Who Works on California Farms?

DEMOGRAPHIC AND EMPLOYMENT FINDINGS FROM THE NATIONAL AGRICULTURAL WORKERS SURVEY

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HOWARD R. ROSENBERG
University of California at Berkeley

ANNE STEIRMAN
Aguirre International

SUSAN M. GABBARD
Aguirre International

RICHARD MINES
U.S. Department of Labor

Office of the Assistant Secretary for Policy
Office of Program Economics
U.S. Department of Labor
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The interpretations and views expressed herein are the authors' and do not necessarily reflect official positions of any of the collaborating organizations.

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Introduction: Getting to Know the Farm Workforce

This report presents public information on the characteristics and work patterns of people who perform seasonal tasks to produce perishable crops in California. It is based on data from the National Agricultural Workers Survey (NAWS), and its intended audience includes policy makers, researchers, agricultural employers, employer associations, and organizations providing services to farm workers. We published a similar report in 1993.[1]

The NAWS is a national survey that collects extensive data from farm workers about their basic demographic attributes, legal status, education, family size and household composition, wages and working conditions in farm jobs, and participation in the U.S. labor force. Information for the current profile described in this report was obtained through 1,885 interviews in California during federal fiscal years 1995 through 1997, and for the 1993 report through 1,844 interviews during fiscal 1990 and 1991. Many comparisons of current findings with those from the earlier period are provided in this report.

The NAWS was initially commissioned by the U.S. Department of Labor (DOL) as part of its response to the Immigration Reform and Control Act of 1986 (IRCA). IRCA required the secretaries of agriculture and labor to determine annually whether a shortage of seasonal agricultural service workers was to be expected in 1990–93 and to monitor seasonal agricultural wages and working conditions. Other federal agencies have participated in the development of the NAWS over time by advising on new interview questions to generate information of specific help to them in serving farm workers.

The NAWS interviews only workers employed in crop agriculture,[2] which was defined quite broadly under IRCA by the U.S. Department of Agriculture (USDA) to include "field work" in the vast majority of nursery products, cash grains, and field crops as well as in all fruits and vegetables. Crop agriculture now is also considered to include the production of silage and other animal fodder (workers in these crops were not in the NAWS at the time of the 1990–91 interviews). The population sampled by NAWS consists of all seasonal farm workers in crop agriculture, even if performing seasonal services within year-round employment. The field work criterion generally excludes secretaries and mechanics, but it includes field packers, supervisors, and all other field workers. The NAWS does not sample unemployed agricultural workers.

Topics Covered

The main body of this report is organized into seven sections. Sections 1 through 3 provide information on farm workers' national origin, employment eligibility, demographic characteristics, family composition, education, and language proficiency.

The next two sections describe the employment attributes of California crop workers.[3] Section 4 gives an overview of how much these workers participate in the farm labor force. Section 5 outlines characteristics of the farm jobs they held, including employer type, crop and task, weekly hours, wages and benefits, and working conditions.

Section 6 contains information on farm workers' incomes, assets, and use of social services. It covers personal income level and relation to poverty standards, assets in the United States and home country, and use of government and private social services. Section 7 discusses California farm workers' use of medical services.

Appendix A describes the statistical conventions that were followed in the analyses. Throughout this report, text and figures present summary measures of worker responses to interview questions, such as the percentages of respondents whose primary language is English, Spanish, or some other language. In some subsections, interview data are aggregated by important subgroups of the population. For example, English proficiency is reported by workers' country of origin. Appendix B lists other research reports published from NAWS data.

Survey Method

Each year, the NAWS interviews more than 2,000 randomly selected crop workers across the United States, approximately 29% of them in California. The sampling procedure respects seasonal and regional fluctuations in the level of farm work activity. The NAWS uses site area sampling to obtain a nationally representative group of crop workers while containing travel costs of survey staff.

To ensure that data collection is sensitive to seasonal fluctuations in the agricultural workforce, interviews are conducted three times a year in cycles lasting 10 to 12 weeks. Cycles begin in February, June, and October. The

1. H. R. Rosenberg, S. M. Gabbard, E. Alderete, and R. Mines. *California Findings From the National Agricultural Workers Survey: A Demographic and Employment Profile of Perishable Crop Farm Workers*. U.S. Department of Labor, Office of the Assistant Secretary for Policy, Office of Program Economics; and Agricultural Personnel Management Program, University of California Division of Agriculture and Natural Resources. Research Report No. 3. Washington, D.C.: U.S. Government Printing Office, 1993.
2. "Crop agriculture" refers to all crops included in Standard Industrial Classification (SIC) code 01. The survey population was originally specified as workers performing "seasonal agricultural services" (SAS).
3. The terms "farm worker" and "crop worker" are interchangeable in this report.
4. County clusters are loosely based on crop reporting districts across the nation. Many California CRDs are so large that their component clusters are single counties comparable in size to sampled CRDs in other states.

number of interviews conducted during a cycle is proportionate to the amount of crop activity (as measured in payroll dollars) at that time of the year.

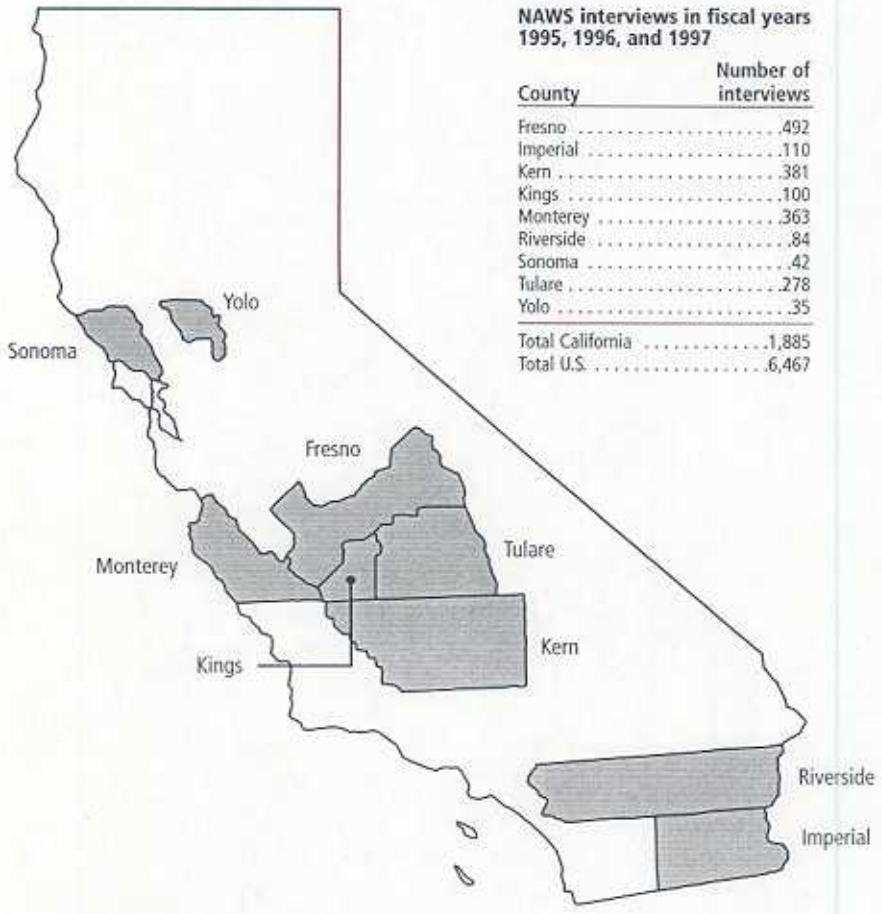
A sample of 288 counties in 47 crop reporting districts (CRDs) within 25 states was selected to represent 12 distinct agricultural regions during 1995–97. No fewer than two CRDs were chosen from each region. California is a distinct region by itself, and the NAWS surveyed nine county clusters in this state.[4]

Multistage sampling is used to choose respondents in each cycle. Approximately 30 of the 47 county clusters are selected randomly to be interview sites. The likelihood of a given site being selected varies with the size of its seasonal agricultural payroll. Because California has relatively high agricultural payrolls through the year, several of its counties are usually selected for interviews during each cycle. Farm employers within each of the selected counties are chosen randomly from public agency records, including unemployment insurance files and agricultural commissioners' pesticide registrations. These sources of employer names are supplemented by lists maintained by such agencies as the Bureau of Labor Statistics, the Agricultural Soil Conservation Service, and the California Department of Industrial Relations.

NAWS interviewers in California contact the selected employers, explain the purpose of the survey, and obtain access to the work site to schedule interviews. Interviewers then go to the farm, ranch, or nursery, explain the purpose of the survey to workers, and ask a random sample of them to participate. Interviews are conducted in workers' homes or other locations of their choice.

The 1,885 personal interviews on which this report is based were conducted between October 1, 1994 and September 30, 1997 in nine California counties, the same ones from which data were drawn for the 1993 report (fig. 1).

COUNTIES SAMPLED IN CALIFORNIA



NAWS interviews in fiscal years 1995, 1996, and 1997

County	Number of interviews
Fresno	492
Imperial	110
Kern	381
Kings	100
Monterey	363
Riverside	84
Sonoma	42
Tulare	278
Yolo	35
Total California	1,885
Total U.S.	6,467

Figure 1. Data in this report came from interviews with workers in nine California counties.

Section 1: Birthplace and Employment Eligibility

CALIFORNIA FARM WORKERS' NATIONAL ORIGIN, RACE AND ETHNICITY, AND ELIGIBILITY TO WORK IN THE UNITED STATES; THE LENGTH OF TIME THEY HAVE WORKED IN THE UNITED STATES; PROGRAMS THROUGH WHICH THEY RECEIVED THEIR WORK AUTHORIZATION STATUS.

Highlights of Findings

- *Nearly all California farm workers are foreign-born; most are from Mexico.*
- *One-third have been in the United States for 15 years or more, and one-fourth for less than 2 years.*
- *Four in ten of the workers interviewed are not legally eligible for employment in the United States.*

Place of Birth

California agricultural employers depend heavily on foreign workers, especially from Mexico, even more than they did in 1990–91. Of California crop workers, 95% were born outside of the United States (91% were born in Mexico, compared to 82% in 1990–91), 2% are from other Central American countries, and 3% are from the Pacific Islands (fig. 2).

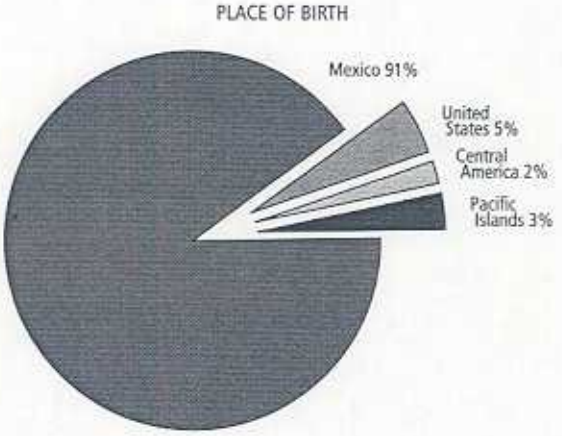


Figure 2. Nine out of ten California crop workers were born in Mexico. Note: Sum of portions is not equal to 100% because of rounding error. *Source:* NAWS.

Ethnicity and Race

Ethnicity labels are somewhat arbitrary because they are based on multiple characteristics such as cultural heritage, nationality, and racial background. A person's ethnicity may be identified differently by self, friends, sociologists, and government agencies. Ethnic distinctions among California farm workers in the NAWS are related to major national, cultural, and linguistic differences.

In asking about ethnicity, the NAWS originally attempted to use standard questions about racial identity and Hispanic origin that would conform to U.S. Census definitions and allow for comparison with other surveys. Based on early experience and advice, the survey questions were modified and response categories increased. Despite these changes, many farm workers found it difficult to identify themselves using the set categories, probably because many of them come from countries where race and ethnicity are defined differently than in the United States.

The initial Hispanic-origin groupings were revised to include Mexican-American, Mexican, Chicano, Puerto Rican, Other Hispanic, and "none of the above." Farm workers had little difficulty identifying themselves within this expanded set of categories.

The survey question on racial identity presented greater difficulty for respondents. Crop workers were asked to describe themselves as White, Black, Asian or Pacific Islander, Native American, Alaskan Native or Indigenous, or "Other." Many California crop workers (24%), apparently not identifying with these standard U.S. racial categories, answered "Other." Almost all who did so were foreign-born Hispanic, and many of them would be classified as White by the U.S. Census.

Almost all (98%) California crop workers identify themselves as members of a Hispanic minority group: 92% Mexican, 4% Mexican-American, and 2% other Hispanic. More than two-thirds of all California crop workers consider themselves to be White.

Of the California crop workers who were born in the United States, 84% are Hispanic, 14% are White, and 2% are Black, Asian, Native American, or another category. Among foreign-born workers, 97% are Hispanic and the rest are Pacific Islanders.

Number of Years in the United States

Foreign-born crop workers in California have resided in the United States for an average of 10 years, more than half (53%) for less than 10 years. About 26% have been in the United States for fewer than 3 years, a much larger portion than in 1990–91 (12%). One-third of the for-

Figure 3. A larger portion of workers in the 1995–97 sample have been in the United States for fewer than 3 years than in the 1990–91 sample. *Source:* NAWS.

eign-born workers in California have been in the United States between 5 and 14 years, and nearly another one-third for 15 years or more (fig. 3).

The number of years foreign-born workers have been in the United States varies by birthplace, as it did in 1990–91. Workers born in Mexico have been in the United States a bit longer than the average, about 11 years, while workers born in Central America or the Pacific Islands average about 7 years in the United States (fig. 4).

Figure 4. Workers from Mexico tend to have lived in the United States longer than workers from other countries. *Source:* NAWS.

Employment Eligibility

Foreign-born workers may be authorized to work in the United States through various means administered by the Immigration and Naturalization Service. The NAWS determines whether workers are authorized to work in the United States by asking a series of related questions that produce a picture of each workers' eligibility status. The questions address the worker's citizenship status; application for legal status, including the program under which they applied; the status of their application for legal status and the effective date of that status; and whether they have general work authorization. Inconsistencies that arise between responses are examined to determine whether the worker is eligible to work in the United States or is not authorized to do so.

Fewer than three in five California crop workers (58%) have a status that allows them to work legally in the United States. Only 9% were unauthorized in 1990–91, when more than two-thirds (70%) of all workers were legally employable by virtue of their approved or pending applications for amnesty under the Immigration Reform and Control Act of 1986 (IRCA).

Most currently authorized workers (48% of the entire survey sample) are legal permanent residents (fig. 5); 7% of the survey sample are U. S. citizens, and 2% are employment-eligible on some other basis (e.g., as refugees, pending applicants for residence under family unification rules, or foreign students). More than three out of five (61%) legal permanent residents (LPRs) obtained their status through one of the amnesty programs of IRCA—the general legalization, the Special Agricultural Worker (SAW), and the Cuban or Haitian entrant programs. Fully one-third (33%) obtained their status through the family unity or spousal petition program, and 6% obtained it through other means. Of those who became U.S. citizens, 30% were naturalized through one of these methods.

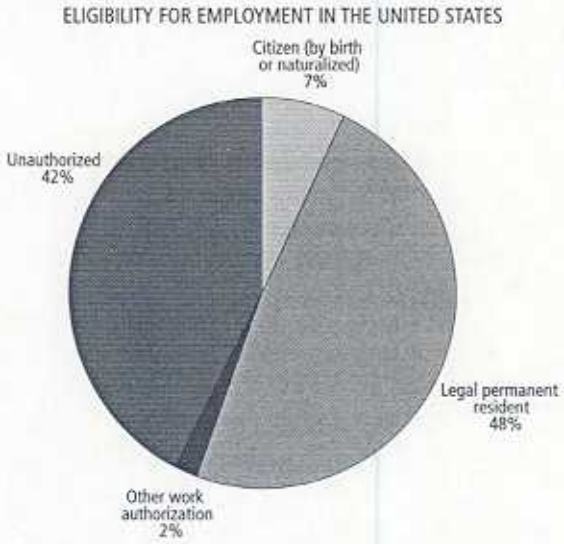


Figure 5. Four in ten California farm workers do not have legal authorization to work in the United States. Note: Sum of portions is not equal to 100% because of rounding error. *Source:* NAWS.

Section 2: Demographics, Family, and Household Composition

DEMOGRAPHIC CHARACTERISTICS OF CALIFORNIA FARM WORKERS, INCLUDING AGE, GENDER, AND MARITAL STATUS; FAMILY AND HOUSEHOLD COMPOSITION.

Highlights of Findings

- *Four out of five California farm workers are men.*
- *Their average age is 33 years.*
- *Three out of five workers are married, and more than half are parents.*
- *Two-thirds of the parents reside with their spouses or children or both while employed in farm work.*

Gender

California farm workers are predominantly male (82%), making up a larger majority than in 1990–91 (74%). Although women make up only one-fifth of this labor force, they are a larger share (28%) of workers who are U. S. citizens (fig. 6).

Figure 6. Women are more heavily represented among citizens and less represented among unauthorized workers. *Source:* NAWS.

Age

The California crop workforce is relatively young, with an average age of 33 and a median age of 30. It is slightly younger than in 1990–91, when the average age was 34 and the median was 32. Four-fifths (80%) of workers are from 18 to 44 years old. Very few are younger than 18 (3%) or older than 54 (7%) (fig. 7).

Age varies by ethnicity. U.S.-born workers of Hispanic background tend to be the youngest, with a median age of 24 years. Mexican-born workers, workers from other Central American countries, and U.S.-born Whites have median ages of 30, 32, and 36 years, respectively. Those born in the Pacific Islands tend to be the oldest, with a median age of 43 years.

Age also varies by legal status. Unauthorized workers tend to be the youngest, with an average age of 25. Nearly two in five (39%) of them are younger than 22, and

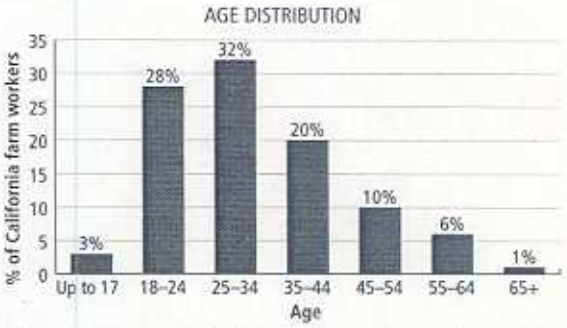


Figure 7. Three out of five California crop workers are between the ages of 18 and 34. *Source:* NAWS.

another one-half (49%) are between 22 and 34 years old. While only one-third of the workers who are U.S. citizens are from 25 to 44 years old, two-thirds (67%) of the legal permanent residents and three-quarters (77%) of those with another authorized status fall into that age range.

Marital and Family Status

Three out of five (61%) California farm workers are married, fewer than in 1990–91 (66%). Four percent are separated, divorced, or widowed, and 35% have never been married. Male workers are as likely as their female counterparts to be married.

More than half (56%)5 of the California crop workers, married or single, are parents, compared to nearly two-thirds (64%) in 1990–91. One of every twelve parents is not married. Approximately one-third (34%) of the workers are single and have no children, and one in ten (9%) is married with no children (fig. 8).

Parents employed in California farm work have an average of nearly three children. Approximately one-

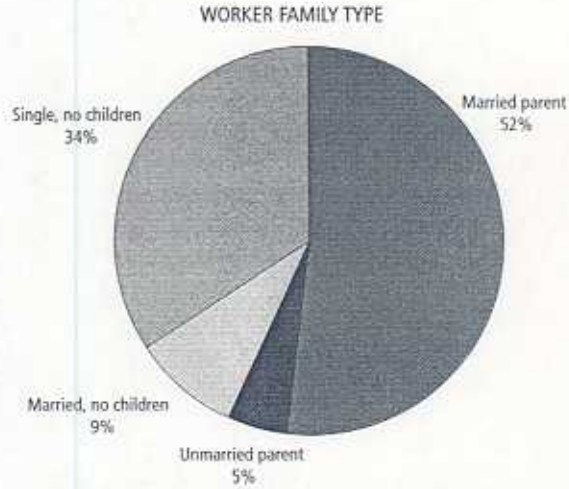


Figure 8. More than half of California farm workers have children. *Source:* NAWS.

5. This figure of 56% differs from the sum of percentages of married and unmarried parents shown in figure 8 due to rounding.

quarter (27%) of those parents have one child, one-quarter (29%) have two children, and one-fifth (22%) have three children. Another one-fifth (20%) have between four and six children, and the remainder have between seven and eleven children.

Family Residence in Area of Work

California farm workers who live away from their immediate families may have patterns of work, travel, and recreation different from those who reside near family. Workers living apart from their parents, spouses, and children at the time of interview are considered by the NAWS to be "unaccompanied." Those who are living with at least one family member (spouse, child, or parent) while engaged in crop work are "accompanied."

An unaccompanied farm worker is not necessarily a migrant; a worker may be unaccompanied whether migrating from a permanent home or not. Families residing together at a work site may be either settled there or staying temporarily as part of a migration cycle. In either case, the worker in such a family is considered to be accompanied.

Close to half (45%) of all California crop workers are accompanied by family, down from 60% in 1990–91. Most of them (31% of all) are married parents, and 2% are single workers living with their parents. One-third (32%) are single workers unaccompanied by family members, and one-quarter (24%) are parents or married workers not living with their spouses or children or both at the time of the NAWS interview.

About two-thirds (62%) of all crop worker parents and three-quarters (77%) of the married workers who do not have children are accompanied. Of the parents and married workers who are unaccompanied, nearly all (97%) have children or spouses living in Mexico, 1% in the United States and Puerto Rico, and 2% in other nations.

Women in California farm work are more than twice as likely (79%) as men (37%) to be living with family members. Nearly all (96%) of the mothers but only half (52%) of the fathers are accompanied. Among childless married couples, 86% of the women and 75% of the men are accompanied by their spouses (fig. 9).

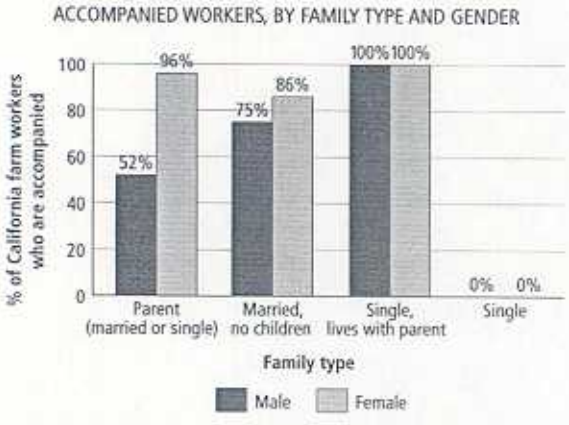


Figure 9. Nearly all California farm workers who are mothers are accompanied, while only one-half of the fathers are. *Source:* NAWS.

Household Size and Composition

Of the farm workers who are parents, 40% live apart from all of their children while they are performing crop work, up from 30% in 1990–91. Most who are accompanied by children (48% of all parents) have between one and three children who live with them (fig. 10), another one-third (30%) of all parents have between one and three children living in another location, and 1% have some children who live with them and other children who live elsewhere. In all, more than half of the workers' children live with their farm worker parents, and the rest live in other locations (such as Mexico).

Households of parents and married workers, with or without children, often serve as "anchor" families for relatives and friends. It is common for farm worker households to contain more individuals than just a farm worker, his or her spouse, and their children. One or more non–family members are present in nearly half (47%) of all parent or married worker households, and a sibling or extended family member is present in only 2% of them.

In contrast, one or more non–family members are present in the households of nearly nine out of ten workers who are either single and childless (87%) or are living apart from their spouses and children (86%). Of these households, 13% contain one or two unrelated individuals, nearly three-quarters (72%) contain between three and six, and another 15% contain seven to fourteen individuals who are not related to the farm worker. Of these households, 5% also include an extended family member, such as a sibling or cousin.

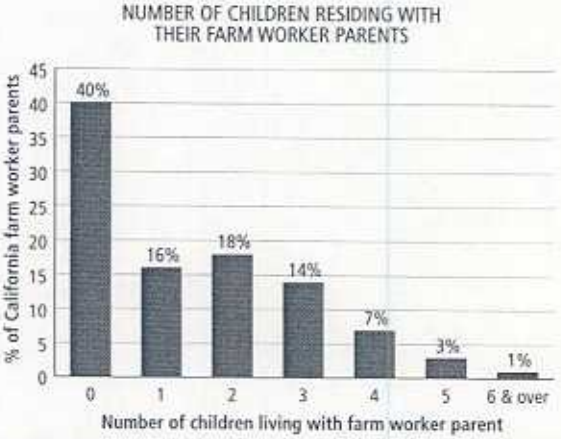


Figure 10. Four out of ten California farm worker parents live apart from all of their children while working in farm work. Note: Sum of portions is not equal to 100% because of rounding error. *Source:* NAWS.

Section 3: Schooling, Literacy, and English Skills

NATIVE LANGUAGE, EDUCATIONAL LEVEL, LITERACY, AND ENGLISH FLUENCY OF CALIFORNIA CROP WORKERS (LEVELS OF PROFICIENCY ARE SELF-REPORTED BY THE FARM WORKER INTERVIEWEES).

Highlights of Findings

- *Nearly all California farm workers communicate in Spanish.*
- *Farm workers have typically completed 6 years of education.*
- *Fewer than 10% of the foreign-born farm workers speak or read English fluently.*

Native Language

Spanish is the native language of fully 95% of California farm workers. English is the native language of only 1%, and first languages of the remaining workers include Tagalog and Mixtec (fig. 11).

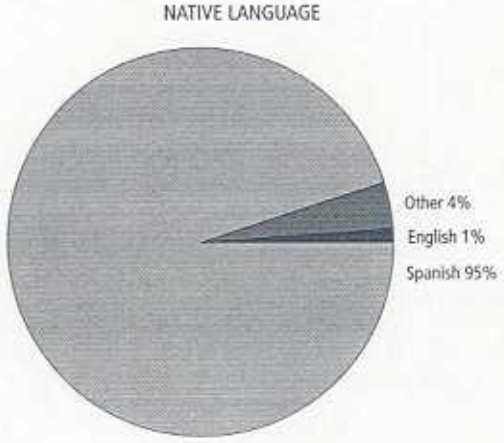


Figure 11. Spanish is the first language of nearly all California crop workers. *Source:* NAWS.

Schooling

Most crop workers have had little formal schooling. As in 1990–91, their median level of education is sixth grade, considering all schools they attended in the United States and abroad.

Almost all (93%) received their highest level of formal education in their country of origin (Mexico for most workers). The 11% of workers who completed their highest grade in the United States have had more years of instruction (median eleventh grade) than those educated abroad (median sixth grade) (fig. 12). A small percentage who come from a language minority group in their native countries were less likely to be educated in the language spoken at home. These include U.S.-born workers who primarily speak Spanish (3%), as well as Mexicans and Central Americans whose native language is not Spanish (1%).

Unlike in 1990–91, native English speakers do not tend to have higher levels of education than others whose final schooling was in the United States. The median level of education for the former is tenth grade and for the latter, eleventh grade. On the other hand, the median level of education abroad is 6 years for all foreign-born workers, but only 3 years for Mexicans and Central Americans whose native language is not Spanish.

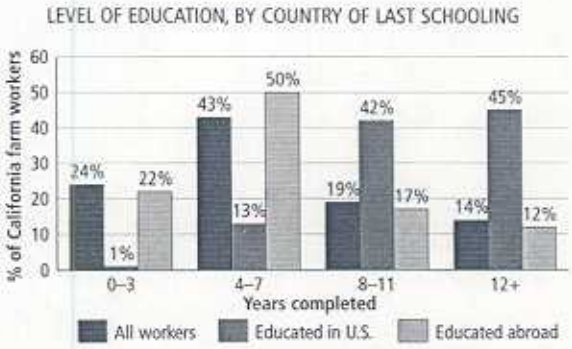


Figure 12. Workers educated in the United States completed more years of school than workers educated abroad. *Source:* NAWS.

Adult Education

Fewer than one in five (18%) California crop workers report that they intend to leave farm work within the next 5 years. Only half as many in the present sample (17%) as in 1990–91 (35%) have tried to improve their job skills through formal education. Others who are inclined to take adult education classes may well be deterred by the long hours, erratic schedules, and travel demands of seasonal farm work.

The higher the level of education previously attained, the more likely workers are to have participated in adult education. Much greater proportions of workers with 8 to 11 (28%) or 12 or more (39%) years of previous schooling participate in adult education than those with 1 to 3 (8%) or with 4 to 7 (11%) years (fig. 13).

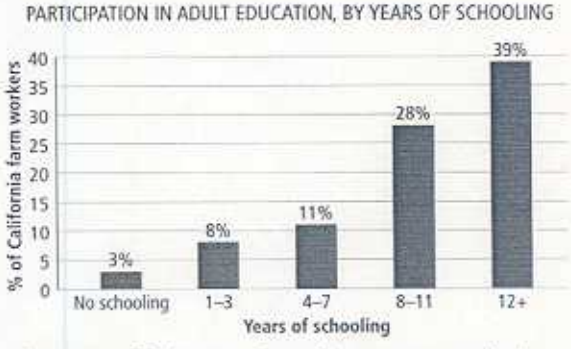


Figure 13. California crop workers with greater amounts of education are more likely to participate in adult education programs. *Source:* NAWS.

Classes in English and GED (high school equivalency) are the most popular. Seven percent of California crop workers have enrolled in English classes, and 7% have enrolled in GED classes (fig. 14). Of the workers

who are not U.S. citizens, only 1% have taken a U.S. citizenship class. A relative handful of workers have been in job training classes, college courses, or other types of adult education.

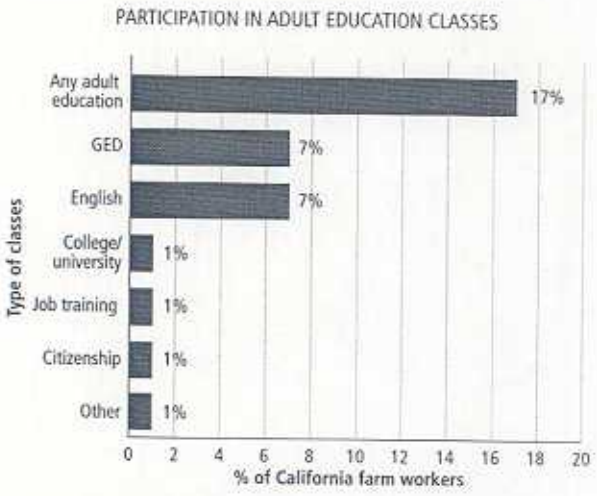


Figure 14. More California crop workers take English and GED classes than other types of adult education courses. *Source:* NAWS.

Literacy and English Language Skills

There is no consensus definition of what constitutes language proficiency and literacy, nor does literacy consist of a single skill. But some generally accepted indicators (grade level, educational achievement, and self-assessment) give a basis for inferences about the English reading, writing, and speaking skills of farm workers surveyed.

Although the grade completed in school does not necessarily correlate with present abilities to read and write, school completion data provide some indication of how well adults can process and use printed information. Under one method of appraisal,[6] adults are divided into three major groups:

- totally illiterate: has skills below the fourth-grade level and cannot acquire information through print
- functionally illiterate: can read between the fourth and seventh grade levels
- marginally literate: can read between the eighth- and twelfth-grade levels, but lacks the twelfth-grade equivalence needed in a complex technological society

As noted above, few of the California crop workers surveyed had taken adult classes to raise their levels of education and literacy. Thus, most (86%) would still have difficulty obtaining information from printed materials in any language, according to the standards of this grade-based classification system. The 19% of California crop workers with between 8 and 12 years of education are marginally literate, another 43% fall into the functionally illiterate category, and the 24% with less than a fourth-grade education are considered totally illiterate.[7]

In responding to a NAWS request for self-assessment, 41% of all California farm workers say they speak no English, 40% say that they speak "a little," 10% say "some," and 9% say that they speak English well. Among the foreign-born workers, only 5% say that they speak English well.

The ability to speak and read English varies across birthplace groups of California crop workers (fig. 15).

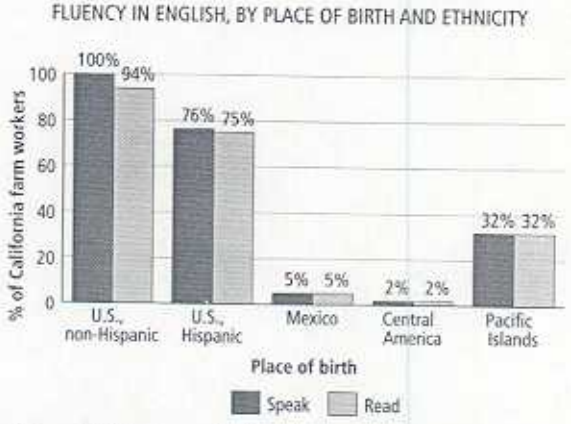


Figure 15. Very few workers born in Mexico or Central America speak or read English fluently. *Source:* NAWS.

- Of the U.S.-born Hispanics, 76% speak and 75% read English fluently.
- Of the workers born in the Pacific Islands, 32% speak and 32% read English fluently.
- Of the Mexican-born workers, 5% speak and 5% read English fluently.
- Of the workers born in Central America, 2% speak and 2% read English fluently.

6. Jeanne Chall, director of Harvard University's Reading Laboratory, quoted in LSCA Programs: An Action Report II, Washington, D.C.: U.S. Department of Education, April 1989, p. 3.
7. Other classification systems, such as the National Adult Literacy Survey (NALS), conducted by the National Center for Education Statistics (NCES), broadly define literacy as using printed and written information to function effectively in society, not merely as an ability to read at a particular grade level. The NALS contains several categories of literacy, including prose literacy (ability to use information from text sources such as books and newspapers), document literacy (ability to use information from sources such as maps, tables, and forms), and quantitative literacy (ability to perform arithmetic functions, such as balancing a checkbook). These categories, however, take a battery of tests to evaluate and are not available through the NAWS instrument.

In 1990–91, more-recent arrivals to the California farm workforce tended to have greater English language skills; 15% of those who had been in the United States less than 2 years were fluent readers and speakers. Currently, however, the ability of California's foreign-born crop workers to speak and read English does not tend to vary with the amount of time they have resided in the United States. Fewer than 10% of the foreign-born workers report that they speak or read English fluently, regardless of their length of time in the United States. Educational levels of foreign-born workers, likewise, do not vary with respect to how long they have been in the United States.

Most crop work does not require English fluency and literacy. When non-English-speakers are employed in crop work, foremen or managers commonly hire, supervise, and lay off in the workers' native languages. Also, many of these workers have valued qualifications that are not reflected in grade or literacy levels. NAWS data show that 40% of the adults performing California crop work have been employed on farms in the United States longer than 10 years. For the most part, they have been economically productive and self-sufficient and have found housing, raised families, and managed to function in this country.

The NAWS findings on literacy, however, have strong implications in our economy, where many employers report that even high-school graduates lack the basic skills needed for entry-level jobs. Farm workers' low levels of literacy not only limit their effectiveness in jobs that require reading and writing, but also restrict their economic and social mobility.

Section 4: Participation in the Labor Force

HOW CALIFORNIA FARM WORKERS ARE OCCUPIED OVER THE YEAR AND HOW LONG THEY EXPECT TO REMAIN IN FARM JOBS.

Highlights of Findings

- *Eight out of ten California farm workers held two or more farm jobs in a 1-year period.*
- *Farm workers in California spend an average of 45% of the year employed in this workforce and 29% of the year out of the country.*
- *More than half of the workers migrated to perform or seek farm work during the year prior to the interview.*[8]
- *Most California crop workers expect to remain in farm work for the length of their working careers.*

Time Employed and Not Employed

NAWS interviews are limited to workers who have been employed in at least one farm job over the previous 12 months. More than half (53%) of the interviewees in this survey sample had held two to four farm jobs during that 1-year period, 19% held five or six, 18% percent held only one farm job, and 11% held seven or more (fig. 16).

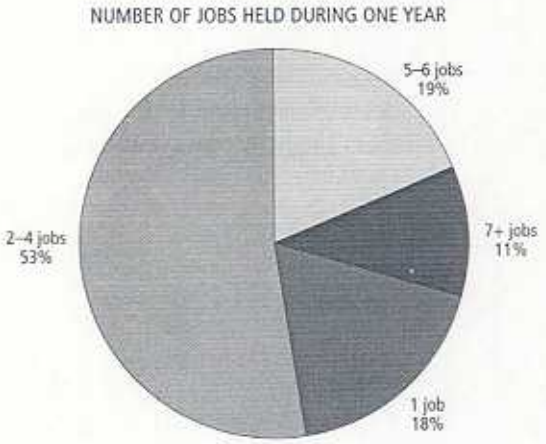


Figure 16. Over half of California crop workers held between two and four farm jobs in a 1-year period. Note: Sum of portions is not equal to 100% because of rounding error. *Source:* NAWS.

During the year prior to the interview, 78% of California crop workers spent some time not working while in the United States, 47% spent some time abroad, and 10% held a nonfarm job. A larger share of unauthorized workers (67%) spent time out of the United States during the year before the interview (fig. 17).

California farm workers are employed, on average, 23 weeks during the year (45% of the year) in farm jobs and 3 weeks (5% of the year) in nonfarm jobs. They spend an average of 26 weeks not working. Fifty-eight percent of this time not employed is spent abroad (fig. 18).

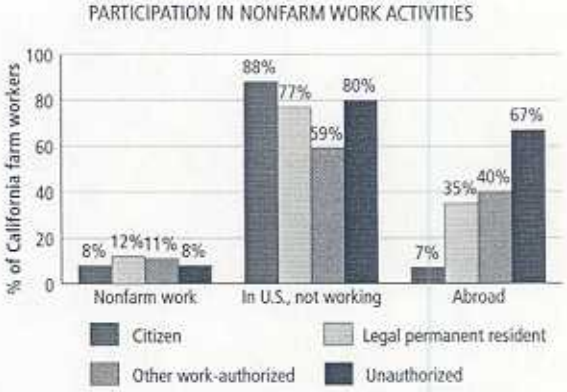


Figure 17. Most workers spend some time not working during the year. *Source:* NAWS.

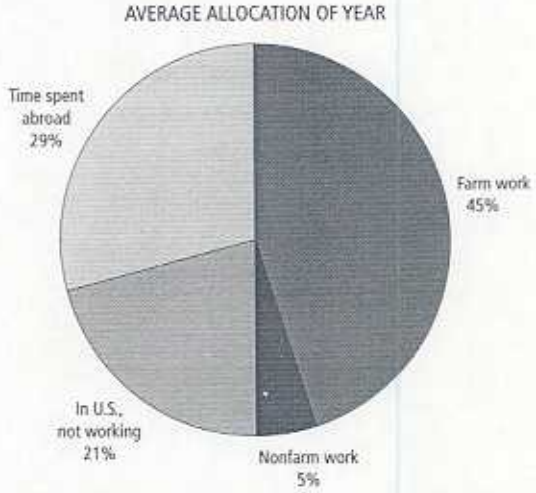


Figure 18. Workers are employed half of the year, predominantly in farm work. *Source:* NAWS.

Time in farm jobs and not working varies by legal status. Legal permanent residents and other authorized workers spend more than half of the year in farm work (52% and 56%, respectively), while citizens and unauthorized workers perform farm work less than half of the year (44% and 35%, respectively). Unauthorized workers spend more than half of the year (60%) not employed (either in or outside of the United States); citizens, legal permanent residents, and other authorized workers spend less than half of the year not working (47%, 41% and 38%, respectively). All groups spend an average of 3 to 6 percent of the year working in nonfarm jobs (fig. 19).

There are greater differences in time allocation across age groups. The youngest workers (14 to 17 years old) are employed in agricultural jobs only 14%

8. For the purposes of the NAWS, "migration" is defined as traveling a distance of more than 75 miles during the year prior to the NAWS interview in order to look for or perform a job in U.S. agriculture.

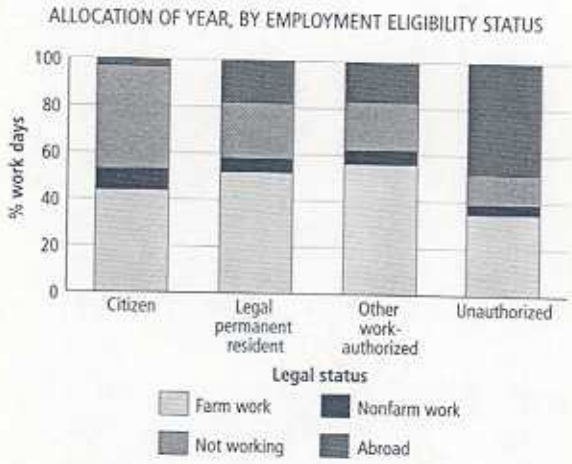


Figure 19. Legal Permanent Residents and other noncitizen authorized workers spend more than half of the year performing farm work. *Source:* NAWS.

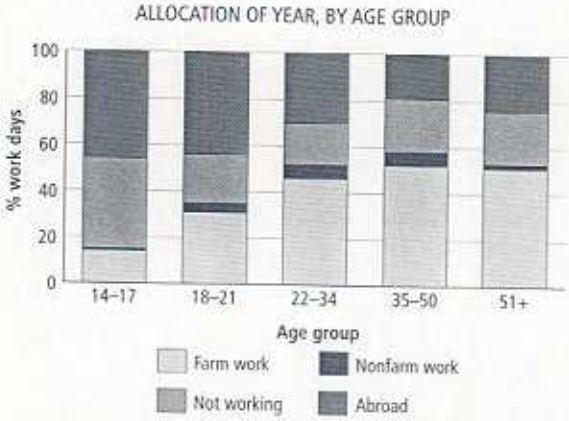


Figure 20. Minors are employed in agricultural work much less of the year than are other age groups. *Source:* NAWS.

of the year, and those in the next youngest group (18 to 21) is employed 31%. Older age groups average 46% to 55% of the year in farm work (fig. 20).

Migration

In 1990–91, most (78%) farm workers said they were not willing to travel beyond daily commute distance to look for work. In the current sample, more than half (57%) of California farm workers had migrated from one location to another in order to seek or perform a farm job (fig. 21). Three-quarters of undocumented workers (74%) migrated during the year, compared to half of legal permanent residents (47%) and workers with other

Figure 21. Farm workers who are not legally authorized to work in the United States are most likely to migrate. *Source:* NAWS.

types of work authorization (53%), and one-fifth (21%) of U.S. citizen workers. Not surprisingly, larger shares of the workers under age 22 (69%) migrated to seek or perform farm work than those in older age groups.

Plans to Remain in Farm Work

Most California crop workers expect to remain in farm jobs for the length of their working careers. Two-thirds (64%) said that they expect to continue in U. S. agriculture for more than 5 years, as long as they are able to do the work, compared to 77% in 1990–91. Fifteen percent said that they planned to stay in farm work for 3 years or less.

Crop workers' plans for remaining in farm labor vary by their legal status. Three-quarters (74%) of the legal permanent residents plan to remain for more than 5 years, as long as they are able, while half of the citizens (54%) and the undocumented workers (54%) say they plan to remain that long. Two in ten (21%) U.S. citizens expect to leave farm work within 1 to 3 years, about twice the portion of workers in other legal status categories (9% to 12%).

Although two-thirds (64%) of California farm workers overall report that they have relatives or close friends holding nonfarm jobs within the United States, only one-quarter (24%) thought that they themselves could find a nonfarm job within a month. U.S. citizens are both most likely to know people employed outside of agriculture (88%) and to be optimistic about finding such jobs for themselves (58%). Most legal permanent residents (80%) know people in nonfarm jobs, but only 28% think they can land one in a month. Only 41% of the unauthorized workers knew people in nonfarm jobs, and 14% can see themselves soon working in one.

Section 5: Farm Job Characteristics and Conditions

NATURE AND WORKING CONDITIONS OF FARM JOBS PERFORMED BY CALIFORNIA CROP WORKERS AT THE TIME THEY WERE INTERVIEWED.

Highlights of Findings

- *Three out of ten farm workers in California are employed by farm labor contractors (FLCs).*
- *Nine out of ten work in production of fruits, nuts, or vegetables.*
- *One-third of their jobs are in crop harvest, and two-fifths are in other technical production work.*
- *Most workers are paid by the hour at an average hourly wage of $5.69.*
- *More than half report being covered by unemployment insurance, only one-fifth are aware of workers' compensation coverage, and very few have health insurance for injuries and illnesses occurring away from the work site.*

Type of Employer

While a large majority of California crop workers are hired directly by growers and packing firms, nearly one-third (30%) are employed by farm labor contractors, as in 1990–91 (31%).

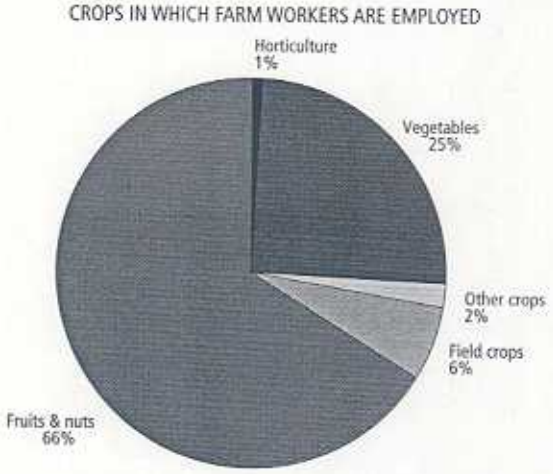


Figure 22. Two-thirds of California farm workers work in fruit and nut crops. *Source:* NAWS.

Crop and Task of Farm Jobs

Nine out of ten (91%) farm jobs held by California workers interviewed are in fruits, nuts, or vegetables. Far fewer are in field crops (6%), horticulture (1%), and other crops (2%) (fig. 22). Employees of farm labor contractors are more likely (73%) than those of growers and packing houses to work in fruits and nuts (62%) and less likely to work in vegetables (17% and 29%, respectively) (fig. 23).

Two out of five (41%) of the jobs performed by workers in this sample are semiskilled or skilled technical production tasks, such as irrigating, operating machinery, and pruning, up from 26% in 1990–91 (fig. 24).

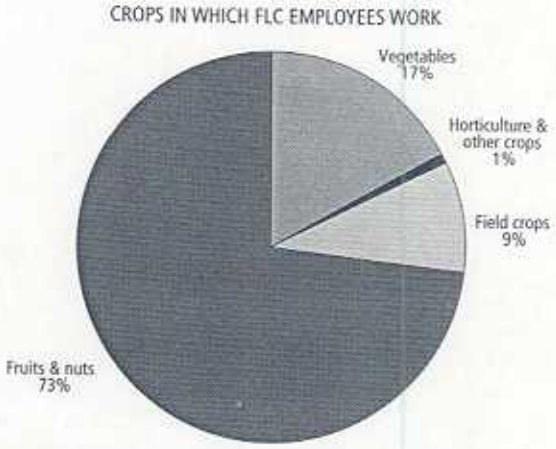


Figure 23. Three-quarters of crop workers employed by farm labor contractors work in fruits and nuts. *Source:* NAWS.

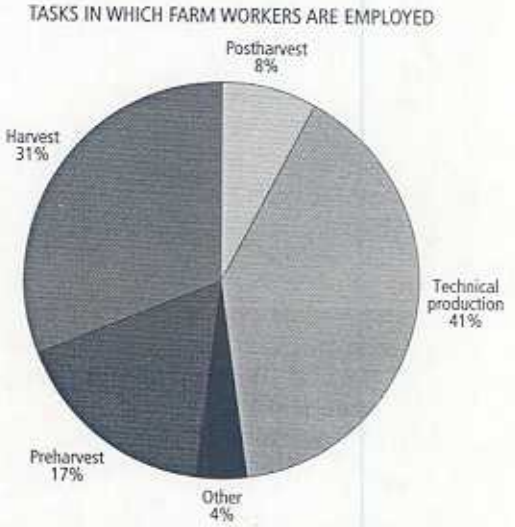


Figure 24. Most California crop workers perform harvest or semi-skilled technical tasks. Note: Sum of portions is not equal to 100% because of rounding error. *Source:* NAWS.

Another one-third (31%) of the jobs are in crop harvest, down from 51% in 1990–91. Smaller numbers of crop workers are in preharvest tasks (17%), such as hoeing, thinning, and transplanting; in post-harvest tasks (8%), such as field packing, sorting, or grading; and other tasks (4%). In contrast to the 1990–91 finding that workers hired by contractors were most likely to be in harvest jobs (63%), the share of farm labor contractor employees currently in harvesting is even smaller (22%) than that of the overall sample. Farm labor contractor employees in the current sample are more likely (51%) to be performing technical production tasks (fig. 25).

Recruitment and Retention

Nearly two-thirds (62%) of California farm workers

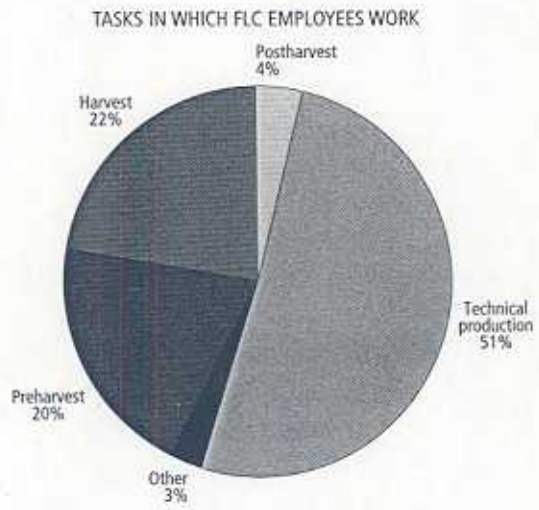


Figure 25. Half of California farm workers employed by farm labor contractors hold positions in semiskilled technical production. *Source:* NAWS.

found their jobs at the time of interview through referrals from friends or relatives, and another one-third (32%) applied on their own (without referral). Two percent were recruited by a grower or foreman, and less than 1% each were referred to their farm jobs by the California Employment Development Department's Job Service or hired under union-employer agreements.

Nine out of ten (90%) of the farm jobs held by California crop workers ended with a layoff when seasonal tasks were completed. Two-thirds (64%) of workers laid off (59% of all interviewed) say that their employers remain in contact and notify them when work is to resume. The means of staying in touch include telephoning (mentioned by 26% of the laid-off workers), having a foreman or other agent contact the worker (35%), talking with the workers at the end of the season (2%), and sending written correspondence (2%). One-third (33%) indicated that they are responsible for making any contact to check on the opportunity for reemployment.

Other reasons given for leaving farm jobs included to take vacation, deal with family responsibilities, and move to a new location.

Hours and Wages

When employed, California crop workers put in a week averaging 42 hours, and their work week varies somewhat less from this mean than in 1990–91. Five percent work 20 hours or less per week (15% in 1990–91), another 10% work between 21 and 30 hours (same in 1990–91), and 34% work between 31 and 40 hours (32% in 1990–91). The 51% of workers employed more than 40 hours per week include 36% who work between 41 and 50 hours (23% in 1990–91) and 15% who work more than 51 hours a week (18% in 1990–91).

Average earnings per hour in farm jobs were $5.69 during the current survey period, compared to $5.41 in 1990–91.[9] Twenty-two percent of workers earned less than $4.76 per hour (44% in 1990–91), 52% earn from $4.76 to $5.75 an hour (30% in 1990–91), and the remaining 27% earn more than $5.75 per hour (26% in 1990–91). Earnings vary by task. Crop workers tend to earn most in postharvest jobs (mean $6.25) and least in preharvest jobs (mean $5.02). Earnings have been closer to the minimum wage for farm labor contractor employees (mean $5.27 for the current sample, $4.45 in 1990–91) than directly hired workers earn (mean $5.87, table 1).

Table 1. Earnings per hour overall, by task, and by employment type[9]

Category	Earnings
Overall	$5.69
By task	
Preharvest	$5.02
Harvest	$6.18
Postharvest	$6.25
Technical production	$5.50
By employer type	
Grower	$5.87
Labor contractor	$5.27

Nearly three-quarters (73%) of California farm jobs are paid by the hour, up from 69% in 1990–91 (fig. 26). Pay for all field crop and horticulture jobs held by interviewees is on an hourly basis, averaging $5.13 per hour in field crops and $6.11 in horticulture. The hourly wage was higher for jobs in vegetables ($6.13) than for jobs in fruits and nuts ($5.55).

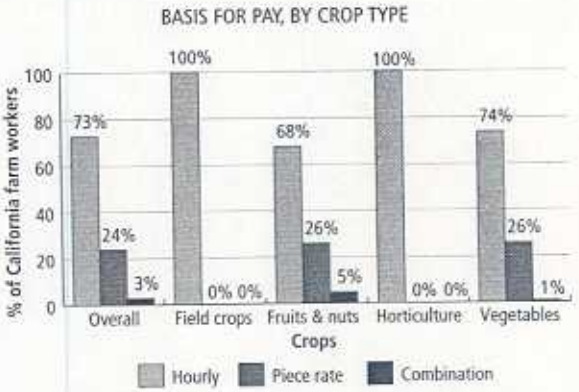


Figure 26. All workers interviewed in horticulture and field crops are paid by the hour. Note: Sum of portions is not equal to 100% because of rounding error. *Source:* NAWS.

9. The minimum wage in California was $4.25 when the 1990–91 interviews were conducted. It has been raised from that level in four steps: in October 1996, March 1997, September 1997, and March 1998. In the current survey sample, 68% of interviews were conducted when the minimum was $4.25, 14% when it was $4.75, and 18% when it was $5.00.

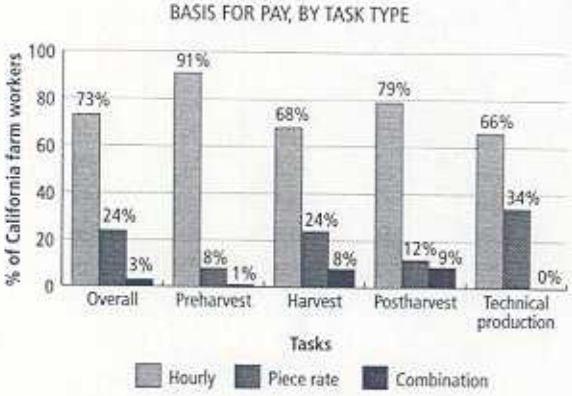


Figure 27. The majority of harvest and technical production workers are paid an hourly wage. *Source:* NAWS.

Pay is by piece-rate for 24% of farm jobs (22% in 1990–91) and by a combination of hourly and piece rate for 3%. Piece rate is more common for technical production jobs, such as pruning (34%, up from 11% in 1990–91), than for harvesting jobs (24%, down from 29% in 1990–91) and is considerably more than for preharvest (8%) and postharvest (12%) jobs (fig. 27). Slightly higher than average shares of jobs in fruit and nut (26%) and in vegetable (26%) production are paid by piece rate. Farm labor contractors tend more to pay workers by the piece (37%) than do growers and packing houses (18%) (fig. 28). Workers who are U. S. citizens are less likely (14%) than others to have jobs paid at piece rate.

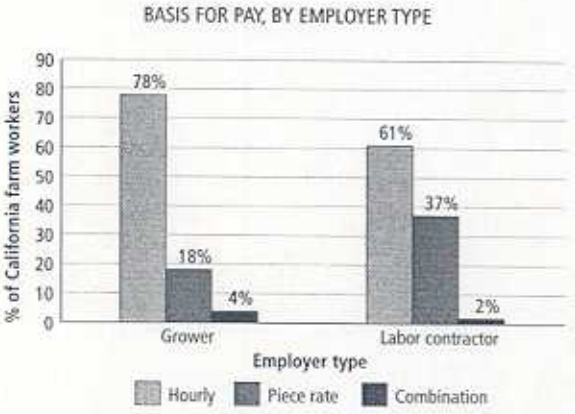


Figure 28. A greater proportion of farm labor contractor than grower employees are paid on a piece-rate basis. *Source:* NAWS.

Cash bonuses are part of the compensation package for only 14% of California farm workers (19% in 1990–91). Workers reported receiving bonuses most frequently for working until the end of the season, in lieu of earnings on holidays, for meeting production incentives, and as extra payments based on farm profits.

Sanitary Facilities

Inspection of farms for legally required sanitary facilities has been a high priority of the Targeted Industries Partnership Program, created in 1992 as a cooperative effort of state and federal agencies enforcing labor laws. Nearly all California crop workers in the current sample say that they have access to facilities at their work sites. One percent report that toilets are not available to them (down from 7% in 1990–91); 1%, drinking water (9% in 1990–91); and 2%, water for washing (17% in 1990–91).

Equipment

Almost all (93%) California crop workers need tools to perform their jobs, and employers are required to provide them free of charge to workers whose earnings are less than twice the minimum wage (less than $8.50 when interviews in the current sample began, $11.50 after March 1998). Only 3% of workers, however, report that their employers pay fully for such tools (61% in 1990–91). Three in ten (30%) say that they themselves pay all of the cost and three in five (59%) say that they pay part of the cost for the tools they use. Labor contractor employees are more likely than the overall average to pay the entire cost of their tools (48%), and workers hired by growers and packers are more likely to be paying part (71%).

Fringe Benefits

Because some crop workers are not aware that they are eligible for any fringe benefits, they are unlikely to claim even those benefits that employers are legally mandated to provide. As in 1990–91, employees of farm labor contractors tend less to report receiving fringe benefits, but the difference in this respect between them and workers hired by growers and packers has narrowed.

More than half of California crop workers (56%) report being covered by unemployment insurance (UI), a smaller portion than in 1990–91 (83%). Workers employed by farm labor contractors are less likely (46%) than those hired directly by growers and packing houses (61%) to be aware of their coverage by the California unemployment insurance system (fig. 29). Although most farm workers interviewed in California are selected while working for employers with tax payment records in the unemployment insurance system database, many report not being covered by unemployment insurance. The great preponderance of those who say they are not covered are unauthorized for employment in the United States and are indeed not entitled to this benefit. Workers who are employment-eligible are much more likely (93%) than those who are not (6%) to report that they may receive unemployment insurance benefits (fig. 30).

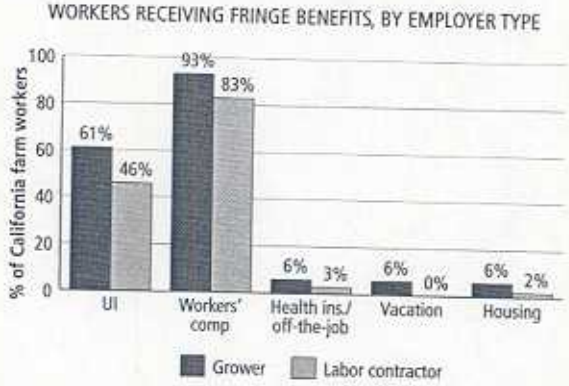


Figure 29. Workers hired by growers are more likely to receive benefits than are workers hired by farm labor contractors. *Source:* NAWS.

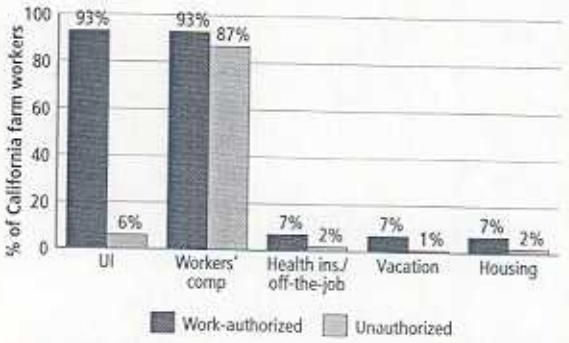


Figure 30. Workers who are authorized to work in the United States are more likely to receive benefits than are workers who do not have work authorization. *Source:* NAWS.

Employers in California are required to carry workers' compensation on all employees. This mandatory fringe benefit provides medical care for injury or illness incurred within the course of employment and also provides payments in lieu of wages during time away from work necessary to recuperate from such injury or illness. Most California farm workers (90%, compared to 67% in 1990–91) report being covered for either one or both of these components of workers' compensation. Recognition of this coverage is somewhat greater among employees of growers and packers (93%) than of farm labor contractors (83%). Workers who are legally authorized for employment in the United States are also more likely (93%) than those who are not authorized (87%) to be aware that their employers cover them with workers' compensation insurance.

Only 5% of California farm workers (32% in 1990–91) say that they are covered by health insurance for care of conditions not connected to the job, and another 5% do not know whether they are. Employees of growers and packers are slightly more likely than those of labor contractors (6% compared to 3%) to report having this non-mandated benefit. Paid vacation time is received by 4% of California crop workers overall (15% in 1990–91), by less than 1% of labor contractor employees.

Three-quarters (77%) of California crop workers live in housing that they rent from someone other than their employer. Five percent live in housing supplied by their employer; 1% live in this employer-provided housing for themselves and their families free of charge, 2% get it free for themselves only, and the remaining 2% pay their employers for this housing. In line with the pattern for most benefits, employees of farm labor contractors are less likely than others to live in employer-provided housing (2% compared to 6%), as are unauthorized workers (2% compared to 7%). Workers who are not authorized to work in the United States are also much more likely than other workers to rent from someone other than their employers (92%).

A very small share of workers (1%) obtains meals from their employers. Half of them get the meals free, and the other half pay for their meals. Farm labor contractors more frequently provide meals for their employees than do other employers, while no differences are found between authorized and unauthorized workers.

Very few farm workers (less than 1%) are given cash advances to cover the cost of travel to the job site at the start of the season.

Transportation to Work

The means by which California farm workers most commonly commute is by driving (39%, the same share as in 1990–91). One-third (33%) ride with others to work (47% in 1990–91), 25% ride a labor bus (10% in 1990–91), 2% walk, and the rest take other forms of transportation.

Half (52%) of California farm workers, including 59% of those who work for labor contractors and 49% for growers, pay for rides to the work site arranged through their employers. Ten percent of all workers, including 16% of farm labor contractor employees, indicated that they are required by their employers to ride on the labor bus.

Section 6: Income, Assets, and Use of Public Programs

CALIFORNIA FARM WORKERS' INCOME LEVELS, ASSETS, AND RECEIPT OF SOCIAL SERVICES.

Highlights of Findings

- *Three-quarters of California farm workers earn less than $10,000 per year.*
- *Three out of five worker families live below the poverty level.*
- *More than half of the workers own a vehicle; four out of ten foreign-born own a house in their home country.*
- *Few workers receive needs-based social services; most of those who do so receive them from the WIC Program.*

Income and Poverty

The NAWS asks workers to indicate the range category that includes their income, rather than a specific sum. California farm workers report annual earnings ranging from $0–$500 to $20,000–$25,000 (fig. 31).

The median annual personal income of California crop workers is between $5,000 and $7,500, as it was in 1990–91. Calculation of a precise median or mean is impossible because the NAWS collects income data by ranges. Unauthorized workers have much lower annual incomes, with the median in the $2,500 to $5,000 range, and legal permanent residents have higher incomes, with a median between $7,500 and $10,000 (table 2).

The median total family income for California crop workers is between $7,500 and $10,000, lower than in 1990–91. Three out of five (61%) California farm worker families live in poverty, according to family size standards defined by the U.S. Department of Health and Human Services,[10] even more than the 48% in poverty in 1990–91. Larger families (six or more members) are most likely to be living in poverty (fig. 32). Married crop workers without children are less likely (43%) to be poor than those with children (61%) or single workers (67%). The relatively few U.S.-born workers are less likely (49%) than others to be living in poverty.

Table 2. Annual income, by legal status

Legal Status	Median Personal Income
Citizen	$5,000–$7,499
Legal permanent resident	$7,500–$9,999
Other work authorization	$5,000–$7,499
Undocumented	$2,500–$4,999
All	$5,000–$7,499

Vehicles, Houses, and Other Assets

Four out of five (79%) California crop workers own at least one asset of value in addition to their personal belongings, up from 55% in 1990–91. A commonly owned asset (53%) is a car or truck. Despite their relatively low incomes, approximately 41% of California crop workers own a home in their native country, and 16% own a home in the United States. Forty-four percent of foreign-born workers have assets in their country of origin.

Government Benefit Programs and Social Services

Two in five (42%) California farm workers report that they or someone else in their household received income from a government program funded by worker or employer contributions within 2 years before the NAWS interview (55% in 1990–91). The benefit that nearly all

Figure 31. Three-quarters of California farm workers earn less than $10,000 per year. Note: Sum of portions is not equal to 100% because of rounding error. *Source:* NAWS.

10. *Federal Register* (March 10, 1997, vol. 62 no. 46, pp. 10856–10859) defines poverty as an annual income below $7,890 for one individual, below $10,610 for two, below $13,330 for three, below $16,050 for four, below $18,770 for five, below $21,490 for six, below $24,210 for seven, and below $26,930 for eight. An additional $2,720 is added for each family member over eight. A farm worker is considered poor in this analysis if the entire NAWS range containing his or her family income falls below the poverty guideline for appropriate family size. These federal poverty guidelines differ slightly from year to year; farm workers' poverty status is calculated using the federal poverty guidelines that correspond to the year in which the farm workers were interviewed. The federal poverty guidelines used here differ slightly from the federal "poverty thresholds" used by the U.S. Census Bureau for statistical purposes.

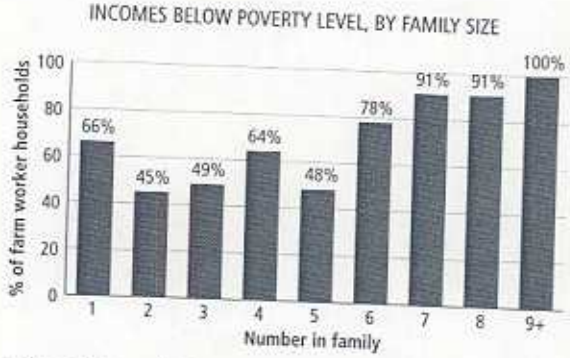


Figure 32. Generally, larger families of farm workers are more likely to be poor. *Source:* NAWS.

of them (41% of the survey sample) received was unemployment insurance through the state unemployment insurance system. A few worker households received disability insurance (2%) and Social Security payments (1%) (fig. 33).

Despite their low incomes and limited assets, fewer than one in five California crop workers (18%) report that their households received any type of needs-based

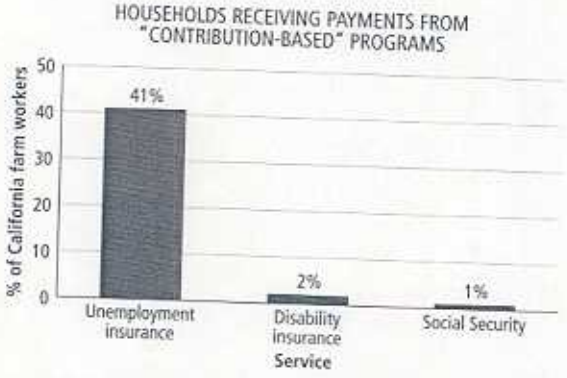


Figure 33. Unemployment insurance is the government program used most by farm worker households. *Source:* NAWS.

assistance from government social service programs during the 2 years preceding the interview. The program that most frequently assists them (14% of farm worker households) is the Special Supplemental Food Program for Women, Infants, and Children (WIC). Smaller shares of farm worker households obtained food stamps (6%), general assistance (local welfare) (2%), Aid to Families with Dependent Children (AFDC) (1%), and public (low-income) housing (1%) (fig. 34). Very few households (2%) received benefits from more than one of these programs.

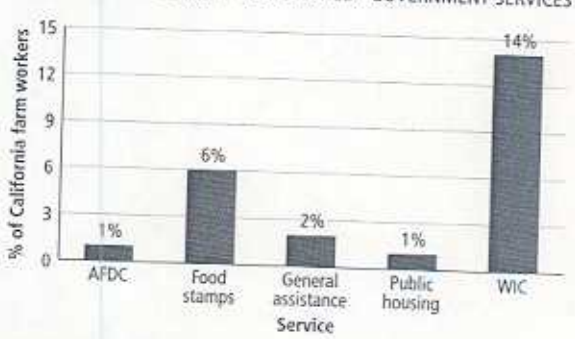


Figure 34. WIC benefits are used by one out of seven farm worker households. *Source:* NAWS.

Households of California crop workers who are U.S. citizens and legal permanent residents were most likely to use needs-based social services (23% and 26%, respectively). In contrast, 13% of other authorized worker households and 9% of undocumented farm worker households obtained these services.[11]

Additionally, 2% of crop workers say that someone in their household received aid from a nongovernment organization. As many as one-quarter (25%) of all California crop workers reported that they were helped by family and friends.

11. The questions referred to workers' household use of social services, and no inferences can or should be drawn about unauthorized use of social services. We do not know the legal status or qualification for needs-based social services of other household members.

Section 7: Health and Access to Medical Services

HEALTH STATUS OF CALIFORNIA FARM WORKERS AND THEIR USE OF HEALTH CARE SERVICES.[12]

Highlights of Findings

- *Four out of ten workers reported that they had used health care services in the past 2 years.*
- *One-third of workers thought that health care was difficult to obtain because it was too expensive or because health care staff did not speak their language.*
- *California farm workers are most likely to seek health care from an emergency room or from a private physician.*

Use of Health Care Services

The California farm workers whose employers pay for health insurance (see Section 5) are by no means the only ones who need or obtain health care services. Nearly half of all workers (47%) report that they had been to a medical doctor within or outside the United States within about 1 year of their interview, and, on overall average, workers had last visited a doctor 2.3 years prior to the interview.

More than four out of ten workers said that they had used the health care services of a doctor, nurse, clinic, hospital, or other health care provider in the United States at least once in the past 2 years. The most common reason for having seen a health care provider was for a routine examination or vaccination (15% of all workers). Other reasons were for treatment of a cold or flu (5%); pain or injury in muscles, joints, or bones (5%); cuts, abrasions, bruises, or burns (5%); stomach pain, nausea, heartburn, or diarrhea (4%); trouble breathing or coughing (2%); rashes (2%); pregnancy or childbirth or both (2% of farm workers overall, 9% of the women); and headaches (1%). Sixteen percent of the farm workers who received health care (6% of the total sample) reported that these health problems affected their ability to work.

Nearly one out of ten (9%) California farm workers indicated that they had been injured at a farm job in the United States in the 2 years previous to their interview. Three-quarters of them (75%) said that they had received medical attention for this injury.

Where do California crop workers receive medical care?[13] Some interviewees specified more than one type of place. About three in five (59%) say that they have received or would seek care in a hospital or emergency room, and two in five (40%) would seek care in a physician's office. Other locations where workers do or would seek medical attention are community health centers (7%), migrant health clinics (4%), public health departments (2%), and healer (curandero) offices (2%). Seven percent of workers indicated that they have gone or would go to their home country to seek medical attention when sick or injured, and 2% said that they do not seek any medical attention at all.

Workers of different legal status have somewhat different tendencies in where they go for health care (fig. 35). Citizens and legal permanent residents are much more likely (75% and 62%, respectively) to see private physicians than are other legal workers (33%) and unauthorized workers (11%). While all groups use hospitals and emergency rooms to a substantial extent, workers

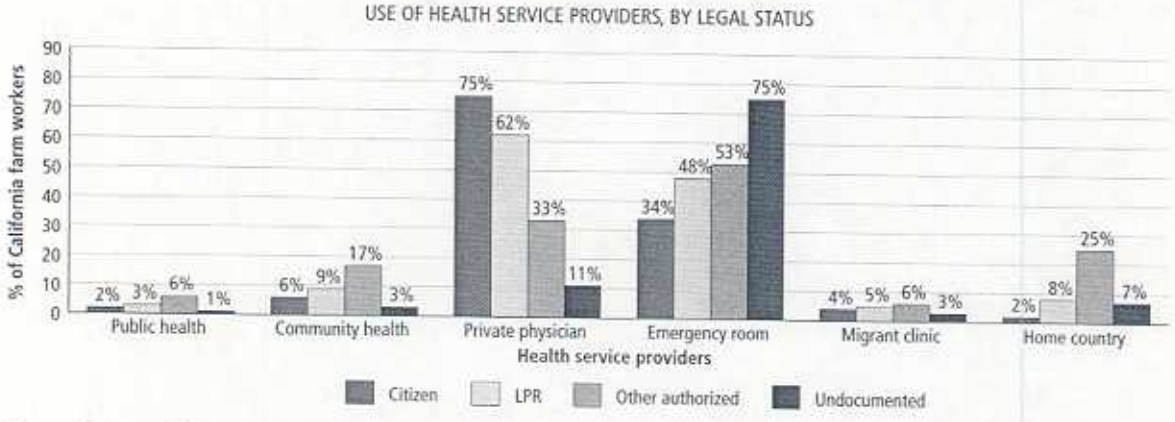


Figure 35. Most California crop workers who are citizens use private physicians, while most who are unauthorized for employment use emergency room services. *Source:* NAWS.

12. A revision in the medical access questions in the NAWS survey instrument took place between fiscal years 1995 and 1996. Unless otherwise indicated, the data presented in this section are based only upon data collected during fiscal years 1996 and 1997, comprised of 1,178 farm worker interviews.
13. The survey question reads "In the U.S.A., if you are injured or get sick, where do you receive medical or health care?" If the respondent has been sick or injured while in the United States, then the answer would refer to where he or she actually sought services. If the respondent has not been sick or injured, then it becomes a hypothetical question regarding what the respondent would do if the situation arose.

who are not authorized to work in the United States resort to them most (75%) and citizens least (34%). Workers who have legal work authorization not based on citizenship or legal permanent resident status are more likely than others to seek care outside the United States (25%) and in community health centers (17%).

Difficulties in Obtaining Health Care

More than half (54%)[14] of California crop workers say that it is easy to obtain needed medical assistance, and one-third (32%) say that it is difficult. Workers born in the United States were more likely to report that the process is easy (85%). Difficulties in obtaining care that were most commonly mentioned in interviews were that services were too expensive (24%), that health care staff did not speak the workers' language (14%), a feeling that health care staff did not understand their problems (5%), the health center was too far away (4%), a feeling of not being welcome (3%), and a lack of transportation (2%) (fig. 36).

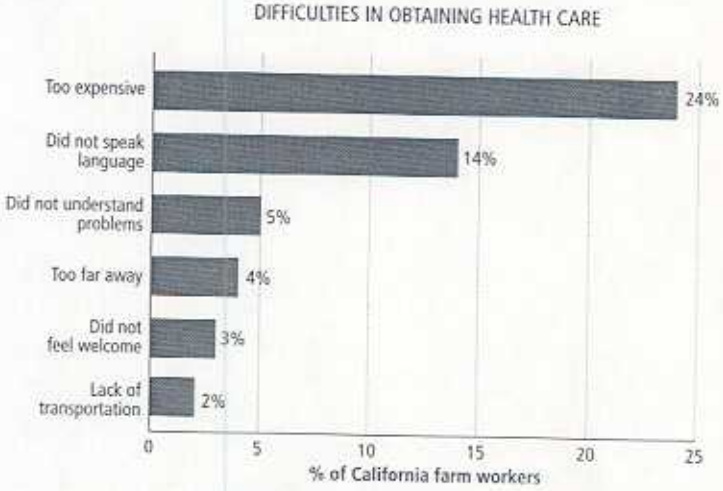


Figure 36. Cost of services and language barriers are most often reported by California farm workers as obstacles to obtaining health care services. *Source:* NAWS.

14. Findings in this section are based on the full 3-year sample.

Appendix A: Statistical Procedures

STATISTICAL CONVENTIONS THAT WERE FOLLOWED IN THE ANALYSIS OF NAWS DATA.[15]

Determining the Confidence Intervals

A confidence interval is an estimated range of values with a given probability of covering the true population value. The information that follows can be used to calculate confidence intervals associated with numbers reported in the body of this report.

For categorical variables (e.g., gender, ethnicity, legal status), we report the proportion or percentage of workers falling into each defined category. Confidence intervals around the reported survey findings are based on a normal approximation to the binomial distribution. This method implies that, with a 99% confidence interval, reported figures deviate at most four percentage points from the true value. For example, if 75% of farm workers in the sample are reported within a given category, we have 99% confidence that between 71% and 79% of farm workers in the overall population actually fall within that category.

For continuous variables (e.g., age, years of schooling, wage rate), we generally present measures of central tendency, such as averages or medians. Confidence intervals for the averages of continuous variables are based on standard errors, which provide a measure of variability of an average value obtained through repeated random sampling from the same population. A small standard error characterizes an average that varies little from sample to sample, and a large standard error indicates greater variance. Boundaries of a 99% confidence interval around any sample average are calculated by respectively adding and subtracting from the average roughly three times the standard error. For example, for a variable with a reported sample average of 31 and a standard error of 1, we are 99% confident that the true population average is no less than 28 and no more than 34.

Table 3 lists confidence intervals for all continuous variables in this report. It provides variable means for the NAWS sample of crop workers, standard errors, and ranges with 99% probability of containing the true population value.

Differences between Farm Worker Subgroups

All reported differences in means or categorical proportions for different groups of farm workers are statistically significant at the $p<0.05$ level. Differences between worker groups with respect to continuous variables, including those for which medians are reported, were assessed using generalized linear models. Relationships among categorical variables were checked using the chi-square test.

The chi-square test checks for differences in how a population is distributed across all the groups defined by different combinations of categorical values of multiple variables (i.e., for a two-variable analysis, by the respective cells in a cross-tabulation). A significant result indicates that the distribution is not random across all categories and that some relationship exists between the two variables within that population. It does not necessarily show that every group is significantly different from every other. Results of statistical tests that found insignificant differences (at the $p<0.05$ level) or that were inconclusive are not reported in the text.

Table A1. Confidence intervals for continuous variables

Variable	Average	Standard Error	99% Confidence Interval
Age	32.72	0.29	32.05–33.39
Highest grade	6.33	0.09	6.13–6.52
Hourly wage from farm work	$5.69	0.04	$5.59–$5.79
Hours of work per week	41.81	0.27	41.17–42.44
Number of children in household	0.83	0.03	0.75–0.91
Number of children under 15 in household	0.65	0.03	0.58–0.71
Number of children under 15 not living with farm worker	0.50	0.03	0.44–0.57
Number of family household members excluding children under age 15	1.64	0.02	1.59–1.69
Number of nonfamily household members	3.02	0.06	2.88–3.17
Weeks per year spent abroad	14.99	0.46	13.92–16.06
Weeks per year spent in nonfarm work	2.69	0.24	2.14–3.24
Weeks per year spent not working in the U.S.	10.74	0.33	9.97–11.52
Weeks per year spent in farm work	23.32	0.41	22.36–24.28
Years in the United States (foreign-born only)	10.55	0.24	10.00–11.10

15. Further details on statistical procedures for processing and reporting NAWS data can be obtained from Dr. Richard Mines at the U.S. Department of Labor, Rm. S2312, 200 Constitution Ave. NW, Washington, DC 20210; or via e-mail at mines-richard@dol.gov.

Appendix B: Research Reports from the National Agricultural Workers Survey

SINCE ITS INCEPTION IN 1988 BY THE U.S. DEPARTMENT OF LABOR, THE NATIONAL AGRICULTURAL WORKERS SURVEY (NAWS) HAS COLLECTED INFORMATION FROM MORE THAN 25,000 WORKERS THROUGHOUT THE NATION. THIS PUBLICATION IS THE SEVENTH FORMAL REPORT OF FINDINGS FROM THE SURVEY, RESEARCH REPORT NO. 7 IN THE SERIES. THE OTHERS ARE:

Findings From the National Agricultural Workers Survey (NAWS) 1989. Research Report No. 1

Findings From the National Agricultural Workers Survey (NAWS) 1990. Research Report No. 2

California Findings from the National Agricultural Workers Survey. Research Report No. 3

U.S. Farm Workers in the Post-IRCA Period. Research Report No. 4

Migrant Farm Workers: Pursuing Security in an Unstable Labor Market. Research Report No. 5

A Profile of U.S. Farm Workers. Research Report No. 6

These six reports are available from the Office of the Assistant Secretary for Policy, Office of Program Economics, U.S. Department of Labor, Rm. S2312, 200 Constitution Ave. NW, Washington, DC 20210; phone (202) 219-6197