

# Environmental Horticulture Occupations

## Labor Market Analysis: San Diego County

December 2019

### Summary



The brief provides labor market information about *Environmental Horticulture Occupations* to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning. *Environmental Horticulture Occupations* include “First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers,” “Floral Designers,” “Landscape Architects,” “Pesticide Handlers, Sprayers, and Applicators, Vegetation,” and “Soil and Plant Scientists.” According to available labor market information, *Environmental Horticulture Occupations* in San Diego County have a labor market demand of 316 annual job openings, and five educational institutions in San Diego County supply 195 awards for these occupations, suggesting that there is a small supply gap. These occupations’ median wages are above the living wage excluding *Floral Designers*. According to the California Community Colleges’ outcomes data, the percentage of students who completed programs related to *Environmental Horticulture Occupations* and earned a living wage is below the state average for students who complete Career Education programs in general. *Social and Plant Scientists* and *Landscape Architects* typically have an educational requirement of a bachelor’s degree, while the other three occupations require a high school diploma or equivalent. This brief recommends to proceed with caution when developing a program because the labor market demand is low—five occupations have a demand of 316 annual openings while the average labor market demand for an occupation in San Diego County is 277 annual job openings.

## Introduction

This report provides labor market information in San Diego County for the following occupational codes in the Standard Occupational Classification (SOC)<sup>1</sup> system:

- **First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers** (SOC 37-1012): 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.
- **Floral Designers** (SOC 27-1023): Design, cut, and arrange live, dried, or artificial flowers and foliage.
- **Landscape Architects** (SOC 17-1012): Plan and design land areas for projects such as parks and other recreational facilities, airports, highways, hospitals, schools, land subdivisions, and commercial, industrial, and residential sites.
- **Pesticide Handlers, Sprayers, and Applicators, Vegetation** (SOC 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.
- **Soil and Plant Scientists** (SOC 19-1013): 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.

For the purpose of this report, these occupations are referred to as *Environmental Horticulture Occupations*.

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<sup>1</sup> The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

## Projected Occupational Demand

Between 2018 and 2023, *Environmental Horticulture Occupations* are projected to increase by 55 net jobs or two percent (Exhibit 1a). Employers in San Diego County will need to hire 316 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

**Exhibit 1a: Number of Jobs for *Environmental Horticulture Occupations* (2008-2023)<sup>2</sup>**

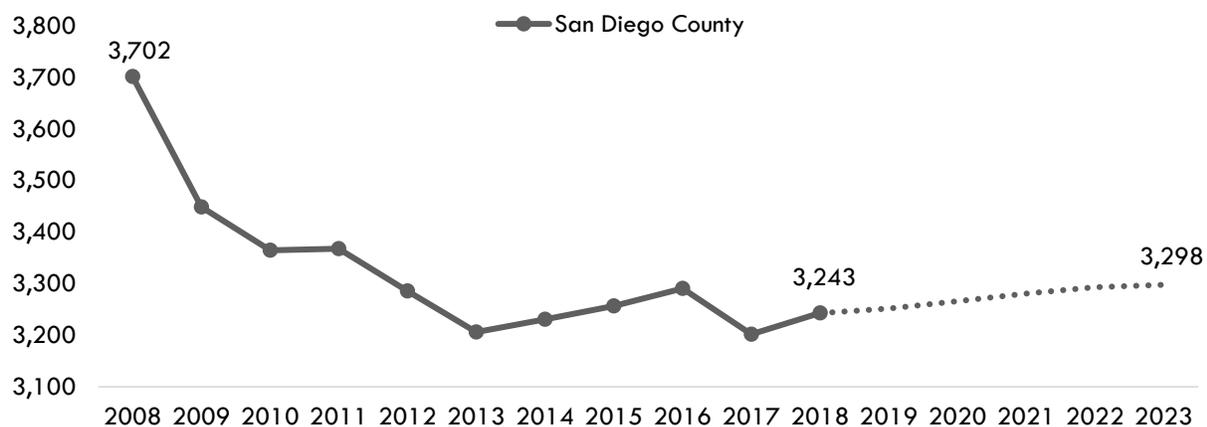


Exhibit 1b breaks down the projected number of jobs change by occupation more specifically. As Exhibit 1b shows, labor market demand for *First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers*, for example, is projected to increase by 28 total jobs between 2018 and 2023.

**Exhibit 1b: Number of Jobs for *Environmental Horticulture Occupations* in San Diego County (2018-2023)**

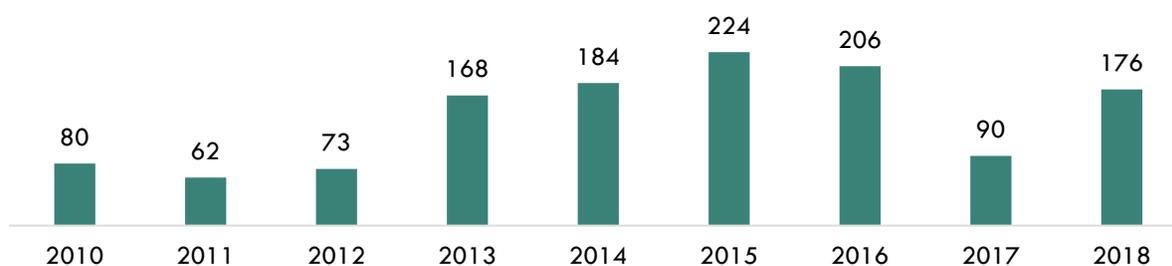
Occupational Title	2018 Jobs	2023 Jobs	2018 - 2023 Net Jobs Change	2018-2023 % Net jobs Change	Annual Openings (Demand)
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	1,732	1,760	28	2%	168
Floral Designers	716	708	(8)	(1%)	67
Soil and Plant Scientists	317	338	21	7%	37
Landscape Architects	328	342	14	4%	26
Pesticide Handlers, Sprayers, and Applicators, Vegetation	150	150	0	0%	18
<b>Total</b>	<b>3,243</b>	<b>3,298</b>	<b>55</b>	<b>2%</b>	<b>316</b>

<sup>2</sup> Emsi 2019.04; QCEW, Non-QCEW, Self-Employed.

## Online Job Postings

This report analyzes not only historical and projected data (traditional labor market information), but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market demand that are not captured by historical data. Between 2010 and 2018, there was an average of 140 online job postings per year for *Environmental Horticulture Occupations* in San Diego County (Exhibit 2).

**Exhibit 2: Number of Online Job Postings for *Environmental Horticulture Occupations* in San Diego County (2010-2018)<sup>3</sup>**



## Earnings

The median hourly earnings of *Environmental Horticulture Occupations* range from \$14.25 to \$42.01 (Exhibit 3a). On average, the median hourly earnings for *Environmental Horticulture Occupations* is \$26.63; this is more than the living wage for a single adult in San Diego County, which is \$15.99 per hour (Exhibit 3b).<sup>4</sup>

**Exhibit 3a: Hourly Earnings for *Environmental Horticulture Occupations* in San Diego County**

Occupational Title	Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 <sup>th</sup> Percentile)
Landscape Architects	\$31.40	\$42.01	\$53.76
Soil and Plant Scientists	\$27.19	\$35.17	\$45.50
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	\$16.40	\$23.91	\$33.82
Floral Designers	\$12.23	\$14.25	\$17.69
Pesticide Handlers, Sprayers, and Applicators, Vegetation	\$12.14	\$17.80	\$26.58

<sup>3</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

<sup>4</sup> "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. [insightccd.org/2018-self-sufficiency-standard](https://insightccd.org/2018-self-sufficiency-standard).

**Exhibit 3b: Hourly Earnings<sup>5</sup> for Environmental Horticulture Occupations in San Diego County<sup>6</sup>**



## Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.<sup>7</sup> There are **eight** TOP codes and **nine** CIP codes related to *Environmental Horticulture Occupations* (Exhibit 4).

**Exhibit 4: Related TOP and CIP Codes for Environmental Horticulture Occupations**

<i>Environmental Horticulture Occupations</i>
TOP 010300: Plant Science
TOP 010310: Agricultural Pest Control Adviser and Operator (Licensed)
TOP 010900: Horticulture
TOP 010910: Landscape Design and Maintenance
TOP 010920: Floriculture / Floristry
TOP 010930: Nursery Technology
TOP 010940: Turfgrass Technology
TOP 011510: Parks and Outdoor Recreation
CIP 01.0304: Crop Production

<sup>5</sup> 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

<sup>6</sup> Emsi 2019.04; QCEW, Non-QCEW, Self-Employed.

<sup>7</sup> TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart ([datamart.cccco.edu](http://datamart.cccco.edu)) and CIP data comes from the Integrated Postsecondary Education Data System ([nces.ed.gov/ipeds/use-the-data](http://nces.ed.gov/ipeds/use-the-data)).

CIP 01.0601: Applied Horticulture/Horticulture Operations, General
CIP 01.0605: Landscaping and Groundskeeping
CIP 01.0606: Plant Nursery Operations and Management
CIP 01.0607: Turf and Turfgrass Management
CIP 01.0608: Floriculture / Floristry Operations and Management
CIP 01.1105: Plant Protection and Integrated Pest Management
CIP 31.0301: Parks, Recreation and Leisure Facilities Management, General
CIP 31.0302: Golf Course Operation and Grounds Management

According to TOP data, **four** community colleges supply the region with awards for this occupation: **Cuyamaca College, MiraCosta College, San Diego City College, and Southwestern College**. According to CIP data, **one** non-community college supplies the region with awards: **Golf Academy of America-San Diego** (Exhibit 5).

**Exhibit 5: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2013-14 through PY2016-17 Average)**

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY14-15 to PY16-17)	Other Educational Institutions 3-Yr Annual Average Awards (PY13-14 to PY15-16)	3-Yr Total Average Supply (PY13-14 to PY16-17)
010300	Plant Science	<b>13</b>	<b>0</b>	<b>13</b>
	• San Diego City	13	0	
010900	Horticulture	<b>6</b>	<b>0</b>	<b>6</b>
	• Cuyamaca	6	0	
010910	Landscape Design and Maintenance	<b>33</b>	<b>0</b>	<b>33</b>
	• Cuyamaca	21	0	
	• MiraCosta	8	0	
	• Southwestern	4	0	
010920	Floriculture /Floristry	<b>3</b>	<b>0</b>	<b>3</b>
	• Cuyamaca	2	0	
	• Southwestern	1	0	
010930	Nursery Technology	<b>19</b>	<b>0</b>	<b>19</b>

	• Cuyamaca	6	0	
	• MiraCosta	13	0	
010940	Turfgrass Technology	4	0	4
	• Cuyamaca	3	0	
	• Southwestern	1	0	
31.0302	Golf Course Operation and Grounds Management	0	117	117
	• Golf Academy of America-San Diego	0	117	
			Total	195

## Demand vs. Supply

Comparing labor demand (annual openings) with labor supply<sup>8</sup> suggests that there is a **supply gap** for these occupations in San Diego County, with **317** annual openings and **195** awards. Comparatively, there are **3,406** annual openings in California and **770** awards, demonstrating that there is a potential supply gap across the state<sup>9</sup> (Exhibit 6).

### Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

Community Colleges and Other Postsecondary Educational Institutions	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or <b>OverSupply</b>
San Diego	317	195	<b>122</b>
California	3,406	770	<b>2,636</b>

**Please note:** This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed.

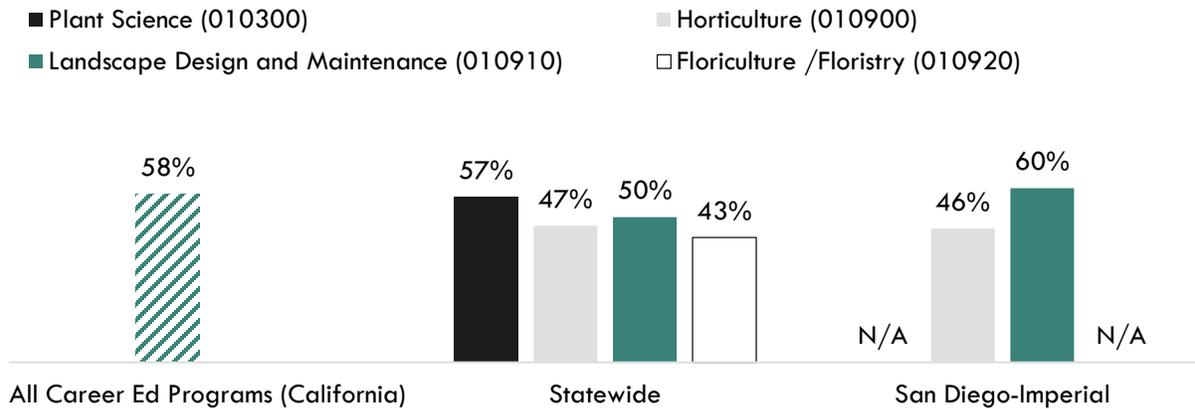
<sup>8</sup> Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

<sup>9</sup> "Supply and Demand," Centers of Excellence Student Outcomes, [coecc.net/Supply-and-Demand.aspx](http://coecc.net/Supply-and-Demand.aspx).

## Student Outcomes and Regional Comparisons

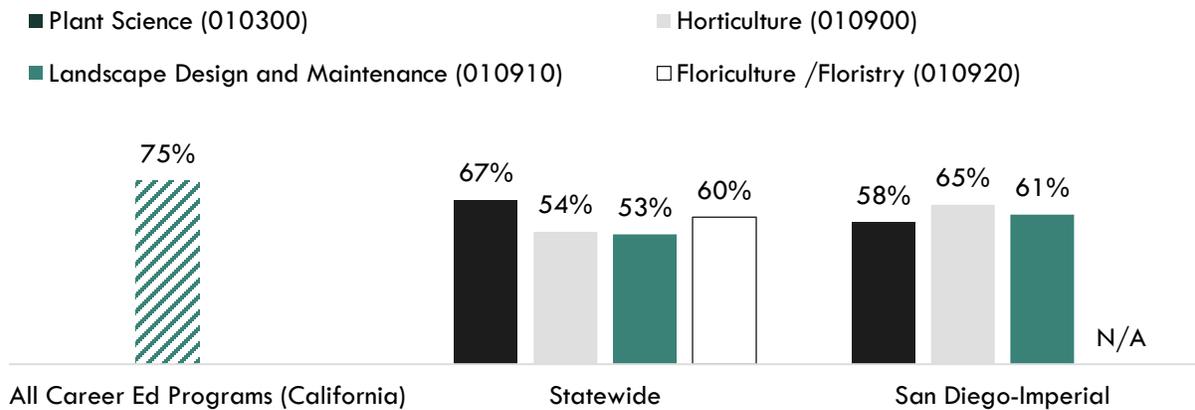
According to the California Community Colleges LaunchBoard, between 43 and 57 percent of students earned a living wage after completing programs related to *Environmental Horticulture Occupations*, compared to 58 percent of students who earned a living wage in Career Education programs across the state (Exhibit 7a).

**Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16<sup>10</sup>**



According to the California Community Colleges LaunchBoard, 58 to 65 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a related program, compared to 53 to 67 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

**Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15<sup>11</sup>**



<sup>10</sup> Among completers and skills builders who exited, the proportion of students who attained a living wage.

<sup>11</sup> Most recent year with available data is Program Year 2014-15. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

## Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for these occupations were [Albertsons](#), [Asla San Diego](#), [Michaels Arts and Crafts](#), [Brightview](#), and [The Brickman Group](#) (Exhibit 8).

**Exhibit 8: Top Employers in San Diego County for *Environmental Horticulture Occupations*<sup>12</sup>**

Top Employers	
<ul style="list-style-type: none"> <li>• Albertsons</li> <li>• Asla San Diego</li> <li>• Michaels Arts and Crafts</li> <li>• Brightview</li> <li>• The Brickman Group, Ltd</li> </ul>	<ul style="list-style-type: none"> <li>• San Diego Zoo</li> <li>• Best Buy</li> <li>• Jewel Osco</li> <li>• BASF Corporation</li> <li>• Kimley-Horn and Associates</li> </ul>

## Skills, Education, and Certifications

*Environmental Horticulture Occupations* have a national educational requirement ranging from [high school diploma or equivalent](#) to a [bachelor's degree](#) (Exhibit 9a).

**Exhibit 9a: National Educational Attainment for *Environmental Horticulture Occupations*<sup>13</sup>**

Occupational Title	Typical Entry-Level Education
Landscape Architects	Bachelor's degree
Soil and Plant Scientists	Bachelor's degree
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	High school diploma or equivalent
Floral Designers	High school diploma or equivalent
Pesticide Handlers, Sprayers, and Applicators, Vegetation	High school diploma or equivalent

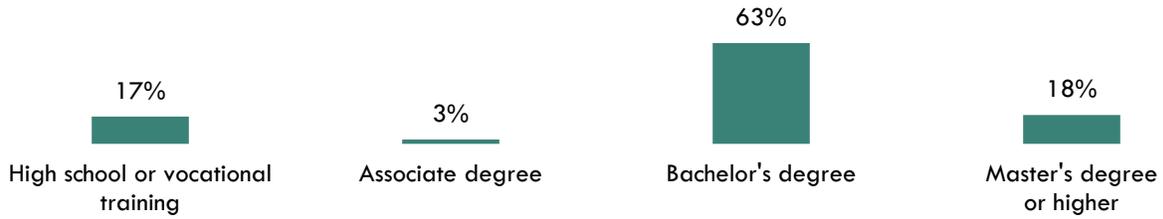
Based on online job postings between January 1, 2016 and December 31, 2018 in San Diego County, the top listed educational requirement for *Environmental Horticulture Occupations* is a [bachelor's degree](#) (Exhibit 9b).<sup>14</sup>

<sup>12</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

<sup>13</sup> Emsi 2019.04; QCEW, Non-QCEW, Self-Employed.

<sup>14</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

**Exhibit 9b: Educational Requirements for Environmental Horticulture Occupations in San Diego County<sup>15</sup>**



\*May not add to 100% due to rounding.

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

**Exhibit 10: Top Skills for Environmental Horticulture Occupations in San Diego County<sup>16</sup>**

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> <li>• Landscape Architecture</li> <li>• Floral Design</li> <li>• Customer Service</li> <li>• Sales</li> <li>• Customer Contact</li> </ul>	<ul style="list-style-type: none"> <li>• Communication Skills</li> <li>• Creativity</li> <li>• Physical Abilities</li> <li>• Teamwork / Collaboration</li> <li>• Planning</li> </ul>	<ul style="list-style-type: none"> <li>• SketchUp</li> <li>• AutoCAD</li> <li>• Adobe Photoshop</li> <li>• Adobe InDesign</li> <li>• Microsoft Excel</li> </ul>

Prepared by:

Tina Ngo Bartel, Director

John Edwards, Research Analyst

San Diego-Imperial Center of Excellence for Labor Market Research

[tngobartel@miracosta.edu](mailto:tngobartel@miracosta.edu)

[jedwards@miracosta.edu](mailto:jedwards@miracosta.edu)



<sup>15</sup> "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. [bls.gov/emp/tables/educational-attainment.htm](https://bls.gov/emp/tables/educational-attainment.htm).

<sup>16</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

**Important Disclaimers**

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.