

**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 |
| Trinchero 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 01.0601in 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 CCCCO 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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