

Agriculture Occupational Group

Geographic areas includes all zip codes within a 25-mile radius from College of the Desert, Riverside County, and California

Summary

- Overall employment for agriculture occupational group is expected to decrease by 1% through 2021, however, nearly 1,400 job openings will be available over the five-year time frame due to replacement opportunities (e.g. retirements, occupational transfers, etc.).
- The median hourly wage and annual average earnings for each of the occupations in the agriculture occupational cluster exceed the Self-Sufficiency Wage of \$12.00 (\$25,337 annually) for Riverside County for a single adult living in the region.
- Based on the average annual number of program completions between the selected TOP codes (35), and the annual openings for agriculture occupations in the local region (273), there appears to be an opportunity for program growth.
- Despite low completions, there appears to be a large number of students taking courses in the selected TOP codes at College of the Desert and Victor Valley College.

Job Opportunities

In 2016, there were more than 105,350 agriculture occupational group jobs in California. About 3% or nearly 2,700 of these job opportunities were found in a local 25-mile radius of College of the Desert (the complete list of ZIP codes within a 25-mile radius of College of the Desert is found in Appendix A). Surrounding College of the Desert, employment related to the agriculture occupational group is expected to decrease 1% through 2021, the same as the state overall during the same timeframe. Despite the decrease, employers in the local region will need to hire nearly 1,400 workers over the next five years to fill new jobs and to backfill jobs that workers are leaving (includes retirements). Appendix A, Table 1 shows the projected job growth for each of the occupations in this group.

Exhibit 1: Five-year projections for the agriculture occupational group in the local region and California

Region	2016 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
25-mile radius of College of the Desert	2,683	(1%)	1,363	273
California	105,352	(1%)	52,755	10,551

Source: EMSI 2017.3

Over the last 12 months (October 2016 to September 2017), there were 97 advertisements (ads) for jobs in the agriculture occupational group in the Riverside-San Bernardino-Ontario MSA during the last 12 months. In the full-year 2016 there were 140 job ads; 160 job ads in 2015; 205 job ads in 2014; and 147 job ads in 2013. Exhibit 2 shows the number of job ads posted during the last 12 months for each of the occupations in the agriculture occupational group.



Exhibit 2: Job ads for each of the agriculture occupational group in Riverside County during the last 12 months (Oct 2016 – Sep 2017)

Occupation	Job Ads
Pest Control Workers	49
Agricultural and Food Science Technicians	14
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	8
Farmers, Ranchers, and Other Agricultural Managers	8
Pesticide Handlers, Sprayers, and Applicators, Vegetation	6
First-Line Supervisors of Farming, Fishing, and Forestry Workers	5
Floral Designers	3
Tree Trimmers and Pruners	3
Agricultural Inspectors	1
TOTAL	97

Source: Burning Glass – Labor Insights

Earnings

The median wage and the annual average earnings for each occupation in the agriculture occupational group is above the Self-Sufficiency Hourly Wage of \$12.00 (\$25,337 annually) for Riverside County for a single adult living in this region. See Exhibit 3 for wage information by occupation for the local region.

Exhibit 3: Earnings for the agriculture occupational group in the local region and California

Occupation	Entry to Experienced Hourly Earnings Range*		Avg. Annual Earnings	
	Local Region	Local Region Median Wage	Local Region	California
Pesticide Handlers, Sprayers, and Applicators, Vegetation	\$13.91 to \$27.49	\$17.59	\$39,900	\$40,300
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	\$13.23 to \$30.80	\$17.16	\$42,000	\$42,200
First-Line Supervisors of Farming, Fishing, and Forestry Workers	\$12.45 to \$39.57	\$21.47	\$50,400	\$50,000
Agricultural Inspectors	\$11.66 to \$26.33	\$16.44	\$37,600	\$37,400
Agricultural and Food Science Technicians	\$10.73 to \$30.51	\$14.89	\$39,700	\$39,200
Tree Trimmers and Pruners	\$10.23 to \$18.37	\$16.05	\$32,100	\$32,900
Farmers, Ranchers, and Other Agricultural Managers	\$10.18 to \$35.75	\$14.05	\$41,500	\$41,000
Pest Control Workers	\$10.17 to \$21.20	\$13.22	\$29,600	\$29,300
Floral Designers	\$9.87 to \$18.91	\$14.71	\$30,200	\$30,000

Source: EMSI 2017.3

*Entry Hourly is 10th percentile wage, median is 50th percentile wage, experienced is 90th percentile wage.

Work Locations, Skills, and Education

According to job ads, the top worksite regional cities for jobs in this occupational group were Riverside, Palm Springs, and Temecula. Exhibit 4 lists the top specialized, soft, and software and programming skills that employers are seeking when looking for workers to fill agriculture positions. “N/A” indicates that there were not enough job postings for that occupation.

Exhibit 4: Top skills in greatest demand for the agriculture occupational group in Riverside County, Oct 2016-Sep 2017

Occupation	Specialized skills	Soft skills	Software and Programming skills
Pest Control Workers	<ul style="list-style-type: none"> • Customer Contact • Labeling • Memoranda Preparation • Customer Service 	<ul style="list-style-type: none"> • Problem Solving • Leadership • Communication Skills 	<ul style="list-style-type: none"> • N/A
Agricultural and Food Science Technicians	<ul style="list-style-type: none"> • Food Industry Background • Scheduling • Good Manufacturing Practices • Supervisory Skills 	<ul style="list-style-type: none"> • Quality Assurance and Control • Planning • Organizational Skills 	<ul style="list-style-type: none"> • Microsoft Word • Microsoft Office • Microsoft Excel
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	<ul style="list-style-type: none"> • Budgeting • Irrigation • Supervisory Skills • Repair 	<ul style="list-style-type: none"> • Problem Solving • Physical Demand • Communication Skills (English & Spanish) 	<ul style="list-style-type: none"> • Microsoft Office • Microsoft Excel
Farmers, Ranchers, and Other Agricultural Managers	<ul style="list-style-type: none"> • Microsoft Excel • Disease Control • Farm Management • Government Regulations 	<ul style="list-style-type: none"> • Communication Skills • Writing • Planning • Mathematics 	<ul style="list-style-type: none"> • Microsoft Excel • Microsoft Office

Occupation	Specialized skills	Soft skills	Software and Programming skills
First-Line Supervisors of Farming, Fishing, and Forestry Workers	<ul style="list-style-type: none"> Supervisory Skills Microsoft Excel Scheduling 	<ul style="list-style-type: none"> Communication Skills Writing Leadership 	<ul style="list-style-type: none"> Microsoft Excel
Pesticide Handlers, Sprayers, and Applicators, Vegetation	<ul style="list-style-type: none"> Customer Contact Lawn Care Local Government Inspection 	<ul style="list-style-type: none"> Physical Demand Time Management Writing 	<ul style="list-style-type: none"> N/A
Floral Designers	<ul style="list-style-type: none"> Floral Design Cost Estimation Description and Demonstration or Products 	<ul style="list-style-type: none"> Work Area Maintenance Problem Solving Detail-Oriented 	<ul style="list-style-type: none"> Word Processing
Tree Trimmers and Pruners	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A
Agricultural Inspectors	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A

Source: Burning Glass – Labor Insights

Exhibit 5 displays the entry-level education level education typically required to enter each occupation according to the Bureau of Labor Statistics, educational attainment for incumbent workers with “some college, no degree” and an “associate degree” according to the U.S. Census, and the Agriculture Occupations in zip codes within 25-mile radius of College of the Desert, October 2017

minimum advertised education requirement requested by employers in online job ads. “N/A” indicates that there were not enough job postings for that occupation.

Exhibit 5: Educational attainment and online job ads with minimum advertised education requirements for the agriculture occupational group in Riverside County, Oct 2016-Sep 2017

Occupations	Typical Entry-Level Education Requirement	Educational Attainment (Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework)	Minimum Advertised Education Requirement from Job Ads		
			High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Pest Control Workers	HS diploma or equivalent	38%	100%	-	-
Agricultural and Food Science Technicians	Associate degree	43%	-	-	100%
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	HS diploma or equivalent	34%	50%	-	50%
Farmers, Ranchers, and Other Agricultural Managers	HS diploma or equivalent	30%	-	-	100%
First-Line Supervisors of Farming, Fishing, and Forestry Workers	HS diploma or equivalent	22%	-	50%	50%
Pesticide Handlers, Sprayers, and Applicators, Vegetation	HS diploma or equivalent	20%	100%	-	-
Floral Designers	HS diploma or equivalent	30%	100%	-	-
Tree Trimmers and Pruners	HS diploma or equivalent	20%	N/A	N/A	N/A

Occupations	Typical Entry-Level Education Requirement	Educational Attainment (Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework)	Minimum Advertised Education Requirement from Job Ads		
			High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Agricultural Inspectors	Bachelor's degree	34%	N/A	N/A	N/A

Source: EMSI 2017.3, Current Population Survey, Burning Glass – Labor Insights

Industry

Exhibit 6 displays the industries that employ the most agriculture occupations in the local region.

Staffing patterns show the industries employ the most of a specific occupation. “N/A” indicates that there were not enough job postings for that occupation.

Exhibit 6: Top Industries employing each agriculture occupational group in the local region

Occupation	Top Industries Staffing Pattern (NAICS)	Top Industries from Job Ads (NAICS)
Pest Control Workers	<ul style="list-style-type: none"> Services to Buildings and Dwellings (5617) 	<ul style="list-style-type: none"> Services to Buildings and Dwellings (5617)
Agricultural and Food Science Technicians	<ul style="list-style-type: none"> Education and Hospitals (State Government) (9026) Crop Production (1110) 	<ul style="list-style-type: none"> Colleges, Universities, and Professional Schools (6113)
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	<ul style="list-style-type: none"> Services to Buildings and Dwellings (5617) 	<ul style="list-style-type: none"> Services to Buildings and Dwellings (5617)
Farmers, Ranchers, and Other Agricultural Managers	<ul style="list-style-type: none"> Crop Production (1110) 	<ul style="list-style-type: none"> Scientific Research and Development Services (5417) Grocery Stores (4451)

Occupation	Top Industries Staffing Pattern (NAICS)	Top Industries from Job Ads (NAICS)
First-Line Supervisors of Farming, Fishing, and Forestry Workers	<ul style="list-style-type: none"> • Crop Production (1110) • Support Activities for Crop Production (1151) 	<ul style="list-style-type: none"> • N/A
Pesticide Handlers, Sprayers, and Applicators, Vegetation	<ul style="list-style-type: none"> • Services to Buildings and Dwellings (5617) • Support Activities for Crop Production (1151) 	<ul style="list-style-type: none"> • Services to Buildings and Dwellings (5617)
Floral Designers	<ul style="list-style-type: none"> • Florists (4531) • Grocery Stores (4451) 	<ul style="list-style-type: none"> • Death Care Services (8122)
Tree Trimmers and Pruners	<ul style="list-style-type: none"> • Services to Buildings and Dwellings (5617) 	<ul style="list-style-type: none"> • Services to Buildings and Dwellings (5617)
Agricultural Inspectors	<ul style="list-style-type: none"> • Federal Government, Civilian (9011) • Support Activities for Crop Production (1151) 	<ul style="list-style-type: none"> • N/A

Source: EMSI 2017.3, Burning Glass – Labor Insights

Student Completions

Exhibits 7-10 show the annual average regional community college awards (associate degrees and certificates) conferred during the three academic years between 2013 and 2016 with the relevant TOP code. Please note, an award is not equivalent to a single person in search of a job opening since a student may earn more than one award, such as an associate degree in addition to a certificate.

Community College student outcome information was obtained from the CTE LaunchBoard based on the selected TOP code(s) and region:

Exhibit 7: Annual average community college student completions for the agriculture technology and sciences, general program in the Riverside-San Bernardino-Ontario MSA

0101.00 – Agriculture Technology and Sciences, General	Annual Avg. CC Headcount (2015-16)	CC Annual Avg. Awards (2013-16)
Palo Verde	15	
Victor Valley	68	
Total CC Headcount (2015-16)	83	
Total annual average community college awards		0
Total annual average other awards		

Source: LaunchBoard, IPEDS

*No outcome data available for this TOP code because there were are no completions.

Exhibit 8: Annual average community college student completions for the plant science program in the Riverside-San Bernardino-Ontario MSA

0103.00 – Plant Science	Annual Avg. CC Headcount (2015-16)	CC Annual Avg. Awards (2013-16)
Desert	489	
Victor Valley	60	
Total CC Headcount (2015-16)	549	
Total annual average community college awards		0
Total annual average other awards		

Source: LaunchBoard, IPEDS

0103.00 – Plant Science program outcomes in the Riverside-San Bernardino-Ontario MSA in academic year 2014-15:

*No outcome data available for this TOP code because there were are no completions.

Exhibit 9: Annual average community college student completions for the horticulture program in the Riverside-San Bernardino-Ontario MSA

0109.00 – Horticulture	Annual Avg. CC Headcount (2015-16)	CC Annual Avg. Awards (2013-16)
Desert	160	
Associate Degree		3
Certificate 30 to < 60 semester units		2
Certificate 18 to < 30 semester units		19
Victor Valley	109	
Associate Degree		8
Mt. San Jacinto	21	
Total CC Headcount (2015-16)	290	
Total annual average community college awards		33
Total annual average other awards		

Source: LaunchBoard, IPEDS

0109.00 – Horticulture program outcomes in the Riverside-San Bernardino-Ontario MSA in academic year 2014-15:

- The median annual wage after program completion is \$21,121.
- 48% of students are earning a living wage.
- Median change in earnings was 34%
- 65% of students are employed within six months after completing a program

Exhibit 10: Annual average community college student completions for the natural resources program in the Riverside-San Bernardino-Ontario MSA

0115.00 – Natural Resources	Annual Avg. CC Headcount (2015-16)	CC Annual Avg. Awards (2013-16)
Desert	639	
Associate Degree		2
Copper Mountain	70	
Victor Valley	162	
Total CC Headcount (2015-16)	871	
Total annual average community college awards		2
Total annual average other awards		

Source: LaunchBoard, IPEDS

0115.00 – Natural Resources program outcomes in the Riverside-San Bernardino-Ontario MSA in academic year 2014-15:

- The median annual wage after program completion is \$12,597.

Agriculture Occupations in zip codes within 25-mile radius of College of the Desert, October 2017



- 29% of students are earning a living wage.
- Median change in earnings decreased 10% six months after program completion
- 32% of students are employed within six months after completing a program

Sources

O*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

Employment Development Department, Labor Market Information Division, OES

Employment Development Department, Unemployment Insurance Dataset

CTE LaunchBoard

Statewide CTE Outcomes Survey

Living Insight Center for Community Economic Development

California Community Colleges Chancellor's Office Management Information Systems (MIS)

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Appendix A:

ZIP codes within 25 miles of College of the Desert-Palm Desert Campus: 92004,

92086, 92201, 92202, 92203, 92210, 92211, 92220, 92230,92234, 92235, 92236, 92240,92241,92252, 92253,92254,92255,92256, 92258, 92260,92261, 92263,92264,92270,92274,92276,92277,92282,92284, 92502,92513,92514,92516,92517,92519,92521,92522,92531,92536,92539,92544,92546,92549,92552, 92556, 92561, 92564,92572,92581,92589,92593,92599, 92877,92878,92004,92086,92201,92202, 92203, 92210, 92211, 92220,92230,92234, 92235,92236,92240,92241, 92252,92253,92254,92255, 92256, 92258, 92260, 92261,92262, 92263, 92264, 92270,92274, 92276, 92277, 92282, 92284, 92502,92513, 92514, 92516, 92517, 92519, 92521, 92522, 92531, 92536,92539, 92544, 92546, 92549, 92552, 92556, 92561, 92564, 92572, 92581,92589, 92593 92599, 92877, 92878,92004,92086, 92201,92202, 92203, 92210,92211, 92220,92230, 92234, 92235, 92236, 92240, 92241,92252, 92253, 92254,92255, 92256,92258, 92260, 92261, 92262, 92263, 92264, 92270,92274, 92276, 92277, 92282, 92284, 92502, 92513, 92514, 92516, 92517, 92519, 92521, 92522, 92531, 92536,92539, 92544, 92546, 92549, 92552, 92556, 92561, 92564, 92572, 92581, 92589, 92593, 92599, 92877, 92878.

Occupation Definitions (SOC code), Education and Training Requirement, Community College Education Attainment

Farmers, Ranchers, and Other Agricultural Managers (11-9013)

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.

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: None

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 30%



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 degree

Training Requirement: One to twelve months on-the-job training

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 43%

Floral Designers (27-1023)

Design, cut, and arrange live, dried, or artificial flowers and foliage.

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: One to twelve months on-the-job training

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 30%

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

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: None

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 34%



Pest Control Workers (37-2021)

Apply or release chemical solutions or toxic gases and set traps to kill or remove pests and vermin that infest buildings and surrounding areas.

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: One to twelve months on-the-job training

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 38%

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.

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: One to twelve months on-the-job training

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 20%

Tree Trimmers and Pruners (37-3013)

Using sophisticated climbing and rigging techniques, cut away dead or excess branches from trees or shrubs to maintain right-of-way for roads, sidewalks, or utilities, or to improve appearance, health, and value of tree. Prune or treat trees or shrubs using handsaws, hand pruners, clippers, and power pruners. Works off the ground in the tree canopy and may use truck-mounted lifts.

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: Less than one month on-the-job training

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 20%

First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)

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

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: None

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 22%

Agricultural Inspectors (45-2011)

Inspect agricultural commodities, processing equipment, and facilities, and fish and logging operations, to ensure compliance with regulations and laws governing health, quality, and safety.

Entry-Level Educational Requirement: Bachelor’s degree

Training Requirement: One to twelve months on-the-job training

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 34%

Table 1. 2016 to 2021 job growth for the agriculture occupational group, all zip codes within 25-mile radius of College of the Desert

Occupation (SOC)	2016 Jobs	2021 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Farmers, Ranchers, and Other Agricultural Managers (11-9013)	730	655	(75)	(10%)	278	56
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers (37-1012)	691	709	18	3%	307	61
Tree Trimmers and Pruners (37-3013)	430	448	18	4%	277	55

Occupation (SOC)	2016 Jobs	2021 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Pest Control Workers (37-2021)	361	377	16	4%	238	48
First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)	167	158	(9)	(5%)	95	19
Pesticide Handlers, Sprayers, and Applicators, Vegetation (37-3012)	134	140	6	4%	86	17
Floral Designers (27-1023)	96	91	(5)	(5%)	45	9
Agricultural and Food Science Technicians (19-4011)	38	38	0	0%	20	4
Agricultural Inspectors (45-2011)	36	36	0	0%	17	3
Total	2,683	2,651	(32)	(1%)	1,363	273

Source: EMSI 2017.3