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Labor Market Analysis Horticulture

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Prepared by the Central Valley/Mother Lode Center of Excellence

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COVID-19 Statement: This report includes employment projection data by Emsi. Emsi’s projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

If for any reason this document is not accessible or if you have specific needs for readability, please contact us and we will do our utmost to accommodate you with a modified version. To make a request, contact Nora Seronello by phone at (209) 575-6894 or by email seronellon@mjc.edu.

Summary

Please note the COVID-19 statement on page 2 when considering this report's findings.

This study conducted by the Central Valley/Mother Lode Center of Excellence examines labor market demand, wages, skills, and postsecondary supply for horticulture. Three occupations related to horticulture were identified for Bakersfield College:

- 11-9013, Farmers, Ranchers, and Other Agricultural Managers
- 37-1012, First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers
- 45-1011, First-Line Supervisors of Farming, Fishing, and Forestry Workers

Key findings:

- **Occupational demand** — Nearly 23,710 workers were employed in jobs related to horticulture in 2020 in the South Central Valley/Southern Mother Lode (SCV/SML) subregion. The largest occupation is farmers, ranchers, and other agricultural managers with 19,040 workers in 2020, it is projected to contract by 1% over the next five years, while still having 1,913 annual openings.
- **Wages** — First-line supervisors of landscaping, lawn service, and groundskeeping workers earn the highest entry-level wage, \$14.77/hour in the subregion. Please note farmers, ranchers, and other agricultural managers earn less than the average living wage the subregion.
- **Employers** — Employers with the most job postings in the subregion are Britz Incorporated, Elite Team Offices, and Ag Sod Farms Incorporated.
- **Occupational titles** — The most common occupational title in job postings in the subregion is farm and ranch managers. The most common job title is farm manager.
- **Skills and certifications** — The top baseline skill is physical abilities, the top specialized skill is budgeting, and the top software skill is Microsoft Excel. The most in-demand certification is a driver's license.
- **Education** — A high school diploma or equivalent is typically required for the three occupations.
- **Supply** — Analysis of postsecondary completions shows that on average 15 awards were conferred in the Central Valley/Mother Lode region each year.

Based on a comparison of occupational demand and supply, there is an undersupply of 2,578 trained workers in the subregion and 3,705 workers in the region. The Center of Excellence recommends that Bakersfield College work with the regional directors, the college's advisory board, and local industry in the expansion of programs to address the shortage of horticulture workers in the region.

Introduction

The Central Valley/Mother Lode Center of Excellence was asked by Bakersfield College to provide labor market information for horticulture. The geographical focus for this report is the South Central Valley/Southern Mother Lode (SCV/SML) subregion, but regional demand and supply data has been included for broader applicability and use. The average living wage for a single adult in the SCV/SML subregion is \$13.67/hour.¹ Analysis of the program and occupational data related to horticulture resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

- 11-9013, Farmers, Ranchers, and Other Agricultural Managers
- 37-1012, First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers
- 45-1011, First-Line Supervisors of Farming, Fishing, and Forestry Workers

The occupational titles, job descriptions, sample job titles, and knowledge and skills from the Bureau of Labor Statistics and O*NET OnLine are shown below.

Farmers, Ranchers, and Other Agricultural Managers

Job Description: Plan, direct, or coordinate the management or operation of farms, ranches, greenhouses, aquacultural operations, nurseries, timber tracts, or other agricultural establishments. May hire, train, and supervise farm workers or contract for services to carry out the day-to-day activities of the managed operation. May engage in or supervise planting, cultivating, harvesting, and financial and marketing activities.

Knowledge: Administration and Management, Production and Processing, Biology, Mathematics, English Language

Skills: Critical Thinking, Speaking, Monitoring, Judgment and Decision Making, Time Management

First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers

Job Description: Directly supervise and coordinate activities of workers engaged in landscaping or groundskeeping activities. Work may involve reviewing contracts to ascertain service, machine, and workforce requirements; answering inquiries from potential customers regarding methods, material, and price ranges; and preparing estimates according to labor, material, and machine costs.

Knowledge: Customer and Personal Service, English Language, Administration and Management, Mathematics, Public Safety and Security

Skills: Monitoring, Time Management, Active Listening, Management of Personnel Resources, Coordination

First-Line Supervisors of Farming, Fishing, and Forestry Workers

Job Description: Directly supervise and coordinate the activities of agricultural, forestry, aquacultural, and related workers.

Knowledge: Administration and Management, Production and Processing, Mechanical, Education and Training, English Language

Skills: Active Listening, Judgment and Decision Making, Monitoring, Critical Thinking, Management of Personnel Resources

¹ The term "living wage" in Center of Excellence reports is calculated by averaging the self-sufficiency wages from the Insight Center's California Family Needs Calculator for each county in the subregion: <https://insightccd.org/tools-metrics/self-sufficiency-standard-tool-for-california/>.

Occupational Demand

The SCV/SML subregion employed 23,706 workers in horticulture occupations in 2020 (Exhibit 1). The largest occupation is farmers, ranchers, and other agricultural managers with 19,040 workers in 2020. This occupation is projected to contract by 1% over the next five years, while still having the largest annual openings, 1,913.

Exhibit 1. Horticulture employment and occupational projections in the SCV/SML subregion

Occupation	2020 Jobs	2025 Jobs	5-Year Change	5-Year % Change	Annual Openings
Farmers, Ranchers, and Other Agricultural Managers	19,040	18,931	(109)	(1%)	1,913
First-Line Supervisors of Farming, Fishing, and Forestry Workers	3,716	3,795	78	2%	561
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	949	986	37	4%	109
TOTAL	23,706	23,712	7	0%	2,583

Wages

Exhibit 2 shows the entry-level hourly wages of the horticulture occupations. First-line supervisors of landscaping, lawn service, and groundskeeping workers earn the highest entry-level wage, \$14.77/hour in the subregion. Entry-level wages are derived from the 25th percentile. Please note farmers, ranchers, and other agricultural managers earn less than the average living wage the subregion.

Exhibit 2. Horticulture entry-level wages in the SCV/SML subregion



Dotted line denotes \$13.67/hour living wage in the SCV/SML subregion

Job Postings

There were 68 job postings for the three occupations in the SCV/SML subregion from August 2021 to January 2022.² The employers with the most job postings are listed in Exhibit 3.

² Other than occupation titles and job titles, the categories below can be counted one or multiple times per job posting, and across several areas in a single posting. For example, a skill can be counted in two different skill types, and an employer can indicate more than one education level.

Exhibit 3. Top employers of horticulture by number of job postings

Employer	Job Postings	% Job Postings
Britz Incorporated	3	7%
Elite Team Offices	3	7%
Ag Sod Farms Incorporated	2	5%
Bear Valley Springs Condo Association	2	5%
California Public Utilities Commission	2	5%
Orkin Incorporated	2	5%
Ventura Coastal Llc	2	5%
Venturi Enterprises Incorporated	2	5%
Agreserves Incorporated	1	2%
Bcd Travel	1	2%

Exhibit 4 shows how job postings for the targeted occupations in the SCV/SML subregion are distributed across six O*NET OnLine occupations. The occupational title farm and ranch managers is listed in 28 job postings. Note how this occupational title dominates the job posting results. Common job titles in postings include Farm Manager in 12 job postings, Landscape Foreman in four job postings, and Landscape Construction Foreman and Surrounding Area in three job postings.

Exhibit 4. Top occupational titles in job postings for horticulture

Occupational Title	Job Postings	% of Job Postings
Farm and Ranch Managers	28	41%
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	23	34%
Aquacultural Managers	7	10%
Nursery and Greenhouse Managers	5	7%
First-Line Supervisors of Agricultural Crop and Horticultural Workers	4	6%
First-Line Supervisors of Animal Husbandry and Animal Care Workers	1	1%

Salaries

Exhibit 5 shows the “Market Salaries” for horticulture occupations that are calculated by Burning Glass which uses a machine learning model built off of millions of job postings every year, and accounts for adjustments based on locations, industry, skills, experience, education requirements, among other variables.

Exhibit 5. Salaries for horticulture occupations

Market Salary Percentile	Salary Amount
10th Percentile	\$29,374
25th Percentile	\$32,704
50th Percentile	\$44,528
75th Percentile	\$51,810
90th Percentile	\$66,531

Education

Of the 68 job postings, 31 listed an education level preferred for the positions being filled. Among those, 65% requested high school or vocational training, 48% requested a bachelor's degree and 6% requested an associate degree (Exhibit 6). A job posting can indicate more than one education level. Hence, the percentages shown in the chart below may total more than 100%.

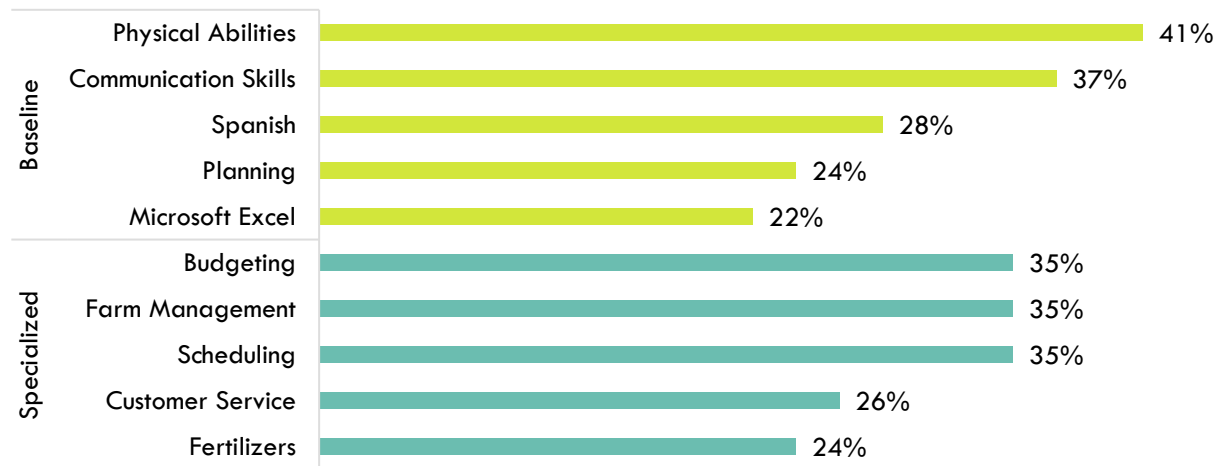
Exhibit 6. Education levels requested in job postings for horticulture

Education Level	Job Postings	% of Job Postings
High school or vocational training	20	65%
Bachelor's degree	15	48%
Associate's degree	2	6%

Baseline and Specialized Skills

Exhibit 7 depicts the top baseline and specialized skills for the targeted occupations. The three most important baseline skills are physical abilities, 41% of job postings, communication skills, 37%, and Spanish, 28%. The top three specialized skills are budgeting, 35% of job postings, farm management, 35%, and scheduling, 35%.

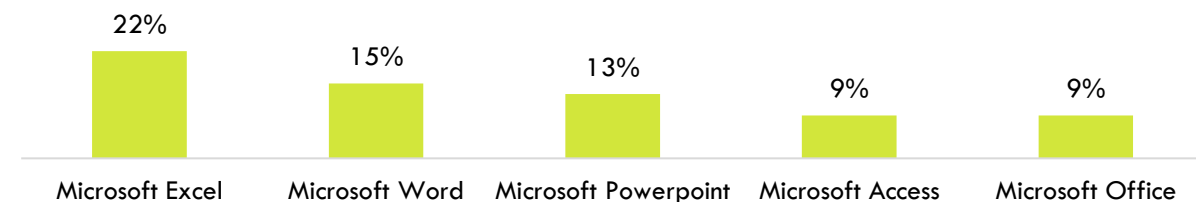
Exhibit 7. In-demand horticulture baseline and specialized skills



Software Skills

Analysis also included the software skills most in demand by employers. Microsoft Excel and Word were the top two software skills identified in job postings (Exhibit 8).

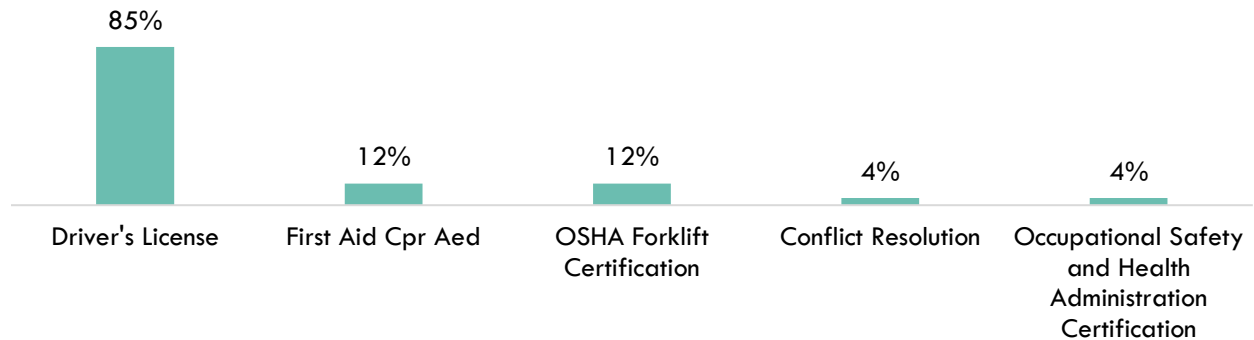
Exhibit 8. In-demand horticulture software skills



Certifications

Of the 68 job postings, 26 contained certification data. Among those, 85% indicated a need for a driver's license. The next top certifications are First Aid Cpr Aed and OSHA Forklift Certification (Exhibit 9).

Exhibit 9. Top horticulture certifications requested in job postings



Education, Work Experience & Training

A high school diploma or equivalent is typically required for the three occupations (Exhibit 10).

Exhibit 10. Education, work experience, training, and Current Population Survey results for horticulture occupations³

Occupation	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training	CPS
Farmers, Ranchers, and Other Agricultural Managers	High school diploma or equivalent	5 years or more	None	30.2%
First-Line Supervisors of Farming, Fishing, and Forestry Workers	High school diploma or equivalent	Less than 5 years	None	21.9%
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	High school diploma or equivalent	Less than 5 years	None	31.0%

³ "Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, <https://www.bls.gov/cps/>.

Supply

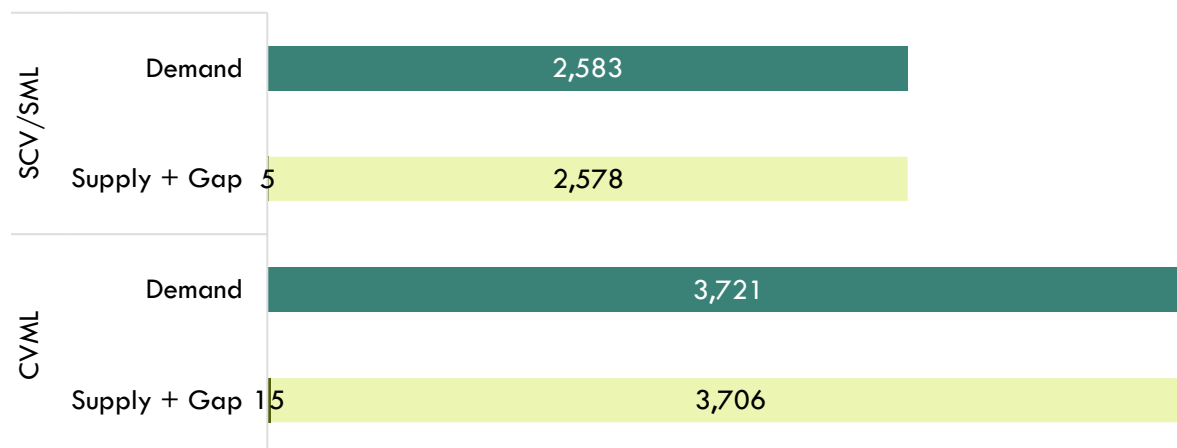
Analysis of program data from the California Community Colleges Chancellor’s Office Data Mart included the TOP code and title: 010900 - Horticulture. Analysis of the last three years of data shows that, on average, 15 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 11).

Exhibit 11. Postsecondary supply for horticulture occupations in the region

TOP/CIP Code- Title	College	Associate Degree	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Subtotal
010900 - Horticulture	Bakersfield	1			1	2
	Merced	4			0	5
	Modesto	3				3
	San Joaquin Delta	2	1			3
	Sequoias	1		2		3
TOTAL		11	1	2	1	15

There is an undersupply of 2,578 horticulture workers in the SCV/SML subregion and 3,706 workers in the region (Exhibit 12).

Exhibit 12. Horticulture workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill gap in the SCV/SML subregion and region



Student Outcomes

Exhibit 13 summarizes employment and wage outcomes from the California Community College Chancellor's Cal-PASS Plus LaunchBoard for the TOP code related to horticulture. Of note, 5,486 horticulture students received a degree or certificate or attained apprenticeship journey status; 4,190 students transferred; 72% of students obtained a job closely related to their field of study; 24% had a median change in earnings; and 63% of students attained a living wage.

Exhibit 13. Subregional metrics for the TOP code related to horticulture

Metric	Horticulture 010900
Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status	5,486
Number of Students Who Transferred	4,190
Job Closely Related to Field of Study	72%
Median Change in Earnings	24%
Attained a Living Wage	63%
* denotes data not available.	

Conclusion

The entry-level wages of two out the three occupations exceed the SCV/SML subregion's average living wage. There were 68 job postings in the past six months for occupations related to horticulture in the subregion. Analysis of skills and certification requirements in job postings indicates:

- The top baseline skill is physical abilities, and the top specialized skill is budgeting.
- The top software skill is Microsoft Excel.
- The top certification is a driver's license.

There is an undersupply of trained workers, a shortage of 2,578 in the SCV/SML subregion and 3,706 in the region.

Recommendation

Based on these findings, it is recommended that Bakersfield College work with the regional directors, the college's advisory board, and local industry in the expansion of programs to address the shortage of horticulture workers in the region.

Appendix A: Methodology & Data Sources

Data Sources

Labor market and educational supply data compiled in this report derive from a variety of sources. Data were drawn from external sources, including the Economic Modeling Specialists, Inc., the California Community Colleges Chancellor's Office Management Information Systems Data Mart and the National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Below is the summary of the data sources found in this study.

Data Type	Source
Labor Market Information/Population Estimates and Projections/Educational Attainment	Economic Modeling Specialists, Intl. (EMSI). EMSI occupational employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry: economicmodeling.com .
Typical Education Level and On-the-job Training	Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education and typical on-the-job training to each occupation for which BLS publishes projections data: https://www.bls.gov/emp/tables/educational-attainment.htm .
Labor Force, Employment and Unemployment Estimates	California Employment Development Department, Labor Market Information Division: labormarketinfo.edd.ca.gov .
Job Posting and Skills Data	Burning Glass: burning-glass.com/ .
Additional Education Requirements/ Employer Preferences	The O*NET Job Zone database includes over 900 occupations as well as information on skills, abilities, knowledge, work activities and interests associated with specific occupations: onetonline.org .

Key Terms and Concepts

Annual Job Openings: Annual openings are calculated by dividing the number of years in the projection period by total job openings.

Education Attainment Level: The highest education attainment level of workers age 25 years or older.

Employment Estimate: The total number of workers currently employed.

Employment Projections: Projections of employment are calculated by a proprietary Economic Modeling Specialists, Intl. (EMSI) formula that includes historical employment and economic indicators along with national, state and local trends.

Living Wage: The cost of living in a specific community or region for one adult and no children. The cost increases with the addition of children.

Occupation: An occupation is a grouping of job titles that have a similar set of activities or tasks that employees perform.

Percent Change: Rate of growth or decline in the occupation for the projected period; this does not factor in replacement openings.

Replacements: Estimate of job openings resulting from workers retiring or otherwise permanently leaving an occupation. Workers entering an occupation often need training. These replacement needs, added to job openings due to growth, may be used to assess the minimum number of workers who will need to be trained for an occupation.

Total Job Openings (New + Replacements): Sum of projected growth (new jobs) and replacement needs. When an occupation is expected to lose jobs, or retain the current employment level, number of openings will equal replacements.

Typical Education Requirement: represents the typical education level most workers need to enter an occupation.

Typical On-The-Job Training: indicates the typical on-the-job training needed to attain competency in the skills needed in the occupation.