



# **Agricultural Science (Agriculture Technology and Science TOP: 0101.00)**

**September 2019**

**Prepared by the South Central Coast Center of Excellence for Labor  
Market Research**

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## **Program Recommendation**

This report was compiled by the South Central Coast Center of Excellence to provide regional labor market data for the program recommendation – Agricultural Science. This report can help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

## **Key Findings**

- In the South Central Coast region, the number of jobs related to Agriculture Technology and Science are expected to remain steady over the next five years for Soil and Plant Scientists, while an increase is projected in the number of jobs for Agricultural and Food Science Technicians.
- Soil and Plant Scientists and Agricultural and Food Science Technicians are expected to anticipate a low risk of automation.
- In 2017 there were 449 regional completions in programs related to the occupations identified as related to Agriculture Technology and Science and 62 openings, indicating an oversupply.
- Typical entry-level education ranges from an Associate's Degree for Soil and Plant Scientists to a Bachelor's degree for Agricultural and Food Science Technicians.
- Completers of statewide Agriculture Technology and Science programs from the 2015-2016 academic year had a median annual wage upon completion of \$22,128.
- 59% of students (statewide) are employed within a year after completing a program.
- 46% of students (statewide) are earning a living wage.

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<sup>1</sup> The South Central Coast Region consists of San Luis Obispo County, Santa Barbara County, Ventura County, and the following cities from North Los Angeles County: Canyon Country, Castaic, Lake Hughes, Lancaster, Littlerock, Llano, Newhall, Palmdale, Pearblossom, Santa Clarita, Stevenson Ranch, and Valencia.

## Occupation Codes and Descriptions

Currently, there are two occupations in the standard occupational classification (SOC) system that were identified as related to Agriculture Technology and Science for this analysis. The occupation titles and descriptions, as well as reported job titles are included in Exhibit 1.

**Exhibit 1 – Occupation, description, and sample job titles**

<b>SOC Code</b>	<b>Title</b>	<b>Description</b>	<b>Sample of Reported Job Titles</b>
19-1013	<b>Soil and Plant Scientists</b>	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.	Agronomist, Agronomy Research Manager, Agronomy Specialist, Crop Nutrition Scientist, Extension Specialist, Microbiology Soil Scientist, On-Site Soil Evaluator, Research Soil Scientist, Soil Fertility Extension Specialist, Soil Scientist
19-4011	<b>Agricultural and Food Science Technicians</b>	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.	Agricultural Research Technician, Agricultural Research Technologist, Agricultural Technician, Laboratory Technician (Lab Tech), Research Assistant, Research Associate, Research Specialist, Research Technician, Seed Analyst, Senior Agricultural Assistant

Source: O\*NET Online

## Current and Future Employment

In the South Central Coast region, the number of jobs related to Agriculture Technology and Science are expected to remain steady over the next five years for Soil and Plant Scientists, while an increase is projected in the number of jobs for Agricultural and Food Science Technicians. Exhibit 2 contains detailed employment projections data for these occupations.

### Exhibit 2 – Five-year projections for Agriculture Technology and Science in the South Central Coast region

SOC	Occupation	2018 Jobs	2023 Jobs	2018-2023 Change	2018-2023 % Change
19-1013	Soil and Plant Scientists	201	201	0	0%
19-4011	Agricultural and Food Science Technicians	177	193	16	9%

Source: Economic Modeling Specialists International (EMSI)

## Earnings

In the South Central Coast region, the average wage for the listed occupations is \$26.58 per hour.

Exhibit 3 contains hourly wages and annual average earnings for these occupations. Entry-level hourly earnings are represented by the 25<sup>th</sup> percentile of wages, median hourly earnings are represented by the 50<sup>th</sup> percentile of wages, and experienced hourly earnings is represented by the 75<sup>th</sup> percentile of wages, demonstrating various levels of employment.

### Exhibit 3 – Earnings for Agriculture Technology and Science in the South Central Coast region

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
19-1013	Soil and Plant Scientists	\$29.35	\$45.41	\$56.42
19-4011	Agricultural and Food Science Technicians	\$15.23	\$19.10	\$23.39

Source: Economic Modeling Specialists International (EMSI)

## Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the field of study. Employer job postings are consulted to understand who is employing in the Agriculture Technology and Science field, and what they are looking for in potential candidates. To identify job postings related to Agriculture Technology and Science, the following standard occupational classifications were used:

19-1013	Soil and Plant Scientists
19-4011	Agricultural and Food Science Technicians

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## Top Occupations

In 2018, there were 40 employer postings for occupations related to Agriculture Technology and Science.

**Exhibit 4 – Top occupations in job postings and risk of automation tables**

SOC Code	Occupation	Job Postings, Full Year 2018
19-1013	<b>Soil and Plant Scientists</b>	22
19-4011	<b>Agricultural and Food Science Technicians</b>	18

Source: Labor Insight/Jobs (Burning Glass)

SOC Code	Occupation	Risk of Automation
19-1013	<b>Soil and Plant Scientists</b>	Low
19-4011	<b>Agricultural and Food Science Technicians</b>	Low

Source: Labor Insight/Jobs (Burning Glass)

### Top Titles

The top job titles for employers posting ads for jobs related Agriculture Technology and Science are listed in Exhibit 5. Seed Lab Technician is mentioned as the job title in 28% of all relevant job postings (11 postings).

**Exhibit 5 –Job titles**

<b>Title</b>	<b>Job Postings, Full Year 2018</b>
Seed Lab Technician	11
Buy – Sprint Expert	5
Botanist	2
Buy – Google Expert	2
Senior Agronomist	2
Senior Technician	2
Quality Coordinator	2

Source: Labor Insight/Jobs (Burning Glass)

### Top Employers

Exhibit 6 lists the major employers hiring professionals in the Agriculture Technology and Science field. The top employer posting job ads was Best Buy. The top worksite cities in the region for these occupations were Oxnard, San Luis Obispo, Santa Paula, Santa Clarita and Ventura.

**Exhibit 6 – Top employers (n=26)**

<b>Employer</b>	<b>Job Postings, Full Year 2018</b>
Best Buy	8
Kemtah Group	4
Calavo Growers Incorporated	2
Cuesta College	2

Source: Labor Insight/Jobs (Burning Glass)

**Skills**

Quality Assurance and Control is the most sought after skills for employers hiring for jobs related to Agriculture Technology and Science.

**Exhibit 7 –Job skills (n=36)**

<b>Skills</b>	<b>Job Postings, Full Year 2018</b>
Quality Assurance and Control	17
Quality Management	12
ISO Standards	10
Consumer Electronics	8
Description and Demonstration of Products	8
Product Knowledge	8
Sales	8

Source: Labor Insight/Jobs (Burning Glass)

**Industry Concentration**

Exhibit 8 shows the industries with most Agriculture Technology and Science postings in the South Central Coast. Note: 45% of records have been excluded because they do not include an industry. As a result, the chart below may not be representative of the full sample.

**Exhibit 8 – Industries employing the most in Agriculture Technology and Science, 2018**

<b>Industry</b>	<b>Occupation Group Jobs in Industry</b>	<b>% of Occupation Group in Industry</b>
Retail Trade	8	36%
Agriculture, Forestry, Fishing and Hunting	3	14%
Manufacturing	3	14%
Public Administration	3	14%

Source: Labor Insight/Jobs (Burning Glass)

**Education and Training**

Exhibit 9 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training needed to attain competency in the occupation.

**Exhibit 9 – Education and training requirements**

SOC	Occupation	Typical entry-level education	Typical on-the-job training
19-1013	<b>Soil and Plant Scientists</b>	Bachelor’s Degree	None
19-4011	<b>Agricultural and Food Science Technicians</b>	Associate’s Degree	Moderate-term on-the-job training

Source: Bureau of Labor Statistics Employment Projections (Educational Attainment)

**Regional Completions and Openings**

There were 449 regional completions (2017) and 62 regional openings (2017) in the South Central Coast region in programs related to the occupations identified as related to Agriculture Technology and Science.

**Exhibit 10 – Completions and Openings**

<b>11</b> Regional Institutions had Related Programs (2017)	<b>449</b> Regional Completions (2017)	<b>62</b> Annual Openings (2017)
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Source: Economic Modeling Specialists International (EMSI)

**Related Programs**

CIP Code	Program	Completions (2017)
01.0901	Animal Sciences, General	127
01.0309	Viticulture and Enology	86
01.0302	Animal/Livestock Husbandry and Production	74
01.0000	Agriculture, General	48
01.1102	Agronomy and Crop Science	48

Source: Economic Modeling Specialists International (EMSI)

## **Student Outcomes**

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of statewide Agriculture Technology and Science Program (TOP: 0101.00) for the 2015-16 academic year.

- The median annual wage for students after exiting is \$22,128.
- 59% of students are employed within a year after completing a program.
- 46% of students are earning a living wage.
- Most Common middle-skills jobs for this program are:
  - Agricultural and Food Science Technicians

Source: CTE LaunchBoard

## **Sources**

O\*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

## **Notes**

Data included in this analysis represents the labor market demand for positions most closely related to Agriculture Technology and Science. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job posts advertisements for occupations relevant to the field of study and should not be used to establish current job openings, because the numbers may include duplicate job postings or postings intended to gather a pool of applicants. Real-time labor market information can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions.