



# Crop Production Occupations Labor Market Information Report Cabrillo College

Prepared by the San Francisco Bay Center of Excellence for Labor Market Research  
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## Recommendation

Based on all available data, there appears to be an “undersupply” of Crop Production workers compared to the demand for this cluster of occupations in the Bay region and in the SC-Monterey sub-region (Monterey, San Benito, and Santa Cruz counties). There is a projected annual gap of about 10,522 students in the Bay region and 7,580 students in the SC-Monterey Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0103.00 - Plant Science programs in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Cabrillo College and in the region.

This report profiles Crop Production Occupations in the 12 county Bay region and in the SC-Monterey sub-region for two proposed new programs: Mushroom Production and Berry Production at Cabrillo College. This report can be used for both programs when submitting them through the BACCC Program Recommendation process.

- **Agricultural and Food Science Technicians (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.  
Entry-Level Educational Requirement: Associate’s degree  
Training Requirement: Moderate-term on-the-job training  
Percentage of Community College Award Holders or Some Postsecondary Coursework: 70%
- **Life, Physical, and Social Science Technicians, All Other (19-4099):** All life, physical, and social science technicians not listed separately.  
Entry-Level Educational Requirement: Associate’s degree  
Training Requirement: None  
Percentage of Community College Award Holders or Some Postsecondary Coursework: 37%
- **Pesticide Handlers, Sprayers, and Applicators, Vegetation (37-3012):** Mix or apply pesticides, herbicides, fungicides, or insecticides through sprays, dusts, vapors, soil incorporation, or chemical application on trees, shrubs, lawns, or botanical crops. Usually requires specific training and State or Federal certification. Excludes “Commercial Pilots” (53-2012) who dust or spray crops from aircraft.  
Entry-Level Educational Requirement: High school diploma or equivalent  
Training Requirement: Moderate-term on-the-job training  
Percentage of Community College Award Holders or Some Postsecondary Coursework: 21%

- First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011):** Directly supervise and coordinate the activities of agricultural, forestry, aquacultural, and related workers. Excludes “First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers” (37-1012).  
 Entry-Level Educational Requirement: High school diploma or equivalent  
 Training Requirement: None  
 Percentage of Community College Award Holders or Some Postsecondary Coursework: 20%
- Farmworkers and Laborers, Crop, Nursery, and Greenhouse (45-2092):** Manually plant, cultivate, and harvest vegetables, fruits, nuts, horticultural specialties, and field crops. Use hand tools, such as shovels, trowels, hoes, tampers, pruning hooks, shears, and knives. Duties may include tilling soil and applying fertilizers; transplanting, weeding, thinning, or pruning crops; applying pesticides; or cleaning, grading, sorting, packing, and loading harvested products. May construct trellises, repair fences and farm buildings, or participate in irrigation activities. Excludes “Graders and Sorters, Agricultural Products” (45-2041) and “Forest, Conservation, and Logging Workers” (45-4011 through 45-4029).  
 Entry-Level Educational Requirement: No formal educational credential  
 Training Requirement: Short-term on-the-job training  
 Percentage of Community College Award Holders or Some Postsecondary Coursework: 14%

## Occupational Demand

**Table 1. Employment Outlook for Crop Production Occupations in Bay Region**

Occupation	2019 Jobs	2024 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Agricultural and Food Science Technicians	1,424	1,484	60	4%	942	188	\$18.64	\$22.71
Life, Physical, and Social Science Technicians, All Other	2,779	2,978	199	7%	1,905	381	\$21.85	\$28.16
Pesticide Handlers, Sprayers, and Applicators, Vegetation	665	718	53	8%	499	100	\$15.82	\$21.57
First-Line Supervisors of Farming, Fishing, and Forestry Workers	3,289	3,437	148	4%	2,649	530	\$17.53	\$21.80
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	53,466	55,556	2,090	4%	46,625	9,325	\$12.63	\$14.25
<b>Total</b>	<b>61,623</b>	<b>64,173</b>	<b>2,550</b>	<b>4%</b>	<b>52,620</b>	<b>10,524</b>	<b>\$13.48</b>	<b>\$15.55</b>

Source: EMSI 2020.4

**Bay Region includes:** Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Crop Production Occupations in SC-Monterey Sub-Region**

Occupation	2019 Jobs	2024 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Agricultural and Food Science Technicians	282	293	11	4%	184	37	\$17.60	\$23.26
Life, Physical, and Social Science Technicians, All Other	186	193	7	4%	119	24	\$21.52	\$28.81
Pesticide Handlers, Sprayers, and Applicators, Vegetation	207	229	22	11%	163	33	\$16.67	\$20.50
First-Line Supervisors of Farming, Fishing, and Forestry Workers	2,033	2,158	125	6%	1,667	333	\$16.62	\$19.68
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	40,619	42,647	2,028	5%	35,769	7,154	\$12.54	\$13.96
<b>Total</b>	<b>43,327</b>	<b>45,520</b>	<b>2,193</b>	<b>5%</b>	<b>37,902</b>	<b>7,581</b>	<b>\$12.82</b>	<b>\$14.38</b>

Occupation	2019 Jobs	2024 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
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Source: EMSI 2020.4

**SC-Monterey Sub-Region includes:** Monterey, San Benito, and Santa Cruz Counties

**Job Postings in Bay Region and SC-Monterey Sub-Region**

**Table 3. Number of Job Postings by Occupation for latest 12 months (Jan 2020 - Dec 2020)**

Occupation	Bay Region	SC-Monterey
Farmworkers and Laborers, Crop	175	28
Agricultural Technicians	89	11
Pesticide Handlers, Sprayers, and Applicators, Vegetation	71	16
First-Line Supervisors of Agricultural Crop and Horticultural Workers	42	11
Precision Agriculture Technicians	7	0

Source: Burning Glass

**Table 4a. Top Job Titles for Crop Production Occupations for latest 12 months (Jan 2020 - Dec 2020) Bay Region**

Title	Bay	Title	Bay
Picker	26	Pesticide Applicator	6
Seed Technician	15	Operator, Equipment II	6
Digital Pest Management Lot Platform Owner	10	Lawn & Plant Care Specialist	6
Spray Technician	9	Lawn Specialist	5
Harvest Coordinator	9	Greenhouse Worker	5
Harvest Cellar	9	Greenhouse Technician	5
Grower	9	Eyelash Extension Technician	5
Exterior Plant Care Specialist	9	Lawn And Plant Care Specialist	4
Horticulturist	8	Harvest Technician	4

Source: Burning Glass

**Table 4b. Top Job Titles for Crop Production Occupations for latest 12 months (Jan 2020 - Dec 2020) SC-Monterey Sub-Region**

Title	SC-Monterey	Title	SC-Monterey
Pesticide Applicator	4	Spray Applicator In ,   Careers At - -Us	5
Grower	4	Master Grower	2
Digital Pest Management Lot Platform Owner	4	Irrigator	2
Spray Applicator	3	Greenhouse Grower And Technician	2
Seed Technician	3	Agriculture Master Technician	2
Picker	3	Work The Same	1
Ipm Technician	3	Work Ever The Same	1
Greenhouse Worker II	3	Master Grower	2
Greenhouse Technician	3		

Source: Burning Glass

## Industry Concentration

**Table 5. Industries hiring Crop Production Workers in Bay Region**

Industry – 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2019)	Jobs in Industry (2024)	% Change (2019-24)	% Occupation Group in Industry (2019)
Farm Labor Contractors and Crew Leaders	21,212	22,882	8%	34%
Crop Production	13,500	13,265	-2%	21%
Postharvest Crop Activities (except Cotton Ginning)	9,885	10,662	8%	15%
Landscaping Services	2,825	3,011	7%	4%
Farm Management Services	2,471	2,439	-1%	4%
Crop Harvesting, Primarily by Machine	1,855	1,820	-2%	3%
Wineries	1,570	1,563	0%	2%
Soil Preparation, Planting, and Cultivating	1,428	1,539	8%	2%
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	909	980	8%	1%
Animal Production	717	710	-1%	1%

Source: EMSI 2020.4

**Table 6. Top Employers Posting Crop Production Occupations in Bay Region and SC-Monterey Sub-Region (Jan 2020 - Dec 2020)**

Employer	Bay	Employer	SC-Monterey
Bayer Corporation	24	Bayer Corporation	6
Constellation Brands Incorporated	13	Nutrien Ltd	4
Steritech	10	Crop Production Services Incorporated	4
Trugreen	8	Kagome Incorporated	3
Deloitte	8	Schnitzer Steel Industries	2
Trincher Family Estates	6	Front Range Biosciences	2
Stanford University	5	AGCO Corporation	2
Schnitzer Steel Industries	5	1-800-GOT-JUNK?	2
Newton Vineyard	5	Voloagri Group	1
Restaurant Depot	4	University California	1
Nutrien Ltd	4	United Genetics	1
Jetro Holdings, Llc	4	Smith Gardens	1
Gothic Landscape Incorporated	4	Quinn Group Incorporated	1
Emerald Peak	4	Pacific Plug Liner	1

Source: Burning Glass

## Educational Supply

There are two (2) community colleges in the Bay Region issuing 2 awards on average annually (last 3 years ending 2018-19) on TOP 0103.00 - Plant Science. In the SC-Monterey Sub-Region, there is one (1) community college that issued one (1) award on average annually (last 3 years) on this TOP code.

**Table 7. Community College Awards on TOP 0103.00 - Plant Science in Bay Region**

College	Subregion	Associate	Certificate Low	Total
Cabrillo	SC-Monterey	1	0	1
Marin	North Bay	0	1	1
<b>Total</b>		<b>1</b>	<b>1</b>	<b>2</b>

Source: Data Mart

Note: The annual average for awards is 2016-17 to 2018-19.

## Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 10,524 annual openings for the Mushroom Production occupational cluster and 2 annual (3-year average) awards for an annual undersupply of 10,522 students. In the SC-Monterey Sub-Region, there is also a gap with 7,581 annual openings and 1 annual (3-year average) award for an annual undersupply of 7,580 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0103.00 - Plant Science**

2017-18	Bay All CTE Program	Cabrillo All CTE Program	State 0103.00	Bay 0103.00	SC-Monterey 0103.00	Cabrillo 0103.00
% Employed Four Quarters After Exit	67%	72%	62%	65%	62%	NA
Median Quarterly Earning Two Quarters After Exit	\$11,466	\$11,134	\$7,011	\$9,189	\$7,704	NA
Median % Change in Earning	31%	45%	41%	27%	50%	NA
% of Students Earning a Living Wage	53%	58%	54%	53%	64%	NA

Source: Launchboard Pipeline (version available on August 2020)

## Skills, Certifications and Education

**Table 9. Top Skills for Crop Production Occupations in Bay Region (Jan 2020 - Dec 2020)**

Skill	Posting	Skill	Posting
Forklift Operation	57	Packaging	22
Customer Service	56	Biology	21
Cleaning	48	Sales	21
Scheduling	45	Backpack Sprayers	18
Fertilizers	43	Data Entry	17
Lifting Ability	41	Food Safety and Quality	17
Repair	38	Key Performance Indicators (KPIs)	17
Project Management	31	Upselling Products and Services	17
Quality Assurance and Control	30	Hand Tools	16
Basic Mathematics	24	Six Sigma	16
Budgeting	24	Customer Contact	15
SAP	24	Personal Protective Equipment (PPE)	15
Machinery	23	Power Tools	15
Fermentation	22	Sorting	15

Source: Burning Glass

**Table 10. Certifications for Crop Production Occupations in Bay Region (Jan 2020 - Dec 2020)**

Certification	Posting	Certification	Posting
Driver's License	118	First Aid Cpr Aed	1
Applicators License	14	Commercial Pest Control Certification	1
Certified Pest Control	10	Cisco Certified Network Associate (CCNA)	1
OSHA Forklift Certification	4	Child Development Associate (CDA)	1
Security Clearance	2	Certified Arborist	1
Cosmetology License	2	American Institute of Certified Planners	1

Source: Burning Glass

Note: 62% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

**Table 11. Education Requirements for Crop Production Occupations in Bay Region (Jan 2020 - Dec 2020)**

Education (minimum advertised)	Latest 12 Mos. Postings	Percent 12 Mos. Postings
High school or vocational training	95	65%
Associate's degree	10	7%
Bachelor's degree	36	24%
Master's degree	2	1%
Doctoral degree	5	3%

Source: Burning Glass

Note: 61% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

## Methodology

Occupations for this report were identified by use of skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCCO Data Mart.

## Sources

O\*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard [www.calpassplus.org/Launchboard/](http://www.calpassplus.org/Launchboard/)

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

Living Insight Center for Community Economic Development

Chancellor's Office MIS system

## Contacts

For more information, please contact:

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