

Metric	San Diego-Imperial	California
Number of course enrollments[10]	19	291
Completed 12+ CTE units in one year[11]	N/A	19
Completed 48+ CTE contact hours in one year[12]	0	0
Number of students who got a degree or certificate[13]	N/A	11
Number of students who transferred[14]	N/A	N/A
Employed in the second fiscal quarter after exit[15]	N/A	78%
Employed in the fourth fiscal quarter after exit[16]	N/A	78%

[10] The number of enrollments in courses assigned to the TOP code in the selected year.
[11] The number of students who completed 12 or more credit CTE units.
[12] The number of students who completed 48 or more noncredit CTE instructional contact hours.
[13] The number of unduplicated students who earned a locally-issued certificate, Chancellor's Office approved certificate, associate degree, and/or California Community Colleges bachelor's degree in the selected TOP code.
[14] Students who took non-introductory courses or completed a California Community Colleges Chancellor's Office award in the selected TOP code in selected year who subsequently enrolled for the first time in a four-year institution the following year.
[15] Among all exiters with a valid SSN, the percentage who were employed two quarters after exiting California Community Colleges.
[16] Among exiting students with a valid SSN, the percentage who were employed four quarters after exiting California Community Colleges.

Metric	San Diego-Imperial	California
Job closely related to field of study[17]	N/A	N/A
Median earnings in the second fiscal quarter after exit[18]	N/A	$8,137
Median change in earnings[19]	N/A	68%
Attained a living wage[20]	N/A	56%

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were County of San Diego, San Diego State University, Scripps Health, Brighthouse Financial, and California State University (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Agricultural and Food Science Technicians*[21]

Top Employers	
• County of San Diego • San Diego State University • Scripps Health • Brighthouse Financial • California State University	• E360 • Chefmealkits.com • Resers Fine Foods • Navy Federal Credit Union • Sodexo

Skills, Education, and Certifications

Exhibit 9 indicates the educational attainment for the occupation found currently in the national labor force. The typical training for this occupation is moderate-term on-the-job training. The typical entry-level education is an associate degree.[22]

[17] Emsi, 2018.04; QCEW, Non-QCEW, Self-Employed.
[18] Among exiting students, the median second-quarter earnings one year after the year in which they exited California Community Colleges.
[19] Among exiting students with a valid SSN, the percentage change in earnings one year before and one year after exiting California Community Colleges.
[20] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[21] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[22] Emsi, 2018.04; QCEW, Non-QCEW, Self-Employed.

Exhibit 9: National Educational Attainment of *Agricultural and Food Science Technicians*[23]

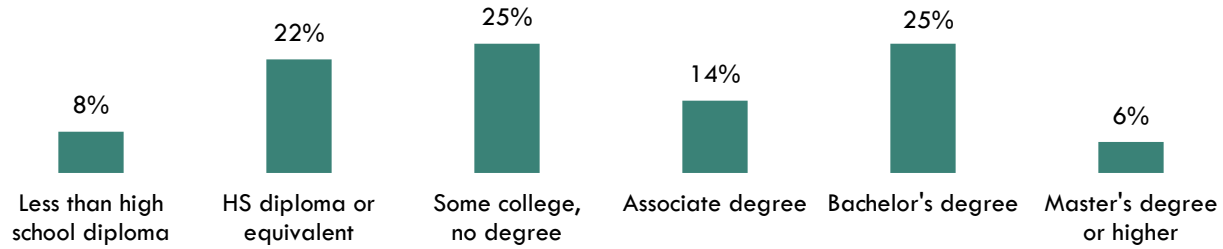


Exhibit 10 lists the top specialized, soft and software skills that appeared in online job postings for this occupation between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Agricultural and Food Science Technicians* in San Diego County[24]

Specialized Skills	Soft Skills	Software Skills
• Project Management	• Communication Skills	• CATIA
• Quality Assurance and Control	• Research	• Microsoft Excel
• Repair	• Computer Literacy	• Microsoft PowerPoint
• Staff Management	• Problem Solving	• ICD-10
• Teaching	• Teamwork / Collaboration	• ICD-9-CM Coding

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[23] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[24] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.