Industrial Technology: Heavy Equipment, Agricultural and Industrial
(Agricultural Power Equipment Technology TOP 0611.00)

March 2022

Prepared by the South Central Coast Center of Excellence for Labor Market Research

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Program Recommendation

This report was compiled by the South Central Coast[1] Center of Excellence to provide regional labor market data for the program recommendation – Agricultural Power Equipment Technology. This report can help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Key Findings

- In the South Central Coast region, the number of jobs related to Agricultural Power Equipment Technology are expected to **increase** for all five related occupations.
- Agricultural Power Equipment Technology is anticipated to experience a **high risk of automation** for all five related occupations.
- In 2020 there were 34 regional completions in programs related to the occupations identified as aligned with Agricultural Power Equipment Technology and 707 openings, indicating an **undersupply**.
- Typical entry-level education is an **no formal credential** for Agricultural Equipment and a **high school diploma or equivalent** for the other four related occupations.
- Completers of statewide Agricultural Power Equipment Technology programs from the 2018-2019 academic year had a **median annual wage upon completion of $33,924.**
- 54% of students are **employed within a year** after completing a program. (statewide)
- 68% of students **attained a living wage** within a year of completion. (statewide)
- Completers experienced an average of +81% **change in earnings after exiting**. (statewide)
- 41% of students were **first-generation**, 6% **skill-builders**, and 78% **economically disadvantaged**. (statewide)

[1] The South Central Coast Region consists of San Luis Obispo County, Santa Barbara County, Ventura County, and the following cities from North Los Angeles County: Canyon Country, Castaic, Lake Hughes, Lancaster, Littlerock, Llano, Newhall, Palmdale, Pearblossom, Santa Clarita, Stevenson Ranch, and Valencia.

Occupation Codes and Descriptions

There are five occupations in the standard occupational classification (SOC) system that were identified as related to Agricultural Power Equipment Technology for this analysis. The occupation titles and descriptions, as well as reported job titles are included in Exhibit 1.

Exhibit 1 – Occupation, description, and sample job titles

SOC Code	Title	Description	Sample of Reported Job Titles
45-2091	**Agricultural Equipment Operators**	Drive and control equipment to support agricultural activities such as tilling soil; planting, cultivating, and harvesting crops; feeding and herding livestock; or removing animal waste. May perform tasks such as crop baling or hay bucking. May operate stationary equipment to perform post-harvest tasks such as husking, shelling, threshing, and ginning.	Baler Operator, Cutter Operator, Equipment Operator, Farm Equipment Operator, Hay Baler, Loader Operator, Packing Tractor Machine Operator, Rake Operator, Sprayer, Windrower Operator
49-3041	**Farm Equipment Mechanics and Service Technicians**	Diagnose, adjust, repair, or overhaul farm machinery and vehicles, such as tractors, harvesters, dairy equipment, and irrigation systems.	Agricultural Mechanic, Agricultural Technician, Agriculture Mechanic, Farm Equipment Mechanic, Farm Equipment Service Technician, Field Technician, Mechanic, Service Technician, Tractor Mechanic, Tractor Technician
49-3042	**Mobile Heavy Equipment Mechanics, Except Engines**	Diagnose, adjust, repair, or overhaul mobile mechanical, hydraulic, and pneumatic equipment, such as cranes, bulldozers, graders, and conveyors, used in construction, logging, and mining.	Construction Equipment Mechanic, Equipment Mechanic, Equipment Technician, Field Mechanic, Field Service Technician, Field Technician, Heavy Equipment Mechanic, Heavy Equipment Technician, Mechanic, Mobile Heavy Equipment Mechanic
49-9041	**Industrial Machinery Mechanics**	Repair, install, adjust, or maintain industrial production and processing machinery or refinery and pipeline distribution systems. May also install, dismantle, or move machinery and heavy equipment according to plans.	Industrial Machinery Mechanic, Industrial Mechanic, Loom Fixer, Loom Technician, Machine Adjuster, Machine Mechanic, Maintenance Technician, Mechanic, Overhauler, Sewing Machine Mechanic
49-9043	**Maintenance Workers, Machinery**	Lubricate machinery, change parts, or perform other routine machinery maintenance.	Lubricator, Machine Repairer, Maintainer, Maintenance Man, Maintenance Technician, Maintenance Worker, Oiler, Overhauler

Source: O*NET Online

Current and Future Employment

In the South Central Coast region, the number of jobs related to Agricultural Power Equipment Technology are expected to increase for all five occupations.

Exhibit 2 – Five-year projections for Agricultural Power Equipment Technology in the South Central Coast region

SOC	Occupation	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change
45-2091	**Agricultural Equipment Operators**	2,311	2,583	272	12%
49-3041	**Farm Equipment Mechanics and Service Technicians**	204	220	16	8%
49-3042	**Mobile Heavy Equipment Mechanics, Except Engines**	1,022	1,071	49	5%
49-9041	**Industrial Machinery Mechanics**	1,200	1,356	156	13%
49-9043	**Maintenance Workers, Machinery**	266	280	14	5%

Source: Economic Modeling Specialists International (EMSI)

Earnings

In the South Central Coast region, the average wage for the listed occupations is $20.55 per hour.

Exhibit 3 contains hourly wages and annual average earnings for these occupations. Entry-level hourly earnings are represented by the 25th percentile of wages, median hourly earnings are represented by the 50th percentile of wages, and experienced hourly earnings are represented by the 75th percentile of wages, demonstrating various levels of employment.

Exhibit 3 – Earnings for Agricultural Power Equipment Technology in the South Central Coast region

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
45-2091	**Agricultural Equipment Operators**	$12.37	$14.36	$17.61
49-3041	**Farm Equipment Mechanics and Service Technicians**	$16.35	$21.15	$26.60
49-3042	**Mobile Heavy Equipment Mechanics, Except Engines**	$25.45	$30.63	$36.85
49-9041	**Industrial Machinery Mechanics**	$23.06	$30.45	$40.48
49-9043	**Maintenance Workers, Machinery**	$22.15	$28.00	$33.60

Source: Economic Modeling Specialists International (EMSI)

Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the field of study. Employer job postings are consulted to understand who is looking within the field, and what they are looking for in potential candidates. To identify job postings related to Agricultural Power Equipment Technology the following standard occupational classifications were used:

45-2091	Agricultural Equipment Operators
49-3041	Farm Equipment Mechanics and Service Technicians
49-3042	Mobile Heavy Equipment Mechanics, Except Engines
49-9041	Industrial Machinery Mechanics
49-9043	Maintenance Workers, Machinery

Top Occupations

In 2021, there were 387 employer postings for the occupations related to Agricultural Power Equipment Technology.

Exhibit 4 – Top occupations in job postings and risk of automation tables

SOC Code	Occupation	Job Postings, Full Year 2021
49-9041	**Industrial Machinery Mechanics**	274
49-3042	**Mobile Heavy Equipment Mechanics, Except Engines**	65
49-9043	**Maintenance Workers, Machinery**	33
49-3041	**Farm Equipment Mechanics and Service Technicians**	8
45-2091	**Agricultural Equipment Operators**	7

Source: Labor Insight/Jobs (Burning Glass)

SOC Code	Occupation	Risk of Automation
49-9041	**Industrial Machinery Mechanics**	High
49-3042	**Mobile Heavy Equipment Mechanics, Except Engines**	High
49-9043	**Maintenance Workers, Machinery**	High
49-3041	**Farm Equipment Mechanics and Service Technicians**	High
45-2091	**Agricultural Equipment Operators**	High

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The top job titles for employers posting ads for jobs related to Agricultural Power Equipment Technology are listed in Exhibit 5. Mechanic is mentioned as the job title in 11% of all relevant job postings (43 postings).

Exhibit 5 –Job Titles

Title	Job Postings, Full Year 2021
Mechanic	43
Maintenance Mechanic	36
Machine Repair Technician	14
Heavy Equipment Mechanic	12
Industrial Maintenance Mechanic	10

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 6 lists the major employers hiring professionals in the Agricultural Power Equipment Technology field. The top employer posting job ads was Avantor. The top worksite cities in the region for these occupations were Oxnard, Palmdale, Santa Clarita, Ventura, and Santa Maria.

Exhibit 6 – Top Employers (n=253)

Employer	Job Postings, Full Year 2021
Avantor	45
Lockheed Martin Corp	17
Bimbo Bakeries USA	9
Carmax	8
General Atomics	7

Source: Labor Insight/Jobs (Burning Glass)

Skills

Repair is the most sought after skill for employers hiring for jobs related to Agricultural Power Equipment Technology.

Exhibit 7 –Job Skills (n=322)

Skills	Job Postings, Full Year 2021
Repair	343
Welding	111
Plumbing	101
Machinery	87
Hydraulics	83
Predictive/Preventative Medicine	77
Wiring	68

Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

Exhibit 8 shows the industries with most Agricultural Power Equipment Technology postings in the South Central Coast. Note: 34% of records have been excluded because they do not include an industry. As a result, the chart below may not be representative of the full sample.

Exhibit 8 – Industries employing the most in the Agricultural Power Equipment Technology field, 2021

Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
Manufacturing	127	49.6%
Retail Trade	27	10.5%
Public Administration	25	9.8%
Educational Services	11	4.3%
Real Estate and Rental and Leasing	11	4.3%

Source: Labor Insight/Jobs (Burning Glass)

Education and Training

Exhibit 9 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training needed to attain competency in the occupation.

Exhibit 9 – Education and Training Requirements

SOC	Occupation	Typical entry-level education	Typical on-the-job training
45-2091	**Agricultural Equipment Operators**	No formal education credential	Moderate-term on-the-job training
49-3041	**Farm Equipment Mechanics and Service Technicians**	High school diploma or equivalent	Long-term on-the-job training
49-3042	**Mobile Heavy Equipment Mechanics, Except Engines**	High school diploma or equivalent	Long-term on-the-job training
49-9041	**Industrial Machinery Mechanics**	High school diploma or equivalent	Long-term on-the-job training
49-9043	**Maintenance Workers, Machinery**	High school diploma or equivalent	Long-term on-the-job training

Source: Bureau of Labor Statistics Employment Projections (Educational Attainment)

Regional Completions and Openings

There were 34 regional completions (2020) and 707 regional openings (2020) in the South Central Coast region in programs related to the occupations identified as related to Agricultural Power Equipment Technology.

Exhibit 10 – Completions and Openings

2 Regional Institutions had Related Programs (2020)	**34** Regional Completions (2020)	**707** Annual Openings (2020)

Source: Economic Modeling Specialists International (EMSI)

Related Programs

CIP Code	Program	Completions (2020)
47.0105	Industrial Electronics Technology/Technician	33
48.0501	Machine Tool Technology/Machinist	1

Source: Economic Modeling Specialists International (EMSI)

Student Outcomes

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of statewide Agricultural Power Equipment Technology Programs (TOP: 0116.00) for the 2018-19 academic year.

- Completers of statewide Agricultural Power Equipment Technology programs from the 2018-2019 academic year had a **median annual wage upon completion of $33,924.**
- 54% of students are **employed within a year** after completing a program. (statewide)
- 68% of students **attained a living wage** within a year of completion. (statewide)
- Completers experienced an average of +81% **change in earnings after exiting**. (statewide)
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Sources

O*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

Notes

Data included in this analysis represent the labor market demand for relevant positions most closely related to Agricultural Power Equipment Technology. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study and can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions. All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; 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 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.