



Labor Market Analysis for Program Recommendation

Horticulture Technician Occupations

Hartnell College

Prepared by the San Francisco Bay Center of Excellence for Labor Market Research
August 2022

Recommendation

Based on all available data, there appears to be an “undersupply” of Horticulture Technician workers compared to the demand for this cluster of occupations in the Bay region and in the SC-Monterey sub-region (Monterey, San Benito, Santa Cruz counties). There is a projected annual gap of about 9,186 students in the Bay region and 6,982 students in the SC-Monterey Sub-Region.

Introduction

This report provides student outcomes data on employment and earnings for TOP 0109.00 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 Hartnell College and in the region.

This report profiles Horticulture Technician Occupations in the 12 county Bay region and in the SC-Monterey sub-region for a proposed new program at Hartnell College.

- **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: NA%
- **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 Horticulture Technician Occupations in Bay Region

Occupation	2020 Jobs	2025 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Agricultural and Food Science Technicians	1,094	1,142	48	4%	799	160	\$18	\$22
First-Line Supervisors of Farming, Fishing, and Forestry Workers	2,691	2,791	100	4%	2,058	412	\$14	\$19
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	52,177	53,436	1,259	2%	43,427	8,685	\$12	\$13
Total	55,962	57,369	1,407	3%	46,284	9,257		

Source: EMSI 2022.1

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 Horticulture Technician Occupations in SC-Monterey Sub-region

Occupation	2020 Jobs	2025 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Agricultural and Food Science Technicians	196	197	1	1%	134	27	\$16	\$19
First-Line Supervisors of Farming, Fishing, and Forestry Workers	1,695	1,766	71	4%	1,299	260	\$14	\$18
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	40,216	41,483	1,267	3%	33,580	6,716	\$12	\$13
Total	42,107	43,445	1,339	3%	35,013	7,003		

Source: EMSI 2022.1

SC-Monterey Sub-Region includes: Monterey, San Benito, 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 (Aug 2021 - July 2022)

Occupation	Bay Region	SC-Monterey
Farmworkers and Laborers, Crop	283	42
Agricultural Technicians	123	12
Food Science Technicians	80	19
First-Line Supervisors of Agricultural Crop and Horticultural Workers	59	9
First-Line Supervisors of Animal Husbandry and Animal Care Workers	33	8
Nursery Workers	30	0
First-Line Supervisors of Aquacultural Workers	6	2
First-Line Supervisors of Logging Workers	4	0

Source: Burning Glass

Table 4a. Top Job Titles for Horticulture Technician Occupations for latest 12 months (Aug 2021 - July 2022)

Bay Region

Title	Bay	Title	Bay
Harvest Technician	45	Greenhouse Technician	8
Picker	44	Food Technician	6
Shelter Monitor	15	Indoor Retail Nursery/Greenhouse	6
Custom Applicator	14	Greenhouse Worker	5
Farm Hand	10	Harvest - Seasonal Cellar	5
Grower	10	Head Grower	5
Nursery Plant Specialist	9	Horticulturist	5
Farm Worker	8	Pickers/Scanners	5

Source: Burning Glass

Table 4b. Top Job Titles for Horticulture Technician Occupations for latest 12 months (Aug 2021 – July 2022) SC-Monterey Sub-Region

Title	SC-Monterey	Title	SC-Monterey
Custom Applicator	14	Organic Farm Worker	2
Shelter Monitor	6	Greenhouse Worker II	2
Greenhouse Technician	6	Greenhouse Farm Field Worker for Data Collection	2
Grower	5	Agriculture Master Technician	2
Greenhouse Supervisor	3	Agriculture Operations Manager	2
Farm Worker	3	Gardener	1

Source: Burning Glass

Industry Concentration

Table 5. Industries hiring Horticulture Technician Workers in Bay Region

Industry – 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2020)	Jobs in Industry (2025)	% Change (2020-25)	% Occupation Group in Industry (2020)
Farm Labor Contractors and Crew Leaders	21,329	21,021	-1%	37%
Crop Production	11,632	11,257	-3%	22%
Postharvest Crop Activities (except Cotton Ginning)	9,386	9,710	3%	17%
Farm Management Services	2,405	2,324	-3%	4%
Crop Harvesting, Primarily by Machine	1,681	1,513	-10%	3%
Wineries	1,515	1,403	-7%	3%
Soil Preparation, Planting, and Cultivating	1,458	1,660	14%	3%
Nursery, Garden Center, and Farm Supply Stores	487	670	37%	1%
Animal Production	638	599	-6%	1%
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	277	390	41%	1%

Source: EMSI 2022.1

Table 6. Top Employers Posting Horticulture Technician Occupations in Bay Region and SC-Monterey Sub-Region (Aug 2021 – July 2022)

Employer	Bay	Employer	SC-Monterey
Meadows In Bloom	43	Nutrien Ltd.	8
Restaurant Depot	18	Abode Services	7
Ecological Farming Association	18	Nutrien Ag Solutions, Inc.	7
Deloitte	17	Hog Island Oyster Company	6
Trincherro Family Estates	10	Ecological Farming Association	6
Delicato Family Wines	9	Community Human Services	4
Ace Hardware	9	Community Homeless Solutions	4
Constellation Brands Incorporated	8	Sakata Seed America, Inc.	3

Source: Burning Glass

Educational Supply

There are eight (8) community colleges in the Bay Region issuing 71 awards on average annually (last 3 years ending 2018-19) on TOP 0109.00. In the SC-Monterey Sub-Region, there are two (2) community colleges that issued 21 awards on average annually (last 3 years) on this TOP code.

Table 7. Community College Awards on TOP 0109.00 and CIP 01.0601 in Bay Region

College	Subregion	Associate Degree	Award < 1 academic yr	Postsecondary awards	Total
Cabrillo College	SC-Monterey	5	7	3	15
City College of San Francisco	Mid-Peninsula	2	0	2	4
Diablo Valley College	East Bay	0	10	0	10
Foothill College	Silicon Valley	7	6	5	18
Las Positas College	East Bay	3	2	0	5
Merritt College	East Bay	0	8	1	9
Monterey Peninsula College	SC-Monterey	3	3	0	6
Solano Community College	North Bay	2	2	0	4
Total		22	38	11	71

Source: Data Mart

Note: The annual average for awards is 2017-18 to 2019-20.

Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 9,257 annual openings for the Horticulture Technician occupational cluster and 71 annual (3-year average) awards for an annual undersupply of 9,186 students. In the SC-Monterey Sub-Region, there is also a gap with 7,003 annual openings and 21 annual (3-year average) awards for an annual undersupply of 6,982 students.

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0109.00

Metric Outcomes	Bay All CTE Programs	Hartnell All CTE Programs	State 0109.00	Bay 0109.00	SC-Monterey 0109.00	Hartnell 0109.00
Students with a Job Closely Related to Their Field of Study	74%	66%	72%	72%	92%	N/A
Median Annual Earnings for SWP Exiting Students	\$47,419	\$92,128	\$33,442	\$39,879	\$32,456	N/A
Median Change in Earnings for SWP Exiting Students	23%	5%	21%	19%	23%	N/A
Exiting Students Who Attained the Living Wage	52%	73%	46%	45%	33%	N/A

Source: Launchboard Strong Workforce Program Median of 2017 to 2020.

Skills, Certifications and Education

Table 9. Top Skills for Horticulture Technician Occupations in Bay Region (Aug 2021 – July 2022)

Skill	Posting	Skill	Posting
Scheduling	101	Food Safety and Quality	31
Lifting Ability	95	Packaging	30
Cleaning	80	Data Collection	29
Quality Assurance and Control	67	Good Manufacturing Practices (GMP)	29
Forklift Operation	61	Customer Contact	28
Vaccination	54	Food Science	28
Food Safety	53	Irrigation Systems	25
Fertilizers	47	Sorting	25
Repair	46	Chemistry	24
Basic Mathematics	42	Hazard Analysis Critical Control Point (HACCP)	24
Machinery	41	Retail Industry Knowledge	23
Quality Management	36	Data Entry	22
Customer Service	34	Power Tools	22
Project Management	32	Spreadsheets	22

Source: Burning Glass

Table 10. Certifications for Horticulture Technician Occupations in Bay Region (Aug 2021 - July 2022)

Certification	Posting	Certification	Posting
Driver's License	132	ServSafe	3
Food Handler Certification	9	OSHA Forklift Certification	3
Certified Pest Control	9	Certified Commercial Applicator	3
Global Food Safety Initiative (GFSI)	8	First Aid Cpr Aed	2
Food Service Certification	7	Certified Quality Auditor (CQA)	2
Cdl Class C	6	Certified Arborist	2
Applicators License	4	Transportation Management Certificate	1

Source: Burning Glass

Note: 71% of records have been excluded because they do not include a certification. As a result, the chart above may not be representative of the full sample.

Table 11. Education Requirements for Horticulture Technician Occupations in Bay Region

Education (minimum advertised)	Latest 12 Mos. Postings	Percent 12 Mos. Postings
High school or vocational training	170	67%
Associate's degree	13	5%
Bachelor's degree and higher	72	28%

Source: Burning Glass

Note: 59% of records have been excluded because they do not include a degree level. As a result, the chart above 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/
 Statewide CTE Outcomes Survey
 Employment Development Department Unemployment Insurance Dataset
 Living Insight Center for Community Economic Development
 Chancellor's Office MIS system

Contacts

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