

How Many California Farm Workers: 2018-2021

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Farm workers, Peak-trough employment, seasonal farm labor

Abstract

California's agricultural employers hired an average 413,000 workers between 2018 and 2021 and reported an average 882,000 unique farm workers during these years, a ratio

of 2.1 workers for each average job. Average agricultural employment has been relatively stable since 2000, while the number of unique workers reported by agricultural employers declined. Despite concerns of farm labor shortages, the data show a relatively stable pool of farm workers, including a rising share who are brought to farms by farm labor contractors.

Introduction

Rising labor costs and shortages of farm labor are major concerns of California farmers that are prompting efforts to mechanize labor-intensive tasks, build housing to employ more H-2A guest workers, and increasing imports of fresh produce (Calvin et al., 2022).

We examined data on farm worker employment and earnings reported by farm employers when they pay unemployment insurance (UI) taxes to determine the total number of farm workers. We found that average employment in California agriculture is stable, but a higher share of workers are brought to farms by nonfarm crop support service firms such as farm labor contractors (FLCs). FLC employees have the lowest average earnings, which may accelerate exits from farm work and reduce the farm labor supply.

California requires all employers who pay \$100 or more in wages to enroll in the state's UI system and to pay taxes of 1.5 percent to 6.2 percent on the first \$7,000 of each

employee's wages (\$105 to \$434) to cover the cost of UI benefits for laid off workers (EDD). Employers report the names and social security numbers of all of their employees for the payroll period that includes the 12th of the month, including H-2A guest workers (Castillo et al., 2022). Summing these monthly employment totals and dividing by 12 months generates average employment.

Agricultural employment (NAICS 11) ranged from a high of 465,000 in May to a low of 344,000 in March in 2020. More than 465,000 workers are employed on California farms sometime during the year due to payroll periods that are typically weekly and worker turnover. Workers who are employed only in payroll periods that do not include the 12th of the month are excluded from monthly and average employment, such as those who work only during the first, third, or fourth weeks of the month. In 2016, when California's agricultural employment averaged 425,000, almost a million unique Social Security Numbers were reported by the state's agricultural employers, suggesting 2.3 unique workers for each average or year-round equivalent job (Martin et al., 2019).

Almost 20 million workers are employed in California sometime during the year by 1.7 million establishments, which are usually one employer, but establishments are sometimes each unit of a multisite employer. For this analysis, we extracted the employment and earnings data of all Social Security Numbers (SSNs) or workers

reported by agricultural establishments (NAICS 11) in 2018, 2019, 2020, and 2021 to examine the relationship between unique workers and average jobs by commodity. All SSNs reported by agricultural establishments are considered to be farm workers. We compiled the earnings of each farm worker to determine where each worker or SSN had the highest earnings. We considered a worker to be primarily employed in the commodity or NAICS where he or she had the highest earnings, so a primary farm worker is someone whose highest-earning job(s) was from an establishment in NAICS 11, and primary FLC employees had their highest earning job with an FLC.

These data are available only for California, and only after a significant data mining exercise. Most other states do not require all farm employers to enroll their employees in the UI system, and none extract the SSNs reported by farm employers, compile all of the jobs of these farm workers, and provide the data for analysis.

There were three important findings. First, the ratio of unique workers to average farm jobs is remarkably stable, suggesting two workers per average or year-round equivalent farm job. Second, differences in the worker-to-job ratio vary predictably by commodity: the ratio of unique workers to average jobs is higher for nonfarm crop support firms that bring workers to farms such as farm labor contractors than for dairy farms that hire workers directly to fill year-round jobs. Third, the covid pandemic reduced average

employment more than the number of unique workers in 2020-21, which reduced average earnings as the same number of workers shared fewer farm jobs.

All and Primary Farm Workers

California's agricultural employers reported an average of 882,000 workers to fill an average 413,000 jobs between 2018 and 2021, generating a 2.1 worker-to-job ratio. The covid pandemic in 2020 and 2021 reduced average employment by up to five percent, but did not affect the total number of workers reported, suggesting that the same number of workers shared fewer jobs (Rural Migration News, 2020).

Previous analyses using 2012, 2014, and 2015 data found worker-to-job ratios of 2.0, suggesting that more workers are sharing each average job today than previously. The increase in the worker-to-job ratio could reflect more employment in crop support and less direct hiring of farm workers, since crop support firms such as labor contractors often bring workers to farms to perform specific tasks, and their employees may get fewer hours of work if contractors are unable to arrange a continuous succession of jobs.

Table 1. Ag Workers and Average Ag Employment, 2012-21

Figure 1. Ag Workers and Average Ag Employment, 2012-21

Most workers, an average 61 percent between 2018 and 2021, had only one California agricultural employer each year. A quarter had two California jobs, and 15 percent had three or more California jobs. The data do not capture the jobs of workers employed in other states, such as California workers who do farm work in Oregon and Washington.

Table 2. Workers by Jobs, 2018-21

Figure 2 shows that the number of farm workers who had only one employer rose almost 10 percent between 2018 and 2020, while the number who had two or more employers fell by almost 15 percent. It is important to emphasize that the one agricultural employer may be a farm labor contractor, so that a farm worker with one FLC employer may be employed on multiple farms.

Figure 2. Workers and their Employers, 2018-21

The NAICS system divides agricultural employment into three major categories, workers hired directly by employers who produce crops (NAICS 111), workers hired directly by employers who produce animal products (NAICS 112), and crop support workers (NAICS 1151). These three groups accounted for 82 percent of the average 882,000 unique

workers reported by agricultural employers between 2018 and 2021. Of the remaining 18 percent of workers, almost all had their highest earning job with a nonfarm employer; a handful were employed by a forestry, fishing, or hunting employer.

There were 724,500 primary workers employed by crop, animal, and crop support employers: 33 percent were employed directly by crop farms, five percent by animal farms, and 62 percent by crop support firms. Within each of these sectors, one subsector accounted for most workers. Within crops, fruit and nut farms accounted for 62 percent of crop workers. Within animal agriculture, dairies accounted for 61 percent of animal workers and, within crop support, farm labor contractors accounted for 74 percent of all crop support workers.

Within fruits and nuts, strawberries accounted for 40,000 unique workers or a quarter of workers in the largest direct-hire crop sector, followed by 30,000 or 20 percent in grapes, 27,000 or 18 percent in tree nuts, and 22,000 or 14 percent in other noncitrus fruit such as peaches and plums. Within the nursery and floriculture sector, the 20,000 workers employed by nurseries were over 70 percent of all workers in this sector.

Table 3. Primary Farm Workers by Commodity, 2018-21

The 882,000 average unique workers reported by agricultural employers can be assigned to the county of the employer who reported the highest earnings for a particular worker. There are agricultural employers in every county, but the top five counties had half of all unique workers, including Kern, 135,000 workers, Monterey, 94,400, Fresno, 91,500, Tulare, 72,700, and Santa Barbara, 40,900. The next five counties included 18 percent of all unique workers, and the next 11, each with 10,000 to 28,000 workers, each had a combined 21 percent of all unique workers. This means that 21 of the state's 58 counties have 88 percent of the unique workers reported by agricultural employers.

Table 4. Primary Workers by County, Average 2018-21(\$/year)

The Figure 3 maps show that Kern was the only county to have over 100,000 farm workers, followed by Monterey, Fresno, and Tulare counties. There are fewer than 10,000 farm workers in most California counties, including all counties north of the Sacramento-San Joaquin River delta.

Figure 3. Primary Workers by County and Year

Worker Earnings

Farmers report their total wage bill, so dividing total wages by average employment generates average earnings in each sector. Average earnings between 2018 and 2021 were highest in animal agriculture, \$31,500, and lowest in support agriculture at \$12,600; direct-hire crop workers were in-between the other two sectors with average earnings of \$22,100. Reasons for differences in average annual earnings include differences in hourly earnings and hours worked. For example, workers in animal agriculture typically work more hours than workers employed by FLCs.

Figure 4 shows the average earnings of direct hire crop workers (NAICS 111), direct hire animal workers (NAICS 112) and agricultural support services workers (NAICS 115). Between 2018 and 2020, the average earnings in the three sectors rose in lockstep with California's minimum wage, which increased from \$11.00 in 2018 to \$14.00 in 2021 (for firms with 26 or more employees).

Average earnings peaked in 2020, when direct hire crop, direct hire animal, and agricultural support workers earned an average \$24,000, \$35,000, and \$14,000, respectively. Average earnings fell 15 to 20 percent in each sector in 2021, reflecting employment dropping more during covid than the number of farm workers, to \$20,000, \$28,000, and \$11,000, respectively.

Figure 4. Primary Workers Earnings, 2018-21(\$/year)

Within the fruit and nut sector, average earnings between 2018 and 2021 were highest for tree nut workers at \$22,250 and lowest for strawberry workers at \$15,400, likely reflecting differences in both hourly earnings and hours worked. The three fruit sectors with the highest share of harvest workers, strawberries, noncitrus fruit, and other berries, had the lowest earnings. Grapes and tree nuts, which have higher shares of non-harvest workers, have higher average earnings, although workers hired directly by nurseries had the highest annual earnings in crop agriculture of \$27,000.

Dairy workers had average earnings of \$31,300, and support workers earned an average of \$12,600. The largest support sector is FLCs, where average annual earnings were \$8,600 between 2018 and 2021. Average annual earnings for workers in some commodities increased up to 10 percent in between 2018 and 2019 and between 2019 and 2020, but decreased by 15 to 20 percent for every commodity between 2020 and 2021 during covid.

Table 5. Primary Worker Earnings, 2018-21 (\$/year)

Most workers reported by California agricultural employers had only one job in one commodity. Almost 78 percent of workers reported by animal agriculture and agricultural support employers had only one job in 2021, compared with 71 percent of workers hired directly by crop producers. Within crop production, over 70 percent of tree nut and citrus workers had only one job, compared with about 65 percent of the workers employed in other berries and noncitrus tree fruit. About 80 percent of workers employed by farm labor contractors had only one job in 2021. The National Agricultural Worker Survey found that three-fourths of workers interviewed on crop farms in California in 2019-20 had only one farm employer in the previous 12 months (DOL, 2022).

Conclusions

California has had remarkable stability in average annual agricultural employment and the number of unique farm workers over the past decade, with about 880,000 workers filling an average 415,000 jobs, or 2.1 unique workers per job. Most farm workers have only one California farm job, allowing them to be assigned to the commodity and county of their employer. We assigned the 40 percent of workers with two or more farm jobs to the commodity and county of their highest-earning farm job.

Over 80 percent of all workers reported by an agricultural employer had their highest earning job in California crop, animal, or crop support agriculture; the others had their highest earning job in the nonfarm economy; only a handful were in forestry, fishing, or hunting. Among the 725,000 primary farm workers, a third were hired directly by crop farmers, five percent were employed directly by animal agriculture farms, and 62 percent were employed by crop support firms. Indeed, more unique workers were reported by FLCs, an average 334,000 between 2018 and 2021, than were hired directly by crop farms, 242,000, and animal farms, 33,000, combined.

Average employment data show that California is unique among states in having more workers brought to farms by crop support firms such as labor contractors, where average earnings are less than \$10,000, than are hired directly. This means that California agricultural employment is changing from direct to indirect hires, that is, instead of crop farmers hiring workers directly, a rising share of farm workers on crop farms are brought there by FLCs. The result may be lower labor costs for crop farmers because workers are employed only to perform needed tasks, but also lower earnings for farm workers, since labor contractor employees have average earnings that are a third of those of workers who are hired directly by crop farmers. The low average earnings of FLC employees could encourage exits from the farm workforce.

Throughout US agriculture, there are two directly hired workers for each crop support worker, but in California there are two crop support workers for each directly hired worker. California agriculture is a pioneer in developing (1) directly hired and (2) crop support farm workforces, which may lower labor costs. However, the increasing share of farm workers who are employed by labor contractors may also lead to a shrinking pool of seasonal farm workers, eventually increasing reliance on H-2A guest workers.

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Tables and Figures

Table 1. Ag Workers and Average Ag Employment, 2012-21

	2012	2014	2015	2018	2019	2020	2021	Average (2018-21)
Unique ag workers	802,600	829,300	847,700	874,314	900,279	894,691	858,690	881,994
Average ag employ	395,400	410,900	417,800	419,800	420,100	404,300	407,800	413,000
Ratio	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1

Figure 1. Ag Workers and Average Ag Employment, 2012-21

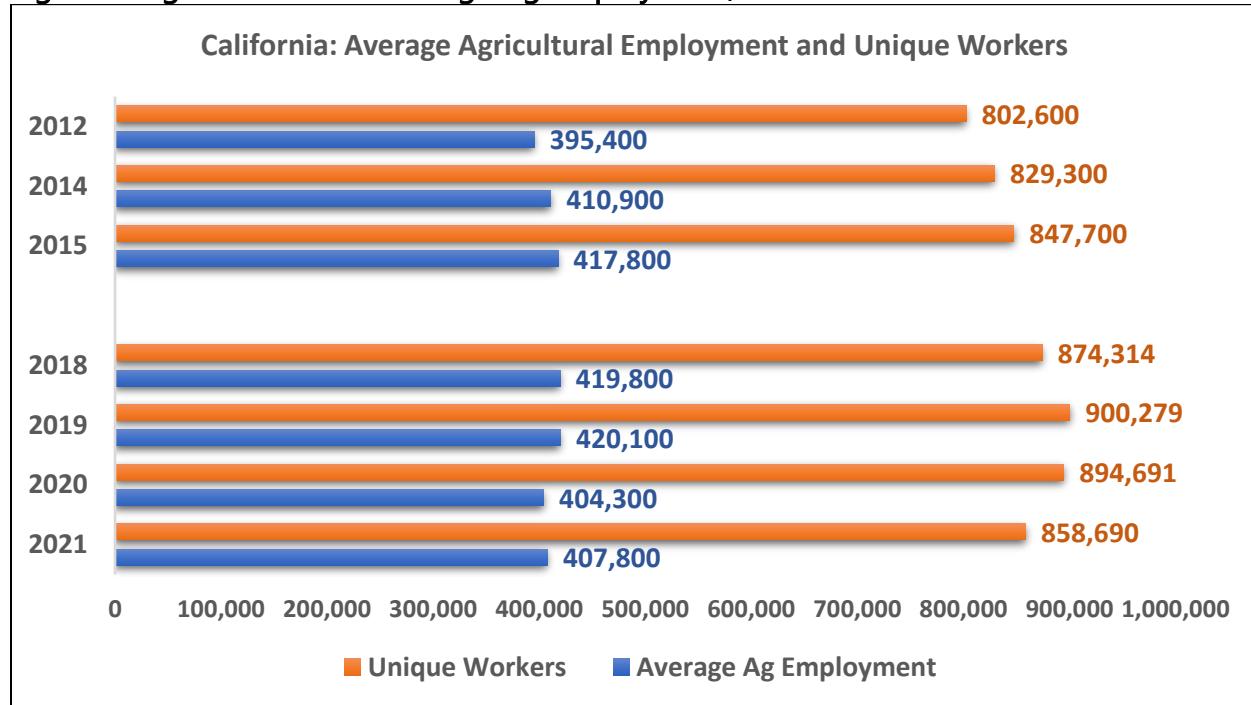
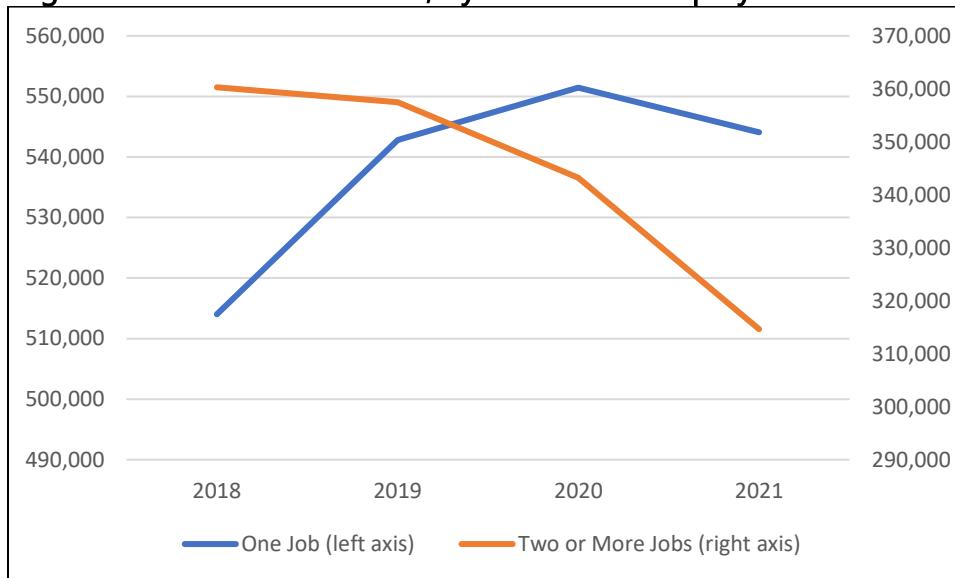


Table 2. Workers by Jobs, 2018-21

	2018	2019	2020	2021	Average (2018-21)	Shares
One Job	514,021	542,793	551,449	544,049	538,078	61%
Two Jobs	218,475	220,499	213,924	198,340	212,810	24%
Three or More Jobs	141,818	136,987	129,318	116,301	131,106	15%

Figure 2. Number of Workers, by Number of Employers and Year



Primary workers	2018	2019	2020	2021	Average	Share	Share total	Share of F&N
Crops, Animals, Crop Sup	715,200	738,080	735,337	709,251	724,467			
Crops 111	245,910	241,653	247,332	235,063	242,490	100%	33%	
Vegs 1112	46,657	45,406	46,205	42,854	45,281	19%		
Fruit & Nut 1113	154,254	149,649	154,392	146,499	151,199	62%		
Grapes 111332	36,269	31,120	28,174	25,555	30,280			20%
Strawberries 111333	38,274	39,911	40,523	39,471	39,545			26%
Other berries 111334	14,188	13,997	15,287	13,675	14,287			9%
Tree nuts 111335	27,560	27,266	27,569	26,766	27,290			18%
Noncitrus fruit 111339	19,446	19,216	24,554	23,552	21,692			14%
Nursery & Green 1114	27,633	28,521	28,076	28,177	28,102	12%		
Misc crops 1119	13,035	13,838	14,700	14,085	13,915	6%		
Animals 112	33,658	32,974	33,341	33,046	33,255	100%	5%	
Beef Cattle 112111	5,046	4,771	4,770	4,796	4,846	15%		
Dairy 112120	20,219	20,141	20,474	20,389	20,306	61%		
Crop Support 1151	435,632	463,453	454,664	441,142	448,723	100%	62%	
Posthar crop 115114	68,838	69,606	61,353	58,914	64,678	14%		
FLCs 115115	316,846	342,705	342,246	332,996	333,698	74%		

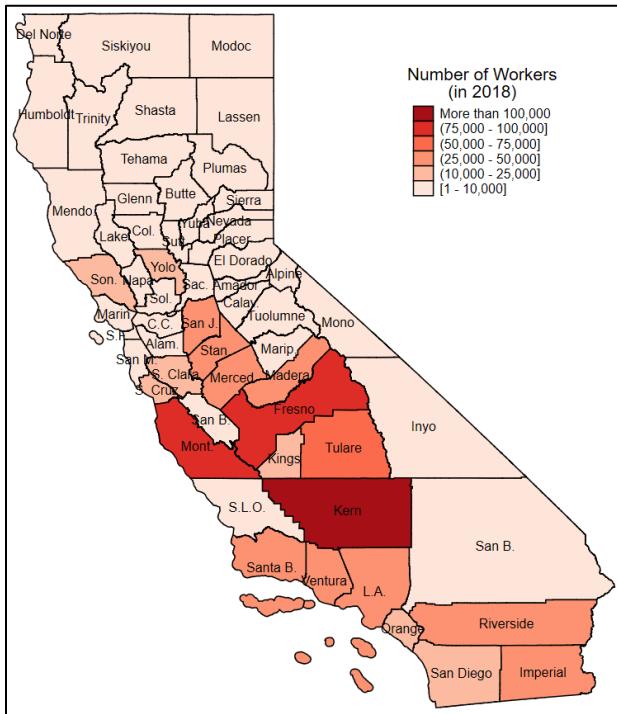
Table 3. Primary Farm Workers by Commodity, 2018-21

Table 4. Primary Workers by County, Average 2018-21

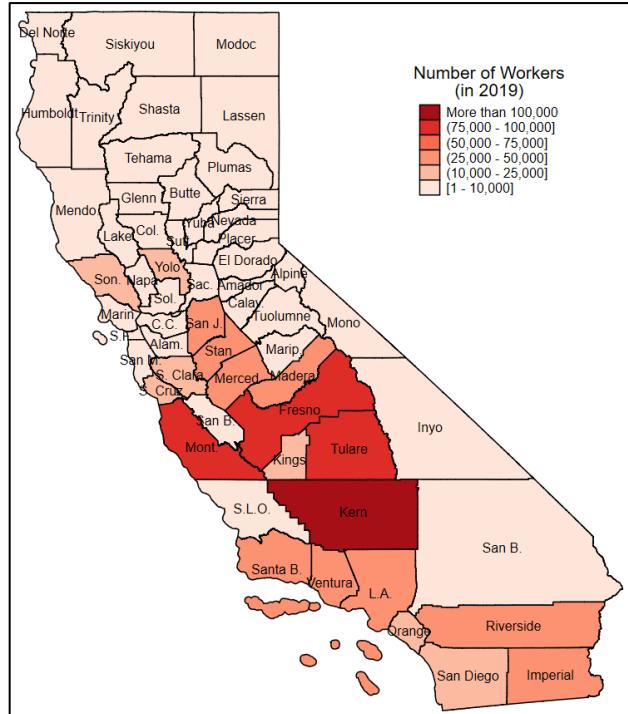
		Average		Share
	California	881,994		100%
1	Kern	135,058		15%
2	Monterey	94,448		11%
3	Fresno	91,513		10%
4	Tulare	72,666		8%
5	Santa Barbara	40,886	434,571	49%
6	Ventura	34,852		
7	Los Angeles	33,270		
8	San Joaquin	32,513		
9	Madera	30,743		
10	Riverside	28,920	160,297	18%
11	Merced	27,643		
12	Stanislaus	26,328		
13	Imperial	25,374		
14	San Diego	20,962		
15	Kings	14,677		
16	Santa Cruz	14,557		
17	Orange	12,198		
18	Sonoma	11,515		
19	Yolo	10,093		
20	San Bernardino	10,085		
21	Santa Clara	10,066	183,496	21%

Figure 3. Number of Workers by County and Year, 2018-2021

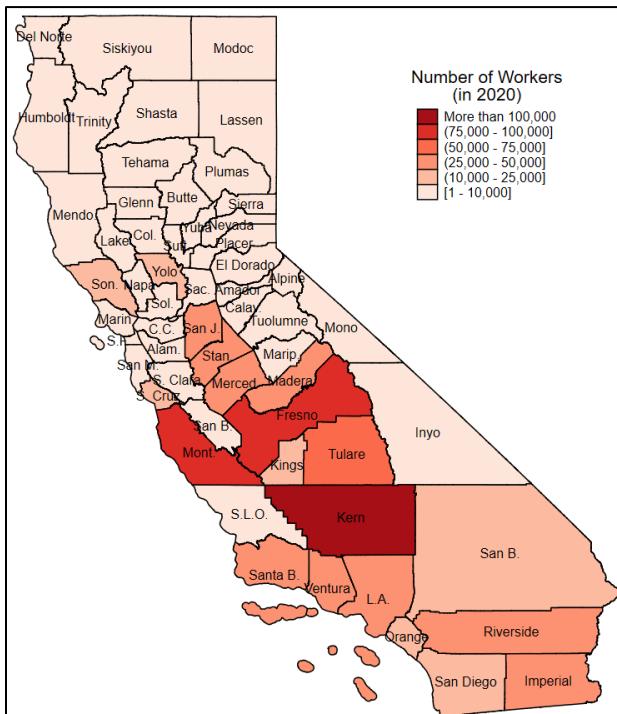
A. 2018



B. 2019



C. 2020



D. 2021

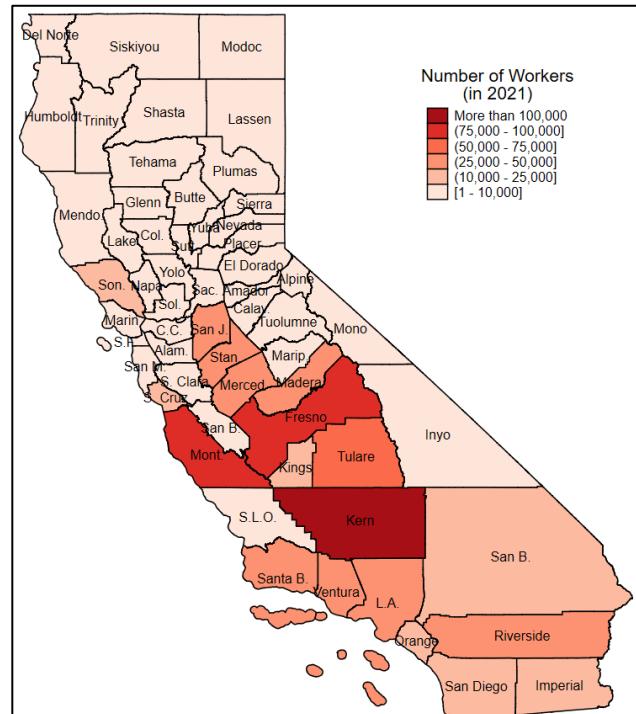


Figure 4. Earnings of Primary Workers, 2018-2021(\$/year)

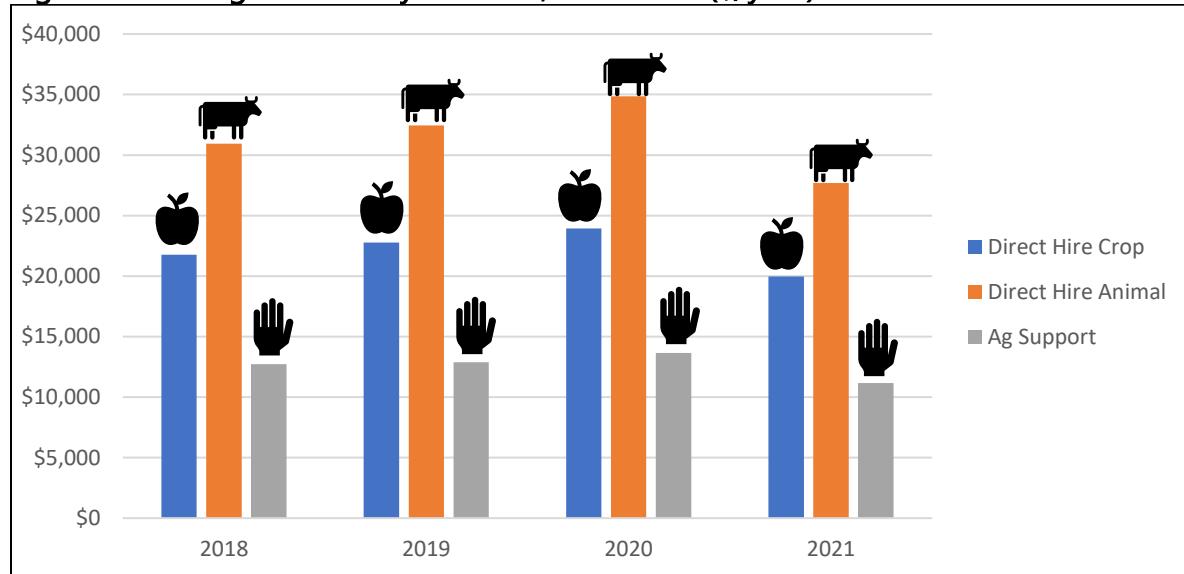


Table 5. Primary Worker Earnings, 2018-21 (\$/year)

	2018	2019	2020	2021	Average	2018-19	2019-20	2020-21
Crops 111	21,776	22,781	23,922	19,956	22,109	5%	5%	-17%
Vegs 111219	26,623	28,148	30,485	24,793	27,513	6%	8%	-19%
Grapes 111332	19,953	21,968	23,719	18,875	21,129	10%	8%	-20%
Strawberries 111333	16,099	15,894	16,099	13,582	15,418	-1%	1%	-16%
Other berries 111334	16,314	16,599	18,244	15,246	16,601	2%	10%	-16%
Tree nuts 111335	21,341	22,836	25,006	19,816	22,250	7%	10%	-21%
Noncitrus fruit 111339	17,004	16,185	16,648	13,672	15,877	-5%	3%	-18%
Nursery 111421	26,233	27,882	29,095	24,704	26,979	6%	4%	-15%
Misc crops 111998	23,479	25,164	23,775	19,927	23,086	7%	-6%	-16%
Animals 112	30,928	32,458	34,862	27,688	31,484	5%	7%	-21%
Beef Cattle 112111	30,616	29,786	31,295	24,845	29,135	-3%	5%	-21%
Dairy 112120	31,006	32,488	35,034	26,864	31,348	5%	8%	-23%
Support 115	12,712	12,876	13,643	11,161	12,598	1%	6%	-18%
Posthar crop 115114	22,888	24,126	26,947	22,557	24,129	5%	12%	-16%
FLCs 115115	8,664	8,778	9,220	7,620	8,570	1%	5%	-17%