

MIGRANT AND SEASONAL FARMWORKER
ENUMERATION PROFILES STUDY
CALIFORNIA

FINAL

prepared for the

**Migrant Health Program
Bureau of Primary Health Care
Health Resources and Services Administration**

by

**Alice C. Larson, Ph.D.
Larson Assistance Services**

P.O. Box 801
Vashon Island, WA 98070
206-463-9000 (voice)
206-463-9400 (fax)
las@wolfenet.com (e-mail)

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PREFACE

The mission of the Bureau of Primary Health Care (BPHC), Health Resources and Services Administration, Department of Health and Human Services is to increase access to comprehensive primary and preventive health care and to improve the health status of under served and vulnerable populations. To achieve this mission the Migrant Health Program (MHP), BPHC provides support to organizations which offer technical assistance to or directly deliver primary health care services to migrant and seasonal farmworkers (MSFWs). In order to better plan, develop and evaluate health care service delivery and utilization, information is needed on the numbers and distribution of farmworkers at the national, state, and county levels. Moreover, the legislation which authorizes the Migrant Health Program, Section 330g of the Public Health Service Act, requires that priorities for assistance be assigned to areas where the greatest need exists. Therefore, the MHP periodically seeks to obtain updated information about MSFWs; where they are working and living and what crops are being harvested, in order to more appropriately target limited resources to areas of greatest MSFW need.

These MHP enumeration reports are some of the few sources offering MSFW estimates at the county level. The last time such data was published by the MHP was in March 1990 with "An ATLAS of State Profiles Which Estimate Number of Migrant and Seasonal Farmworkers and Members of Their Families." This time with the Office of Pesticide Programs, U.S. Environmental Protection Agency as a funding partner, the MHP awarded a grant to the National Center for Farmworker Health, Inc. (NCFH). The NCFH consequently contracted with Alice C. Larson, Ph.D. of Larson Assistance Services to research and develop state estimates.

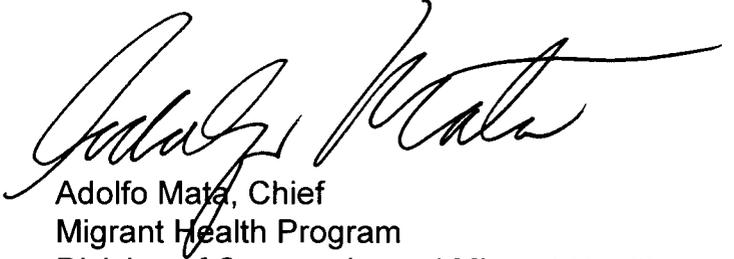
In the previous publication "ATLAS of State Profiles" the counting of MSFWs was done on a state-by-state basis which depended on the available data resources within each state, then a consultant was used to validate each state's submission. For this publication, Dr. Larson, assisted by a team of consultants, used a systematic approach to estimate the number of farmworkers included under the MHP definition. Please note that in this document farmworker dependents and family members within their households are labeled "non-farmworkers" although they are clearly included in the MHP definition. This research included the determination of the number of workers needed for specific seasonal hand labor tasks, and the examination of state employment records, local sources of information and large-scale databases (i.e., the National Agricultural Workers Survey of the U.S. Department of Labor, the National Farmworker Database of the Association of Farmworker Opportunity Programs, the Uniform Data System of the Bureau of Primary Health Care and

the Census of Agriculture of the Bureau of the Census and U.S. Department of Agriculture). A major part of this effort involved the review of draft estimates by local and national knowledgeable individuals.

In this document, the MHP presents currently updated MSFW information beginning with ten states: Arkansas, California, Florida, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, Texas and Washington. The MHP hopes to continue these collaborative efforts with other federal agencies and organizations in order to update the remaining states impacted and benefiting by the labor of our Nation's farmworkers.

Readers may wish to address questions or comments concerning these state estimates directly to Alice C. Larson, Ph.D., P.O. Box 801, Vashon Island, WA 98070 or via e-mail to las@wolfenet.com. It is our hope and expectation that all federal, state, local public and private entities providing services to MSFWs will use this state and county specific enumeration data to plan, develop and implement improved services to our Nation's farmworkers.

The Migrant Health Program, BPHC gratefully acknowledges the efforts of the many groups across the nation who have made this publication possible. Our thanks not only to those who directly reviewed and commented on the estimates, but to those who participated and assisted along the way.



Adolfo Mata, Chief
Migrant Health Program
Division of Community and Migrant Health
Bureau of Primary Health Care
Health Resources and Services Administration
Department of Health & Human Services

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The research team is extremely grateful to the many people in California who offered information, data and suggestions that helped make this study possible. In addition, those who took the time to review draft documents offered a major contribution to improving the end result.

Estimating migrant and seasonal farmworkers and their non-farmworker household members is an extremely challenging task. This research has attempted to examine existing data and develop a reasonable approach to the estimation process. The user should carefully consider the description of study parameters to understand what is included or excluded from the final figures and the limitations of the research.

It is hoped this document will be found to be helpful in meeting the need for descriptive information on the migrant and seasonal farmworker population.

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DOCUMENT DESCRIPTION

A. BACKGROUND

The Migrant Health Program of the Bureau of Primary Health Care, Health Resources and Services Administration, U.S. Department of Health and Human Services has periodically undertaken an estimation of the population targeted for services by federally funded Migrant Health Centers. The results have helped better plan service utilization including determining if resources are appropriate to the need and identification of unserved areas. Four such studies have previously been undertaken; the last was published in 1990, *The Migrant Health Atlas*.

The Migrant Health Program is updating this information beginning with ten states: Arkansas, California, Florida, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, Texas and Washington. Final reports, titled “Migrant and Seasonal Farmworker Enumeration Profiles Study” (MSFW EPS), were prepared for each target state.

The National Center for Farmworker Health was engaged by the Migrant Health Program to act as its agent in securing, monitoring and finalizing an end product. In July 1998, agreement was reached with Larson Assistance Services to research and develop state estimates. Alice C. Larson, Ph.D., with the assistance of a team of consultants, is responsible for this document containing MSFW estimates for California.

Additionally, reviewers of draft documents in California requested this report include a table of estimates of farmworkers that work on a year-round as well as seasonal basis. This request was made in response to the data requirements of state-financed health care programs that specifically address the needs of all of these workers. This table and descriptive methodology are in the “Addendum” section at the conclusion of this report.

B. STUDY PURPOSE

The MSFW EPS offers state-based information at the county level for the following three population sub-groups:

- Migrant farmworkers and seasonal farmworkers.
- Non-farmworkers present in the same household as migrant farmworkers and seasonal farmworkers (defined by the term “accompanied”).
- Number (“children and youth”) under age 20 in six age groups.

C. DEFINITION

The MSFW definition used for this study is that of the Migrant Health Program. It describes a seasonal farmworker as:

“An individual whose principal employment [51% of time] is in agriculture on a seasonal basis, who has been so employed within the last twenty-four months.”

A migrant farmworker meets the same definition but “establishes for the purposes of such employment a temporary abode.” (*U.S. Code, Public Health Services Act, “Migrant Health”*)

Included in the scope of study are individuals engaged in field and orchard agriculture; packing and sorting procedures in food processing; horticultural specialties (including nursery operations, greenhouse activities and crops grown under cover); and reforestation. Excluded from study are those working with livestock, poultry, and fisheries.

D. LIMITATIONS

This study is limited in scope in that only secondary source material, including existing database information, and knowledgeable individuals, have been utilized to generate information. This has meant taking reports and databases prepared for other purposes and adjusting them, as possible, for the MSFW EPS. Limited resources and time have prohibited primary research directly with farmworkers.

In addition, by employing only secondary source information, the definition of who is included as a migrant or seasonal farmworker is often tied to the parameters used by the generating source. Wherever possible, screens were used to exclude those not covered by the Migrant Health Program definition.

E. GENERAL PROCESS

1. Basic Investigation Techniques

The research conducted within each state had four major phases:

- (1) Basic data gathering and preparation of First Draft Estimate.

- (2) Review by local knowledgeable individuals and revision of First Draft Estimate.
- (3) Completion of Second Draft Estimate and additional review by a wider audience of knowledgeable individuals.
- (4) Revision as necessary and issuance of Final Estimate.

2. National Databases

Prior to completion of any state profile, two national databases were analyzed specifically for this study. They represent the two largest continuous direct surveys of MSFWs in the country as of 1999.

The National Farmworker Database (NFD) of the Association of Farmworker Opportunity Programs contains information on clients eligible for services at job training programs targeted to MSFWs (Workforce Investment Act – WIA 167 Programs; formerly JTPA 402 Programs). This database, tied to programs throughout the country, contains 65,000 individuals and includes basic demographic, family characteristic and work history information. Figures from 1994 through August 1998 were used for this study and provided national and some state data.

The National Agricultural Workers Survey (NAWS) of the U.S. Department of Labor (coordinated by Aguirre International) is a survey conducted three times annually gathering similar information through random selection of targeted counties, employers and subjects. Demographic, family and work history information is similar to the NFD. Data for a five-year period (1993-97) were used in the MSFW EPS, which included over 11,000 respondents offering national and regional information.

A third national database used to develop factor information was Migrant Health Program statistics prepared annually by each federally funded migrant health center. These gave the number of migrant farmworker and seasonal farmworker patients served. Data for 1996 and 1997, where available, were averaged.

3. State Specific Steps

Work on each target state began with a mass mailing to identified service organizations assisting MSFWs, government agencies involved with agriculture, farm employer and crop commodity groups, special interagency MSFW committees and others. These included: migrant health centers, primary care associations, migrant education programs, migrant head start programs, legal services, job training programs, housing assistance centers, grower associations, extension service and agricultural economics departments of state land grant universities and other agents. State government agencies involved with

agriculture, education, employment, forestry, health, labor and welfare were contacted.

Each was sent an introductory letter and questionnaire listing study factors for which information was sought. Those contacted were asked to provide anything they might have directly or list other resource documents or personnel.

Follow-up contacts were made with numerous individuals and internet sites from a variety of programs and agencies (a range of 14-54 for each of the ten target states) looking for state-specific information such as client-related demographics, enrollment data, crop production figures and acreage statistics. Although many different individuals, agencies, organizations and businesses were contacted, the list was in no way exhaustive of all of those involved with agriculture and MSFWs in each state. It is expected most of the key knowledgeable individuals were reached, many of whom were identified by questionnaire respondents.

Once all state specific information was received, factor information was extracted. Sources were compared and analyzed to account for any differences. Results were then contrasted against national database information and conclusions drawn regarding the best factor, data range or average to use. Draft estimates and maps were then prepared for review.

4. Review of Draft Estimates

The Draft One document was sent out for review to knowledgeable individuals in the state who had provided information for preparation of the estimates, assisted in some other manner, or expressed an interest in receiving a copy.

Reviewers were asked to comment on methodological steps, resources utilized and factors employed. If they found something they felt was incorrect, they were requested to offer suggestions for improvement in the form of specific information which could be incorporated into the estimates. Where clarification was needed after receipt of comments, direct conversation or exchange of correspondence were utilized to assure a complete understanding of the issues raised or obtain additional information. Often additional research was necessary to determine the appropriate direction to correct the estimates.

After consideration of all issues raised from a variety of sources, revisions were made as necessary. Draft Two estimates, tables, maps and supporting documents were then prepared and shared with Draft One reviewers as well as other local and national sources. Comments were again incorporated into the Final Report. In all, 13 people helped review and refine the California estimates and document.

F. ENUMERATION METHODOLOGY

California is a very difficult state in which to estimate MSFWs. It is, by far, the largest agricultural production area noting year-around industry activity and seasonal employment peaks throughout the year. Many residents also migrate outside the state looking for agricultural employment.

Estimates for other states in this study have relied on a methodology that uses a formula related to agricultural tasks workers perform. However, this technique may not present a complete picture in California where workers can be employed in more than one county (if the farm establishment is large), can work on more than one crop and can perform more than one task all within a single day. Additionally, it is difficult to define “seasonal labor” for individuals employed year-around by a farm labor contractor engaged by numerous agricultural employers.

For these reasons, the four separate industry classifications within the study MSFW definition; field agriculture, nursery/greenhouse -- crops grown under cover, food processing and reforestation; were each addressed differently. Two separate methodologies were used to estimate those employed in field agriculture and nursery/greenhouse—crops grown under cover. The final estimate for these industries was the average of the results.

Adjustments were made to all worker estimates to account for duplicate counts within and across counties. Finally, population sub-groups were calculated, including breaking worker figures into migrant farmworkers, seasonal farmworkers, estimating non-farmworkers in the same household and determining children and youth by age group.

1. Field Agriculture

a. Demand-For-Labor Method

The first estimate of field agriculture used a “demand for labor” (DFL) process that examines the number of workers needed to perform temporary agricultural tasks, primarily harvesting. The results estimate full-time equivalent (FTE) workers required for the task during the period of peak labor demand.

Calculations, prepared for each county, are derived through a formula using four elements:

$$DFL = \frac{A \times H}{W \times S}$$

Where:

A = crop acreage.

H = hours needed to perform a specific task (e.g., harvest) on one acre of the crop.

W = work hours per farmworker per day during maximum activity.

S = season length for peak work activity.

b. Administrative Data Method

California is one of only two states in the country with virtually complete unemployment insurance coverage. This means MSFWs, who are typically excluded by not working sufficient hours for any single employer, are eligible under this program. In regard to available information, it also means farm employers report almost all temporary as well as longer-term employees.

Such information is recorded on a monthly basis reporting all individuals on an employer's payroll as of the pay period including the 12th day of the month. The form, and data it contains, are referred to as "ES 202." These reports are collected and tabulated by the California Employment Development Department, "EDD" (and reported at the Federal level by the U.S. Department of Labor, Bureau of Labor Statistics as "Employment and Wages Monthly Employment").

Sorting includes determination of employer industry, defined by Standard Industrial Classification (SIC) code. The results are available via the internet in monthly totals, by county, for a series of years. However, they appear as grouped data; i.e., the information of relevance to this study is joined within a broader definition of "farm" employment.

Two clarifications need to be made in order to use this information for the MSFW EPS. First, it is necessary to screen broad SIC "farm" figures down to only what is relevant for this study. Second, a technique must be found to convert the 12 monthly figures for one year into the number of individual seasonal workers.

An additional report prepared by EDD provided information relative to the percent of the broad SIC included in the MSFW study definition. This was applied to EDD ES 202 figures to calculate the number of workers covered in the study. Another EDD report offered the percent of all agricultural workers who are "seasonal."

Several different techniques were applied to the EDD ES 202 figures trying to determine an appropriate method to derive individuals from the monthly totals. The following was identified as the most reasonable approach. Using a three year (1996-1998) average, monthly totals were added, assuming each figure represented one "task." Because one "task" might last more than one month, the annual total was divided by the average length of hand labor tasks, as derived from DFL calculations (2.04 months). This provided an estimate of the number of "jobs."

Jobs were then divided by the average number of jobs per agricultural worker to determine an estimate of all agricultural workers. This figure was reduced to represent only the agricultural workers covered by this study and further decreased to only seasonal laborers.

2. Nursery/Greenhouse and Crops Grown Under Cover

Nursery/greenhouse workers and those involved in crops grown under cover encompasses many different categories. This includes: bedding plants, cut flowers, florist greens, floriculture, flower seed crops, foliage plants, greenhouse vegetables, mushroom production, potted flowering plants, sod and vegetable seed crops. Some products are grown in covered structures while others are raised in open acreage. Tasks differ with the type of product and production needs.

A method similar to the Administrative Data technique was used for nursery/greenhouse and crops grown under cover to estimate individuals to be added to DFL field agriculture workers. This included determining the percent of the combined agricultural production and agricultural services workers employed in the three-digit SIC relevant to nursery/greenhouse and crops grown under cover (018). The results yielded a statewide figure that was reduced for seasonal workers.

This percentage was not applied directly to each county as it represented an average, and it was unclear if every county equally shared in horticultural production. Instead, the county proportion of the state acreage and enclosed space total for nursery/greenhouse operations and crops grown under cover was calculated and multiplied by the statewide figure to determine each county's temporary worker share.

The Administrative Data method already included estimates for workers in nursery/greenhouse and crops grown under cover, and so no separate estimate was made.

3. Final Field Worker, Nursery/Greenhouse-Crops Grown Under Cover and Crop Preparation Worker Estimate

Because both the DFL and Administrative Data methods have individual strengths as well as weaknesses, the two results were averaged, on a county basis, to determine the final estimates of field workers and those employed in nursery/greenhouse and crops grown under cover. One part of the estimate for food processing workers was also added to DFL figures prior to this averaging (see the next section).

4. Food Processing

Workers employed temporarily in the food processing industry are also very difficult to estimate. Examination was made of many sources to assess both the extent of employment and distribution by county.

Three Standard Industrial Classification (SIC) codes were identified as most likely to meet the Migrant Health Program definition used in this study. The first two related to specific companies involved in food processing. The last reflected crop preparation activities.

For the first two SICs, information specific to relevant companies in each county was pulled from a national directory of food processors. This provided estimates of total number of employees by county.

ES 202 data, available statewide only, provided the average highest and lowest monthly employment figures for food processing employees (those specific to the relevant SICs). Calculations were made to determine the percent of temporary to permanent workers. This percentage was applied to each county to estimate the number of temporary food processing workers.

Workers in the third SIC related to crop preparation were already included in the Administrative Data method but were excluded from the DFL method. Worker numbers specific to this SIC, as noted in ES 202 figures in the Administrative Data method, were pulled and this total added to DFL estimates before the results of the two methods were averaged.

5. Reforestation

Reforestation activity is different from work in the other industry classifications as stands of trees are left to grow from five to forty-five years or longer. This means only a proportion of timberland in a state is engaged by tree planters each year. As the exact location of this labor differs annually, a worker estimate can only be provided on a statewide basis.

A DFL approach was taken to estimate tree planters using statewide data. Research found a set of factors for the DFL elements felt to be relevant to the types of trees grown in California.

6. Adjustment for Duplication

An adjustment was made to account for those employed in more than one job covered by the MSFW definition. This involved dividing all worker estimates by a factor for average jobs per MSFW. These adjusted county estimates could then be more appropriately added to develop a state total.

This factor was only applied to DFL field agriculture, nursery/greenhouse and crops under cover estimates. Worker estimates derived from Administrative Data already were discounted for duplication. The factor was also used with food processing and forestry workers.

7. Sub-Group Estimates

Sub-groups estimated for the study included migrant farmworkers, seasonal farmworkers, non-farmworker family members accompanying farmworkers and children and youth in specified age groups. Migrant farmworkers encompassed individuals who migrated only within the state (intrastate migrants), and those who traveled out of state for farm work (interstate migrants).

Both “non-farmworkers” and “children and youth” were estimated. The first group included anyone of any age in the household who was not employed in farm work. The latter group covered anyone in the household from ages less than one through nineteen. Although the category “children and youth” involves those of a young age who would be considered non-farmworkers, it also includes older individuals who may be farmworkers.

Sub-group calculations were made, at a county level, as follows:

- Apply percent identified as migrant workers and percent identified as seasonal workers to adjusted MSFW estimates.
- Determine the percent of each sub-group, migrant workers and seasonal workers, accompanied. This is as opposed to workers who represent single person households; for example, 14 unrelated men living in one household would represent 14 single person households.
- Divide the group of accompanied workers by the average number of farmworkers per household to determine the number of accompanied households.

- Multiply the number of accompanied households by the average number of other members per household to derive the number of “non-farmworkers.”

The following age groupings were determined to be the most useful descriptors for the population considered “children and youth,” given the needs of funding sources and health care programs: under 1 year, 1-4, 5-12, 13-14, 15-18, and 19. Factors were found for the number of individuals in each accompanied household who were less than 20 years old. These were multiplied by the estimate of accompanied migrant and seasonal households to find total number of migrant and seasonal children and youth. A variety of sources were then examined to derive percent of the population in each age group.

G. RESOURCES UTILIZED FOR CALIFORNIA ESTIMATES

Factor information was gathered from the primary sources listed below. In addition and where available, local information was utilized as a check or as a replacement for broader national or regional data.

1. Field Agriculture

a. Demand-For-Labor Sources

Crops Requiring Temporary Hand Laborers: NFD and NAWS direct survey data on respondent work history were examined on a state basis (NFD) and at the “regional” level (NAWS) to determine the crops and tasks worked. It should be noted that NAWS regional level data for California involves only information on this state. Additionally, local knowledgeable experts suggested evidence of workers establishing grape vineyards in San Joaquin County and others in Lassen and Shasta Counties involved with strawberry seedlings.

Acreage: 1997 *Census of Agriculture* (COA) acreage figures for identified hand labor crops by county were used. This included cut Christmas trees. After discussion with agricultural experts and others, it was determined crops of fewer than ten acres are less likely to employ hired workers and more likely to use family members. Accordingly, any crop in a county with such small acreage was dropped. In addition, further research determined many small acreage strawberry plots in Fresno, Monterrey and Santa Cruz Counties where family labor is likely used.

Hours for Task: “Crop budgets” and other special reports prepared by agricultural economists and extension specialists as a guide to crop

production were utilized to determine hours needed to perform major hand labor tasks on each crop. For California, this included budgets prepared by the University of California and published on their web site.

In addition, the *Migrant Enumeration Project, 1993* (Larson and Plascencia) had updated earlier 1970s-80s estimates. These were supplemented through a search of other budgets specific to the study target states.

Where state specific information was available and determined to be reasonably accurate for a given crop, it was used. Otherwise an average of other sources was applied. The results vary per crop.

Work Hours: The NAWS California specific data provided hours per week and days per week worked by MSFWs. The latest five-year averages found 42 hours/week during a 5 ½ day work week. The resulting 7.7 hours/day factor was used in the calculation.

Season Length: Peak hand labor season dates specific to field crops in California were obtained from “Usual Planting and Harvesting Dates” (National Agricultural Statistics Service, USDA web site) and individual crop budgets prepared by the University of California. Season length for other crops was taken from the *Migrant Enumeration Project* with updates from state specific publications of the U.S. Department of Agriculture. Calendar days were converted to work days as noted in NAWS data. Additional research examining Monterrey County found evidence the season length for broccoli was likely longer than in other areas.

b. Administrative Data Sources

As indicated, monthly employment information and supplemental factor data were obtained from EDD reports. This included:

- ES 202 monthly employment figures for grouped SICs for the years 1996-1998, obtained from the EDD web site.
- Percent of total farm labor specifically involved in study SICs from California Agricultural Employment and Earnings Bulletin, 1994-96.
- Percent of agricultural workers defined as “seasonal” and average farm jobs per worker from the Agricultural Employment Pattern Study: 1989

2. Nursery/Greenhouse and Crops Grown Under Cover

The EDD web-based information and published reports noted above also served to estimate workers in nurseries/greenhouses and crops grown under cover at a statewide level.

County data from the 1997 COA for nursery and greenhouse acres in the open and square feet under glass were used to proportion the state nursery/greenhouse worker estimate into counties. COA figures for mushroom and greenhouse vegetable acreage and square feet under glass were similarly used to proportion the statewide estimate for crops grown under cover.

3. Food Processing – Crop Preparation

SIC 0723 (crop preparation for market) was determined to represent food processing in relation to field work. These worker estimates are included in the figures for the Administrative Data method but not in the DFL method. This SIC accounts for 7.83% of the combined agricultural production and agricultural services workers reported in EDD figures and used in the Administrative Data method. This percent was applied to each county's Administrative Data method estimate and the results added to the DFL numbers for each county.

4. Results Of Two Estimation Methods

The DFL method estimating field workers plus those employed in nursery/greenhouse-crops under cover and crop preparation derived a statewide figure of 663,473 workers. The Administrative Data method, covering the same industries, estimated 770,273 workers. The results of these two techniques varied by 106,800 (14% of the Administrative Data total).

The final county estimates for workers in agricultural field, nursery/greenhouse-crops under cover and crop preparation were an average of the results from these two methods.

5. Other Food Processing

The "Employment and Wages Monthly Employment," *ES 202* report (U.S. Department of Labor, Bureau of Labor Statistics) for SIC 2033 (canned fruits and vegetables) and SIC 2037 (frozen fruits, fruit juices and vegetables), averaged over a three year period (1995-1997), provided a statewide estimate for workers involved in food processing. The percent the lowest employment month represented of the month with the highest employment was taken to imply the

percent of all workers who were permanent. The percent remaining was considered to be temporary workers.

Information from the *Directory of Canning, Freezing, Preserving Industries, 1998-99* (compiled by Edward E. Judge and Sons, Inc.) determined companies engaged in activities within the two SICs and a range for total employment at each site. The mid-point of this range was used to represent exact number of employees. City locations were attributed to counties as cross-referenced in *Bullinger's 1997 Postal and Shippers Guide* (Alfer Leland) and the *Commercial Atlas and Marketing Guide, 1996* (Rand McNally). Total food processing employment for each county was tabulated.

The percent determined through ES 202 reports to be temporary employees in California was multiplied by total employment in each county to estimate MSFWs in food processing activities other than crop preparation.

6. Reforestation

The DFL factors used to estimate reforestation workers were:

Acreage information was obtained from *Tree Planting in the United States*, an annual publication of the United States Department of Agriculture, Forest Service. The years 1992-1996 created a five-year average.

Work Hours were generally agreed to be eight per day as reported by various forestry experts.

Hours for Task to plant fir, cedar, hemlock and other similar trees grown in California is thought to be 3.8, calculated at an average 2.105 acres per day planted per worker in an 8 hour day (Sargent, 2000).

Season Length for similar types of trees averages 22.14 days, calculated on a 45 day peak season working 40 hours per week minus 10 days for weather-related reasons (Sargent, 2000).

7. Factor for Duplication Adjustment

The EDD Agricultural Employment Pattern Study: 1989 provided an estimate of 1.775 jobs per seasonal worker.

8. Sub-Groups

Migrant/Seasonal: Two sources were averaged: NAWS regional (California)

data and direct patient counts from information reported to the Bureau of Primary Care for fourteen federally funded medical centers in California. The result was 46.3% migrant farmworkers; 53.7% seasonal farmworkers.

Accompanied: Regional NAWS percentages were used to represent the percent of migrant workers (33.0%) accompanied by relatives and seasonal workers (71.2%) residing in multiple person families.

Farmworkers Per Household: The best source found was NAWS regional information of 1.76 farmworkers per accompanied household for migrants and 1.60 for seasonals.

Non-Farmworkers Per Household: An average of NFD California data and NAWS regional factors were used to determine total household size. The number of farmworkers per household were subtracted to calculate non-farmworkers per household: 1.96 for migrants and 2.55 for seasonals.

9. Children and Youth by Age Groups

“Children and youth,” as defined in the MSFW EPS are those ages infant through 19. Whether or not these individuals perform farm work does not matter for purposes of this calculation, and therefore, the group “MSFW farmworkers” and the group “children and youth” are not mutually exclusive.

NAWS regional figures on children and youth per household (1.43 for migrants; 1.86 for seasonals) were used to determine the number of those under 20 years of age. The results found 90,885 migrant and 325,404 seasonal children and youth.

These individuals were divided into the following age groups using percentages from regional NAWS information:

Migrants: under 1 = 6.1%, ages 1-4 = 30.4%, ages 5-12 = 41.5%, ages 13-14 = 7.8%, ages 15-18 = 11.8%, and age 19 = 2.4%.

Seasonals: under 1 = 5.3%, ages 1-4 = 23.9%, ages 5-12 = 41.4%, ages 13-14 = 9.8%, ages 15-18 = 16.3%, and age 19 = 3.3%.

TABLE ONE
CALIFORNIA MSFW ENUMERATION PROFILES ESTIMATES
FINAL

FIELD AGRICULTURE, NURSERY/GREENHOUSE AND FOOD PROCESSING

County	Adjusted MSFW Farmworker Estimates	Migrant Farmworkers	Seasonal Farmworkers	Non-Farmworkers In Migrant Households	Non-Farmworkers In Seasonal Households	MSFW Farmworkers And Non-Farmworkers
Alameda	895	414	480	152	545	1,592
Alpine	0	0	0	0	0	0
Amador	574	266	308	98	350	1,022
Butte	5,662	2,621	3,040	963	3,450	10,075
Calaveras	106	49	57	18	64	188
Colusa	10,860	5,028	5,832	1,848	6,617	19,325
Contra Costa	1,925	891	1,034	328	1,173	3,426
Del Norte	471	218	253	80	287	838
El Dorado	748	346	402	127	456	1,331
Fresno	113,741	52,662	61,079	19,353	69,309	202,404
Glenn	2,921	1,352	1,568	497	1,780	5,197
Humboldt	729	338	392	124	444	1,297
Imperial	22,849	10,579	12,270	3,888	13,923	40,659
Inyo	55	26	30	9	34	98
Kern	71,823	33,254	38,569	12,221	43,766	127,810
Kings	12,933	5,988	6,945	2,201	7,881	23,015
Lake	2,269	1,051	1,219	386	1,383	4,038
Lassen	424	196	228	72	258	754
Los Angeles	11,053	5,118	5,936	1,881	6,735	19,670
Madera	23,132	10,710	12,422	3,936	14,096	41,163
Marin	543	251	292	92	331	966
Mariposa	38	18	20	6	23	68
Mendocino	4,788	2,217	2,571	815	2,917	8,520
Merced	20,345	9,420	10,925	3,462	12,397	36,203
Modoc	664	307	356	113	404	1,181
Mono	21	10	11	4	13	37
Monterey	67,769	31,377	36,392	11,531	41,296	120,595
Napa	9,527	4,411	5,116	1,621	5,805	16,953
Nevada	160	74	86	27	98	285
Orange	8,796	4,073	4,723	1,497	5,360	15,652
Placer	625	290	336	106	381	1,113
Plumas	55	26	30	9	34	98
Riverside	27,275	12,628	14,647	4,641	16,620	48,536
Sacramento	6,115	2,831	3,284	1,040	3,726	10,882
San Benito	5,690	2,635	3,056	968	3,468	10,126
San Bernardino	5,466	2,531	2,935	930	3,330	9,726
San Diego	15,371	7,117	8,254	2,615	9,366	27,352
San Francisco	267	124	144	45	163	476
San Joaquin	46,913	21,721	25,192	7,982	28,587	83,482
San Luis Obispo	9,272	4,293	4,979	1,578	5,650	16,500

County	Adjusted MSFW Farmworker Estimates	Migrant Farmworkers	Seasonal Farmworkers	Non-Farmworkers In Migrant Households	Non-Farmworkers In Seasonal Households	MSFW Farmworkers And Non-Farmworkers
San Mateo	3,183	1,474	1,709	542	1,940	5,665
Santa Barbara	24,461	11,326	13,136	4,162	14,906	43,529
Santa Clara	8,260	3,825	4,436	1,406	5,034	14,699
Santa Cruz	15,004	6,947	8,057	2,553	9,143	26,699
Shasta	4,417	2,045	2,372	752	2,692	7,860
Sierra	2	1	1	0	1	3
Siskiyou	2,649	1,226	1,422	451	1,614	4,714
Solano	5,089	2,356	2,733	866	3,101	9,055
Sonoma	12,251	5,672	6,579	2,085	7,465	21,801
Stanislaus	28,623	13,252	15,370	4,870	17,442	50,935
Sutter	11,050	5,116	5,934	1,880	6,734	19,664
Tehama	2,982	1,381	1,601	507	1,817	5,306
Trinity	65	30	35	11	39	115
Tulare	57,534	26,638	30,896	9,789	35,059	102,382
Tuolumne	183	85	98	31	111	325
Ventura	27,423	12,697	14,726	4,666	16,710	48,799
Yolo	11,532	5,339	6,193	1,962	7,027	20,521
Yuba	4,169	1,930	2,239	709	2,541	7,420
Total State	731,745	338,798	392,947	124,508	445,897	1,302,150
Reforestation						
Total State	364	168	195	62	222	648
Grand State Total	732,109	338,966	393,142	124,570	446,118	1,302,797

NOTE: County numbers have been rounded and, therefore, may not add to totals.

CHILDREN AND YOUTH BY AGE GROUPS (STATEWIDE)

Age Groups	Migrant Percent	Number of Migrant Children And Youth	Seasonal Percent	Number of Seasonal Children And Youth
< 1	6.1%	5,544	5.3%	17,246
1-4	30.4%	27,629	23.9%	77,772
5-12	41.5%	37,717	41.4%	134,717
13-14	7.8%	7,089	9.8%	31,890
15-18	11.8%	10,724	16.3%	53,041
19	2.4%	2,181	3.3%	10,738
Total	100.0%	90,885	100.0%	325,404

NOTE: "Children and Youth" are defined as those under 20 years of age. Some may be farmworkers

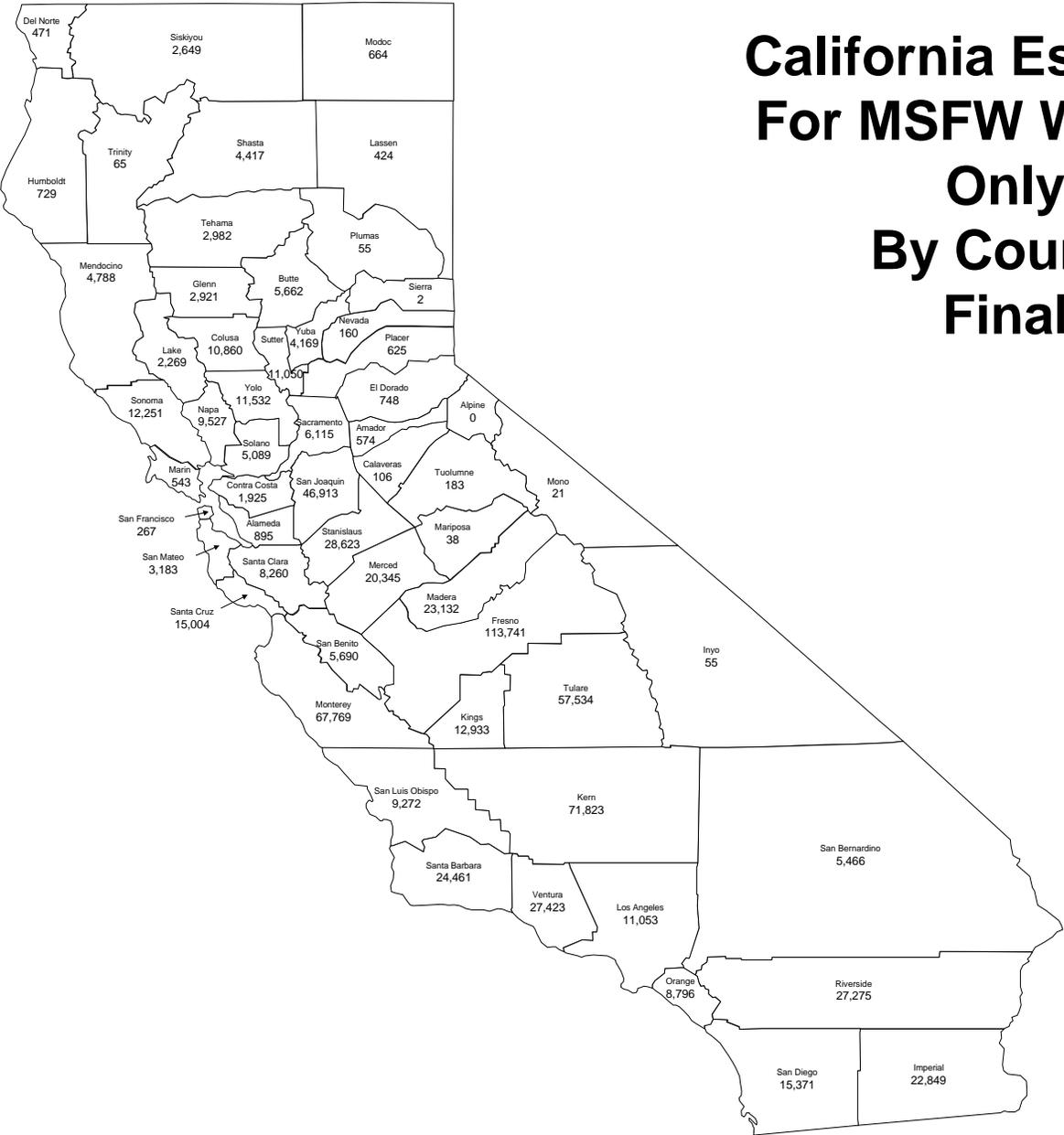
TABLE TWO
CALIFORNIA DEMAND FOR LABOR FACTORS
FINAL

Crop	Hours For Task	Daily Work Hours	Peak Season Length (Work Days)
Almonds	2	7.7	35.71
Apples	76.5	7.7	38.14
Apricots	96	7.7	18.16
Artichokes	65	7.7	33.57
Asparagus	84	7.7	34.29
Avocados	84	7.7	109.52
Berries	172	7.7	27.27
Blackberries	60	7.7	15.00
Blueberries	181.5	7.7	28.09
Boysenberries	60	7.7	15.00
*Broccoli	98	7.7	*37.86
Brussels Sprouts	120	7.7	65.71
Cantaloups	60	7.7	27.38
Carrots	10	7.7	33.04
Cauliflower	94	7.7	49.11
Celery	126	7.7	43.57
Cherries	140	7.7	9.29
Chicory	118.72	7.7	35.89
Chinese Cabbage	96	7.7	65.00
Christmas Trees	31.7	7.7	21.43
Collards	92	7.7	26.43
Cotton	1.2	7.7	47.86
Cucumbers and Pickles	110	7.7	40.71
Dates	130	7.7	54.29
Dry Lima Beans	8	7.7	24.00
Dry Onions	80.5	7.7	24.52
Dry Southern Peas	9	7.7	29.29
Eggplant	157	7.7	58.21
Endive	133	7.7	33.57
English Walnuts	6.49	7.7	19.45
Figs	45	7.7	29.52
Grapefruit	49	7.7	77.86
Grapes (wine)	66.48	7.7	28.81
Grapes (raisins)	42.41	7.7	13.57
Grapes (table)	174.13	7.7	29.82
Green Lima Beans	8	7.7	21.43
Green Onions	220	7.7	60.00
Guavas	135	7.7	109.29
Head Cabbage	90	7.7	65.00
Herbs	293	7.7	33.57
Honeydew Melons	120	7.7	32.86
Hot Peppers	272	7.7	43.57
Kale	180	7.7	33.57

Crop	Hours For Task	Daily Work Hours	Peak Season Length (Work Days)
Kiwifruit	175	7.7	155.00
Kumquats	175	7.7	155.00
Lemons	30	7.7	112.57
Lettuce and Romaine	118.72	7.7	35.89
Limes	49	7.7	65.71
Macadamia Nuts	60	7.7	44.29
Mustard Greens	179	7.7	26.43
Nectarines	38	7.7	21.43
Okra	206	7.7	64.29
Olives	137.76	7.7	38.16
Oranges	76.93	7.7	82.70
Other Citrus Fruits	67.13	7.7	100.34
Other Noncitrus Fruit	93.01	7.7	35.81
Other Nuts	17.62	7.7	33.25
Other Tangerines	35	7.7	78.57
Other Vegetables	119.57	7.7	43.19
Parsley	293	7.7	33.57
Peaches	116.73	7.7	23.06
Pears	111.49	7.7	21.50
Persimmons	90	7.7	30.00
Pistachios	19.62	7.7	44.29
Plums and Prunes	27.54	7.7	26.79
Pomegranates	25	7.7	25.71
Potatoes	11	7.7	60.00
Pumpkins	22	7.7	17.86
Radishes	367	7.7	21.43
Raspberries	20.25	7.7	13.57
Spinach	218	7.7	56.29
Squash	110	7.7	61.43
Strawberries	355.1	7.7	65.00
Sugar Beets	13	7.7	141.43
Sweet Cherries	218	7.7	10.26
Sweet Corn	37	7.7	32.62
Sweet Peppers	161.22	7.7	43.57
Sweetpotatoes	82	7.7	22.14
Tangelos	55	7.7	130.00
Tart Cherries	13	7.7	10.31
Tomatoes (fresh)	318	7.7	29.05
Tomatoes (process)	18.36	7.7	36.43
Turnip Greens	140	7.7	26.43
Turnips	26	7.7	21.43
Watermelons	53	7.7	36.79

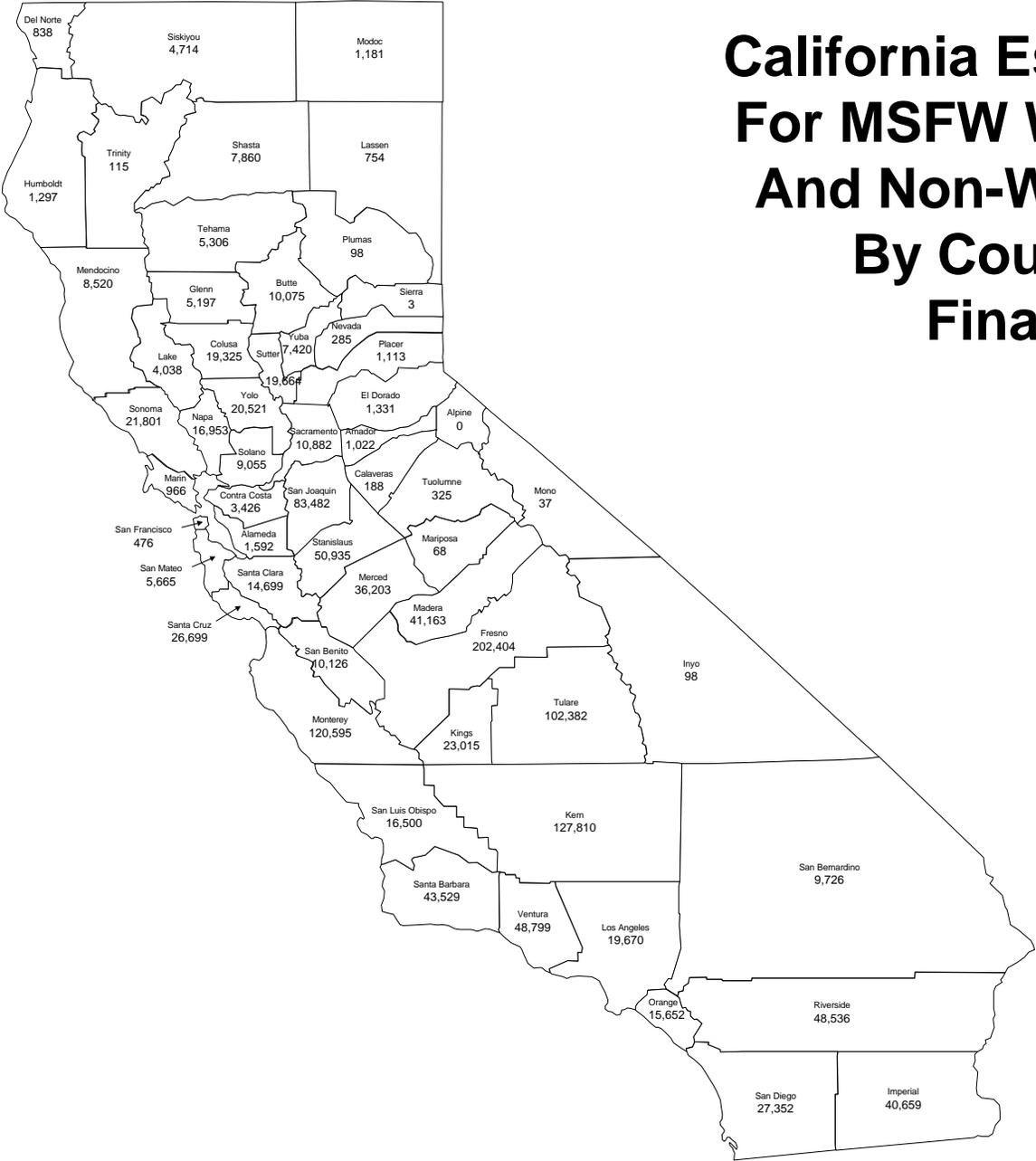
* Season length for broccoli in Monterrey County = 151.43.

California Estimates For MSFW Workers Only By County Final



Reforestation Statewide: 364
 Grand Total -- MSFWs in California: 732,109

California Estimates For MSFW Workers And Non-Workers By County Final



Reforestation -- Workers and Non-Workers Statewide: 648
 Grand Total -- MSFW Workers and Non-Workers in California: 1,302,797

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CALIFORNIA ADDENDUM

A. INTRODUCTION

In order to address a special need of California health services providers, this Addendum was created to include a count of farmworkers that work on a year-round as well as seasonal basis. It has been developed in response to unique California circumstances and data needs, as identified by reviewers of California Enumeration Draft documents.

First, California's agricultural sector has grown to the point where some farmworkers are able to obtain year-round employment, albeit at the same low wage/no-low benefits (typically without health insurance coverage) as farmworkers employed seasonally. In addition, California has two state-financed health care programs that specifically address the needs of farmworkers and their dependents: the Seasonal Agricultural Migratory Worker (SAMW) Program and Rural Demonstration Projects (RDP). These programs target all of California's farmworkers, including those employed year-around.

In the past, the state agencies that implement these programs have used Migrant Health Program-developed MSFW estimates, specifically *An Atlas of State Profiles Which Estimate Number of Migrant and Seasonal Farmworkers and Members of Their Families* (1990), to distribute SAMW and RDP resources. To maximize use of estimates published in California's *MSFW Enumeration Profiles Study* and continue to support the health care needs of farmworkers, this Addendum offers figures more suited to use by California's SAMW and RDP.

B. METHODOLOGY USED TO CALCULATE ALL AGRICULTURAL WORKERS

The Administrative Data Method was applied to data from the 1995 and 1996 *Agricultural Employment and Earnings Bulletin* (Employment Development Department) for the 92% of all agricultural workers who were identified as "production workers" (excluding managers, supervisors, office, sales and other staff not involved in agricultural production). The estimates were also adjusted to exclude those engaged in machine harvesting and farm management services as well as livestock workers. The results for the two years were averaged to obtain an estimate of 938,758 year-round workers statewide.

A check on this estimate can be found in the *Agricultural Employment Pattern Study: 1989* that looked at discrete social security numbers for individuals reporting employment in agriculture during the year. This study found 881,864 agricultural

employees including those working with livestock, veterinary services and livestock and pet services (a small proportion of the total). Given some increase in California agriculture over the period between the two data sources, it might be reasonable to use the results of the Administrative Data Method.

This statewide estimate was attributed to counties based on the percentage share each represented of the state total. Calculations similar to that used for MSFWs were then made to determine sub-group estimates. The results are presented on Table 3.

TABLE THREE
CALIFORNIA ALL AGRICULTURAL WORKERS ESTIMATES
FINAL

County	Adjusted MSFW Farmworker Estimates	Migrant Farmworkers	Seasonal Farmworkers	Non-Farmworkers In Migrant Households	Non-Farmworkers In Seasonal Households	MSFW Farmworkers And Non-Farmworkers
Alameda	1,148	531	616	195	699	2,043
Alpine	0	0	0	0	0	0
Amador	737	341	396	125	449	1,311
Butte	7,263	3,363	3,900	1,236	4,426	12,925
Calaveras	135	63	73	23	83	241
Colusa	13,932	6,450	7,481	2,371	8,490	24,792
Contra Costa	2,470	1,144	1,326	420	1,505	4,395
Del Norte	604	280	325	103	368	1,076
El Dorado	960	444	515	163	585	1,708
Fresno	145,919	67,561	78,359	24,828	88,917	259,665
Glenn	3,747	1,735	2,012	638	2,283	6,668
Humboldt	935	433	502	159	570	1,664
Imperial	29,312	13,572	15,741	4,988	17,862	52,162
Inyo	71	33	38	12	43	126
Kern	92,142	42,662	49,480	15,678	56,148	163,968
Kings	16,592	7,682	8,910	2,823	10,111	29,526
Lake	2,911	1,348	1,563	495	1,774	5,181
Lassen	544	252	292	93	331	968
Los Angeles	14,180	6,566	7,615	2,413	8,641	25,234
Madera	29,676	13,740	15,936	5,049	18,083	52,809
Marin	697	323	374	119	425	1,240
Mariposa	49	23	26	8	30	87
Mendocino	6,142	2,844	3,298	1,045	3,743	10,930
Merced	26,100	12,084	14,016	4,441	15,904	46,445
Modoc	851	394	457	145	519	1,515
Mono	27	12	14	5	16	47
Monterey	86,941	40,253	46,687	14,793	52,978	154,712
Napa	12,222	5,659	6,563	2,080	7,447	21,748
Nevada	206	95	110	35	125	366
Orange	11,284	5,225	6,060	1,920	6,876	20,081
Placer	802	371	431	137	489	1,428
Plumas	71	33	38	12	43	126
Riverside	34,991	16,201	18,790	5,954	21,322	62,267
Sacramento	7,845	3,632	4,213	1,335	4,780	13,960
San Benito	7,300	3,380	3,920	1,242	4,448	12,991
San Bernardino	7,012	3,246	3,765	1,193	4,273	12,477
San Diego	19,719	9,130	10,589	3,355	12,016	35,090
San Francisco	343	159	184	58	209	610
San Joaquin	60,184	27,865	32,319	10,241	36,674	107,099
San Luis Obispo	11,896	5,508	6,388	2,024	7,249	21,168
San Mateo	4,084	1,891	2,193	695	2,489	7,267
Santa Barbara	31,381	14,530	16,852	5,340	19,123	55,844
Santa Clara	10,597	4,906	5,691	1,803	6,457	18,858

County	Adjusted MSFW Farmworker Estimates	Migrant Farmworkers	Seasonal Farmworkers	Non-Farmworkers In Migrant Households	Non-Farmworkers In Seasonal Households	MSFW Farmworkers And Non-Farmworkers
Santa Cruz	19,248	8,912	10,336	3,275	11,729	34,252
Shasta	5,667	2,624	3,043	964	3,453	10,084
Sierra	2	1	1	0	1	4
Siskiyou	3,398	1,573	1,825	578	2,071	6,047
Solano	6,528	3,023	3,506	1,111	3,978	11,617
Sonoma	15,717	7,277	8,440	2,674	9,578	27,969
Stanislaus	36,720	17,001	19,719	6,248	22,376	65,344
Sutter	14,177	6,564	7,613	2,412	8,639	25,228
Tehama	3,825	1,771	2,054	651	2,331	6,807
Trinity	83	38	45	14	51	148
Tulare	73,810	34,174	39,636	12,559	44,977	131,346
Tuolumne	235	109	126	40	143	417
Ventura	35,181	16,289	18,892	5,986	21,438	62,605
Yolo	14,794	6,850	7,944	2,517	9,015	26,326
Yuba	5,349	2,477	2,872	910	3,259	9,519
State Total	938,758	434,645	504,113	159,732	572,042	1,670,532

NOTE: County numbers have been rounded and, therefore, may not add to totals.