C·O·E CENTERS OF EXCELLENCE FOR LABOR MARKET RESEARCH

Agricultural Science Occupations

Labor Market Analysis: Imperial County

May 2021

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
Do Not Proceed with New Program	☐ / ☒	☑ / ☐	☑ Bachelor's Degree ☐ Associate Degree ☐ Some College or Certificate ☐ HS Diploma or Equivalent ☐ Less than a HS Diploma ☐ Apprenticeship
SUPPORT FOR PROGRAM MODIFICATION?	**NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING**	**NUMBER OF ANNUAL JOB OPENINGS**	
☑ / ☐	MEDIUM	LOW	

This brief provides labor market information about *Agricultural Science Occupations* to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning. *Agricultural Science Occupations* include "Food Scientists and Technologists" and "Soil and Plant Scientists." According to available labor market information, *Agricultural Science Occupations* in Imperial County have a labor market demand of one annual job opening (while average demand for a single occupation in Imperial County is 14 annual job openings), and one college in Imperial County supplies two awards for these occupations, suggesting that supply is met in the labor market. Entry-level wages and median wages for this occupation are above the living wage. This brief recommends not proceeding with developing a **new** program, but supports a program modification because 1) supply is met for these occupations and 2) and entry-level and median earnings are above the living wage. Colleges should note that **the typical entry-level education for these occupations is a bachelor's degree.**

Introduction

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

- **Food Scientists and Technologists** (SOC[2] 19-1012): Use chemistry, microbiology, engineering, and other sciences to study the principles underlying the processing and deterioration of foods; analyze food content to determine levels of vitamins, fat, sugar, and protein; discover new food sources; research ways to make processed foods safe, palatable, and healthful; and apply food science knowledge to determine best ways to process, package, preserve, store, and distribute food.
- **Soil and Plant Scientists** (SOC 19-1013): Conduct research in breeding, physiology, production, yield, and management of crops and agricultural plants or trees, shrubs, and nursery stock, their growth in soils, and control of pests; or study the chemical, physical, biological, and mineralogical composition of soils as they relate to plant or crop growth. May classify and map soils and investigate effects of alternative practices on soil and crop productivity.

For the purpose of this report, these occupations are referred to as *Agricultural Science Occupations*.

[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.
[2] 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.

Projected Occupational Demand

Between 2020 and 2025, *Agricultural Science Occupations* are projected to decrease by two net jobs or 13 percent (Exhibit 1a). Employers in Imperial County will need to hire one worker annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1a: Number of Jobs for *Agricultural Science Occupations* (2010-2025)[3]

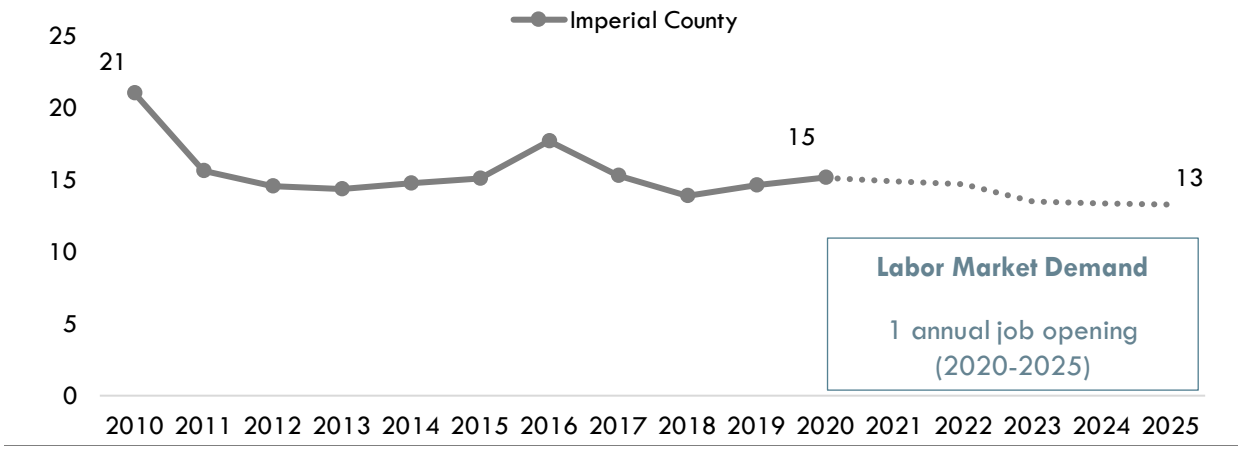


Exhibit 1b disaggregates the projected number of jobs change by occupation. "Soil and Plant Scientists" are projected to have the most labor market demand between 2020 and 2025, with one annual job opening.

Exhibit 1b: Number of Jobs for *Agricultural Science Occupations* in Imperial County (2020-2025)[4]

Occupational Title	2020 Jobs	2025 Jobs	2020 - 2025 Net Jobs Change	2020-2025 % Net Jobs Change	Annual Job Openings (Demand)
Soil and Plant Scientists	14	12	-2	-14%	1
Food Scientists and Technologists	1	1	0	0	0
Total	15	13	-2	-13%	1

[3] EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.
[4] EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

Earnings

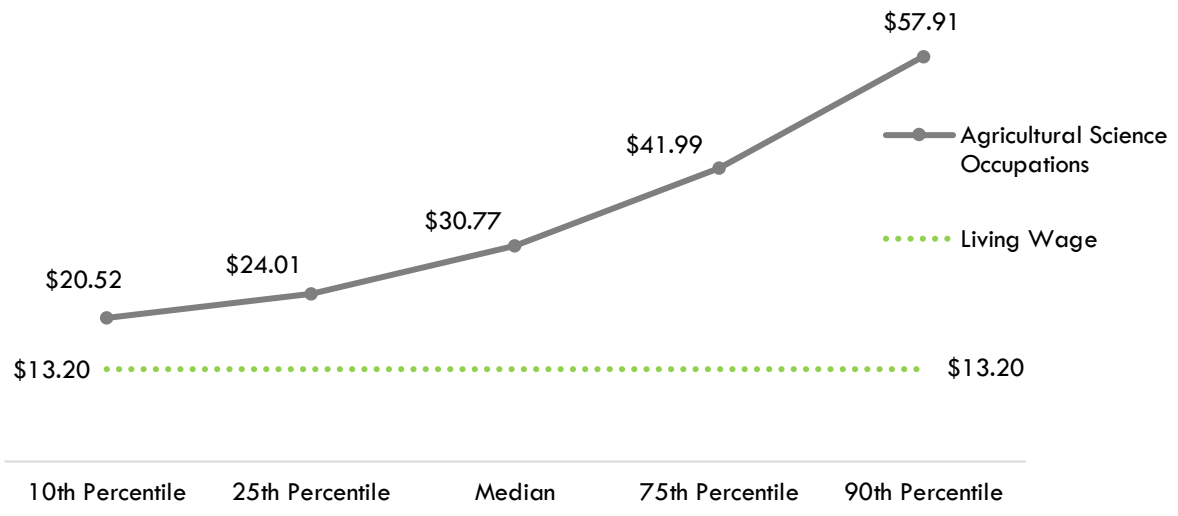
The entry-level hourly earnings for *Agricultural Science Occupations* are $24.01 (Exhibit 2a).

Exhibit 2a: Hourly Earnings for *Agricultural Science Occupations* in Imperial County[5]

Occupational Title	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Soil and Plant Scientists	$24.01	$30.77	$41.99
Food Scientists and Technologists	Insf. Data	Insf. Data	Insf. Data

On average, the entry-level hourly earnings for *Agricultural Science Occupations* are $24.01; this is more than the living wage for a household of two adults and two school-age children in Imperial County, which is $13.20 per hour (Exhibit 2b).[6]

Exhibit 2b: Average Hourly Earnings[7] for *Agricultural Science Occupations* in Imperial County[8]



[5] EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.
[6] "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. insightcced.org/2018-self-sufficiency-standard.
[7] 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.
[8] EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

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.[9] There are three TOP codes and four CIP codes related to *Agricultural Science Occupations* (Exhibit 3).

Exhibit 3: Related TOP and CIP Codes for *Agricultural Science Occupations*

TOP or CIP Code	TOP or CIP Program Title
TOP 0101.00	Agriculture Technology and Sciences, General
TOP 0104.00	Viticulture, Enology, and Wine Business
TOP 0113.00	Food Processing and Related Technologies
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

According to TOP data, one community college supplies the region with awards for this occupation, Imperial Valley College. According to CIP data, no non-community-college institution supplies the region with awards (Exhibit 4).

Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2014-15 through PY2018-19 Average)

TOP or CIP Code	TOP or CIP Program Title	3-Yr Annual Average CC Awards (PY17-18 to PY19-20)	Other Educational Institutions 3-Yr Annual Average Awards (PY16-17 to PY18-19)	3-Yr Total Average Supply (PY16-17 to PY19-20)
0101.00	Agriculture Technology and Sciences, General	**2**	**0**	**2**
	• Imperial Valley	2	0	
			Total	**2**

[9] 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).

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply[10] suggests that supply is met for this occupation in Imperial County, with one annual opening and two awards. Comparatively, there are 537 annual openings in California and 421 awards, suggesting that there is a supply gap across the state[11] (Exhibit 5).

Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

	Demand (Annual Openings)	**Supply** (Total Annual Average Supply)	**Supply Gap or Oversupply**
San Diego	1	2	**-1**
California	537	421	**116**

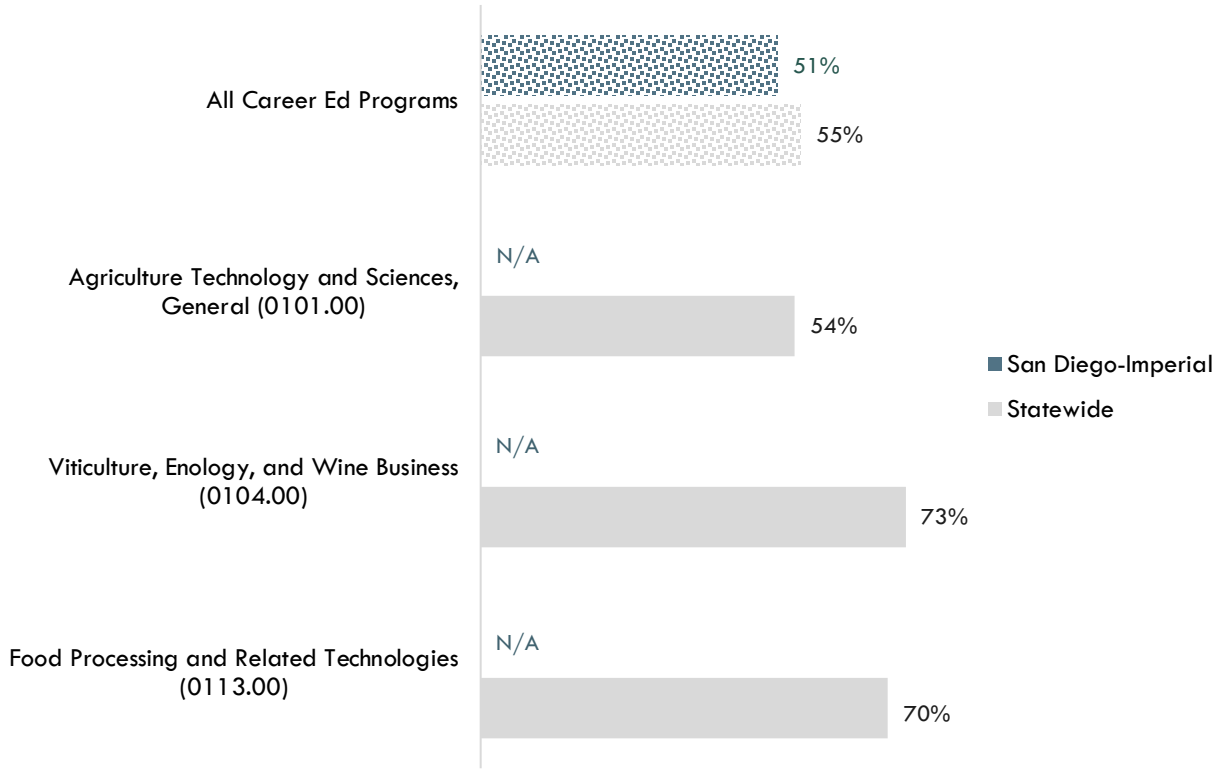
Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers;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

[10] 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.
[11] "Supply and Demand," Centers of Excellence Student Outcomes, coeccc.net/Supply-and-Demand.aspx.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 54 to 73 percent of students statewide earned a living wage after completing a program related to *Agricultural Science Occupations*, compared to 55 percent of students in Career Education programs in general across the state (Exhibit 6a).[12]

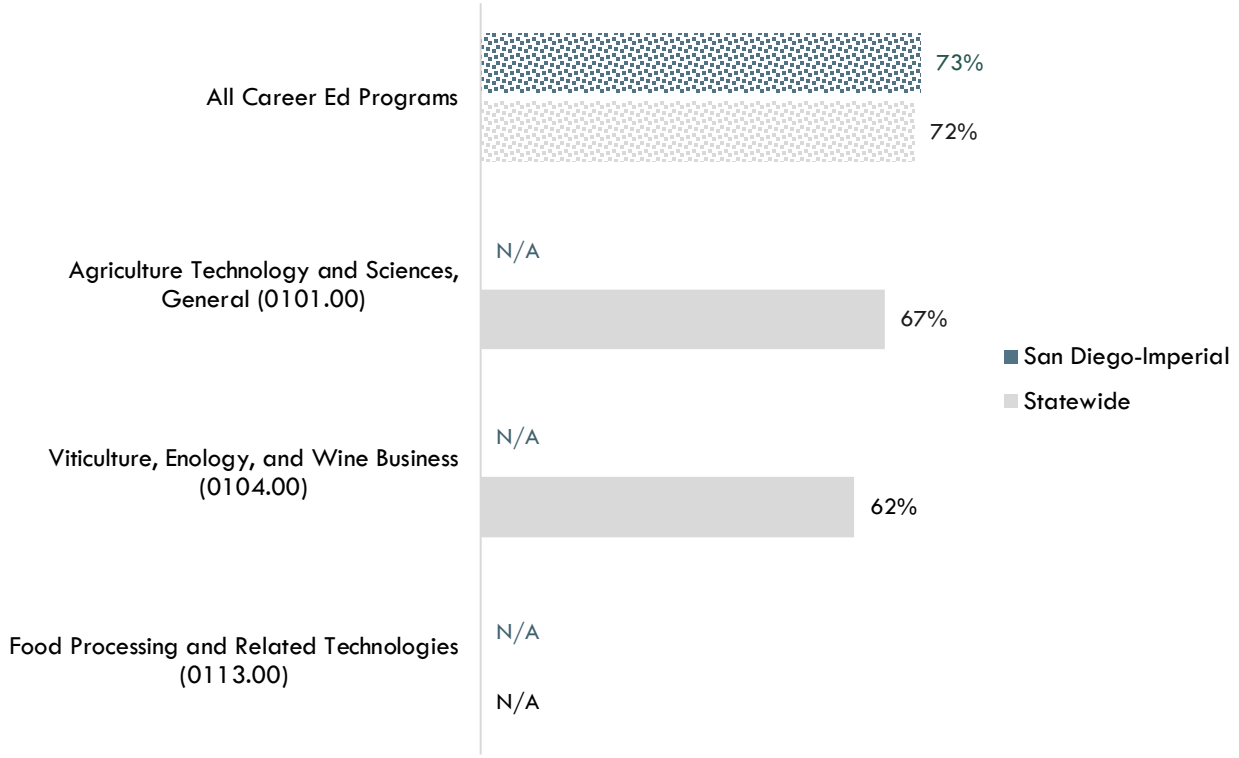
Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program, PY2017-18[13]



[12] "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.
[13] Among completers and skills builders who exited, the proportion of students who attained a living wage.

According to the California Community Colleges LaunchBoard, 62 to 67 percent of students statewide obtained a job closely related to their field of study after completing a program related to *Agricultural Science Occupations*, compared to 72 percent of students in Career Education programs in general across the state (Exhibit 6b).[14]

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2016-17[15]

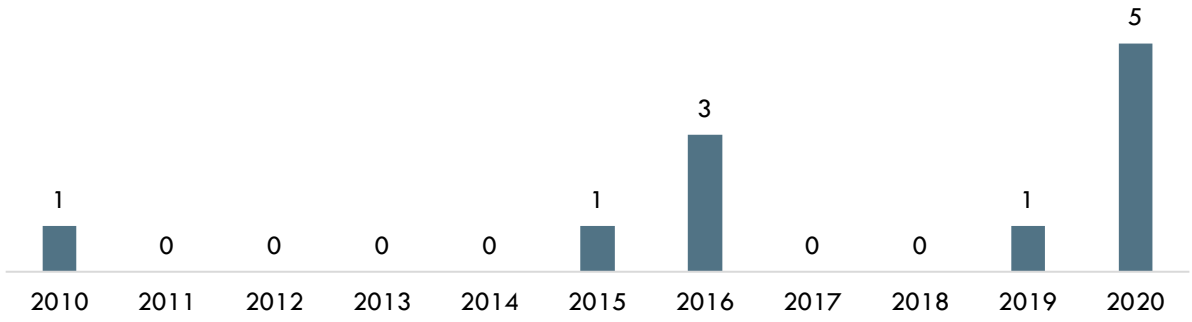


[14] "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.
[15] Most recent year with available data is Program Year 2016-17. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

Online Job Postings

This report analyzes not only historical and projected (traditional LMI) data, but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. Between 2010 and 2020, there was an average of one online job posting per year for *Agricultural Science Occupations* in Imperial County (Exhibit 7). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1b). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 7: Number of Online Job Postings for *Agricultural Science Occupations* in Imperial County (2010-2020)[16]



Top Employers

Between January 1, 2018 and December 31, 2020, the top employers in Imperial County for *Agricultural Science Occupations* were Packers Sanitation Services, Synthetic Genomics, and H2 Talent based on online job postings (Exhibit 8).

Exhibit 8: Top Employers in Imperial County for *Agricultural Science Occupations*[17]

Top Employers
• Packers Sanitation Services Incorporated • Synthetic Genomics • H2 Talent

[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2020.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Education, Skills, and Certifications

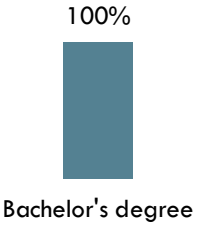
The typical entry-level education for *Agricultural Science Occupations* is a bachelor's degree (Exhibit 9a).[18]

Exhibit 9a: National Educational Attainment for *Agricultural Science Occupations*[19]

Occupational Title	Typical Entry-Level Education
Food Scientists and Technologists	Bachelor's degree
Soil and Plant Scientists	Bachelor's degree

Based on online job postings between January 1, 2018 and December 31, 2020 in Imperial County, employers posted a bachelor's degree as the educational requirement for *Agricultural Science Occupations* (Exhibit 9b).[20]

Exhibit 9b: Educational Requirements for *Agricultural Science Occupations* in Imperial County[21]



[18] EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.
[19] EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.
[20] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.
[21] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified September 4, 2019. bls.gov/emp/tables/educational-attainment.htm.

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 10: Top Skills for *Agricultural Science Occupations* in Imperial County[22]

Specialized Skills	Soft Skills	Software Skills
• Food Safety • Agronomy • Biology • Biomass • Biomass Production • Data Collection • Operations Management • Personal Protective Equipment • Biochemistry • Design of Experiments • Experiments • Farm Management • Farm Products • Genetics • Genomics	• Detail-Oriented • Bilingual • English • Research • Spanish • Communication Skills • Listening • Physical Abilities • Presentation Skills • Problem Solving • Teamwork / Collaboration • Microsoft Office • Planning • Preventive Maintenance • Troubleshooting	• Microsoft Office • Systems Analysis

[22] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Exhibit 11 typically lists the top certifications that appeared in online job postings between January 1, 2018 and December 31, 2020 for this occupation. However, no online postings specified desired or required certifications.

Exhibit 11: Top Certifications for *Agricultural Science Occupations* in Imperial County[23]

Top Certifications in Online Job Postings
N/A

[23] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

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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.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.