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Appendix B. Agricultural Labor: A Review of the Data

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Introduction

Efforts to estimate the impact of the Immigration Reform and Control Act (IRCA) of 1985 on the U.S. agricultural industry and its workers have been hampered by the lack of detailed and reliable data on the Nation's hired farm work force. While several national-level data sets containing information on hired farm workers are available, there is currently no one comprehensive data set that provides the necessary detailed information to help us understand IRCA-related changes in the supply, demand, wages, earnings, benefits, and characteristics of hired farm workers at both the local and national level. Furthermore, because actual data estimates vary widely among these sources of data, conclusions about the effects of IRCA may vary depending on the data source used for analysis.

In this chapter, we review the major data sources which are most useful for examining agricultural labor issues, including those related to IRCA. To be included in our review, the data source must

- measure some aspect of hired agricultural employment, wages, earnings, or labor expenditures;
- provide data at the national level;
- use a statistical survey or formal estimating procedure to generate data;
- be collected on a periodic or regular basis; and
- be available to the public.

The eight sources of hired farm worker data that met these criteria differ in terms of survey methodology, definitions and concepts, frequency of data collection, survey reference period, geographic detail and types of data collected (Table C.1). Each data set has advan-

tages and disadvantages; some are more appropriate for IRCA-related research than others. This chapter provides general background on each data source, discusses the most relevant uses and limitations of the data, and identifies several major points that users should consider when selecting a data set for analysis or interpreting study findings based on these data. A set of tables presenting geographic distributions of farm labor data from these different data sources is also included.

Agricultural labor data originate from three major sources: establishments that employ workers, households which supply workers, and agencies that administer employment-related programs. The data sources reviewed here are classified according to these three categories.

Establishment Surveys

The major sources of establishment data are the Census of Agriculture, the Farm Labor Survey, and the Farm Costs and Returns Survey. Establishment surveys collect data directly from the farm employer and generally provide information on the characteristics of the job or the farm, but not on the demographic characteristics of the workers. Since data are collected from the employer and not the worker, establishment surveys are more likely to include unauthorized alien workers who may avoid survey enumerators because of their illegal status or who may be missed in household samples.

A growing concern regarding establishment surveys is the increased incidence of farms producing crops, livestock, and poultry under contract where the contractor and not the farmer makes most of the production decisions. These "nontraditional" forms of production arrangements make data collection more difficult when farm operators are asked to estimate labor use or costs.

Census of Agriculture

Responsible agency	Bureau of the Census, U.S. Department of Commerce
Date of origin	1840
Frequency of data collection	Every 5 years
Reference period	Year
Degree of coverage	Sample of farms
Geographic detail	U.S., state, county

The Census of Agriculture has been conducted by the Bureau of the Census periodically since 1840. It is the leading source of statistics about the Nation's agricultural production and is the most comprehensive source of agricultural data available at the county level. The Census is now conducted every 5 years, for years ending in 2 and 7. Data are available in published volumes for each state and the United States (U.S. Department of Commerce 1989) and in public-use summary computer tapes. The Bureau of the Census will provide special tabulations for users at cost (see Oliveira 1991 and Runyan and Oliveira 1992 for examples of expense data obtained from special tabulations). Summary data for the 1992 Census of Agriculture are scheduled to be released in the fall of 1994.

Methodology. The Census of Agriculture is a mail survey of U.S. farms and ranches. The mailing list for the 1987 Census generated 1.8 million useable questionnaires. After adjusting for nonrespondents, survey data were expanded to the estimated 2.1 million farms in the United States. To reduce respondent burden, some questions were asked only of a sample of farms; data on hired and contract labor expenditures were collected from this sample of about 616,000 farm operators in 1987.

Types of data available. The Census of Agriculture provides separate estimates of expenses for hired workers, contract labor, and customwork and machine hire at the national, state, and county level. Expenditure data can be examined by 3-digit Standard Industrial Classification (SIC) of farms, value of agricultural products sold, size of farm in acres, type of organization, and selected operator characteristics. Data on the number of persons working fewer than 150 days or 150 days or more are collected periodically and will be available in the 1992 Census.

Data uses and limitations.

- The Census of Agriculture offers the most complete geographic coverage of hired and contract farm labor use as measured by labor expenditures. Expenditure data can be used to indicate the relative magnitude of labor use and to estimate the share of total production expenses attributed to labor by size and type of farm.
- The Census of Agriculture, along with the Farm Costs and Returns Survey, are the only data sources that collect information on customwork (activities such as spraying or threshing where a person is paid a combined rate for use of equip-

ment and labor). However, expenses for labor involved in customwork are combined with expenses for machine hire and cannot be separated out.

- Data on the number of hired workers working less than 150 days and 150 days or more are collected only periodically. Days worked are not reported cumulatively for all jobs held by a farm worker, but refer only to work on a particular farm. Thus, worker data are subject to double-counting (especially for workers in the less than 150 days worked category) since workers are reported by each of their employers during the year. Data on the number of contract workers are not collected.
- The Census does not collect information on the demographic and job characteristics of hired and contract workers.
- Data on hired workers refer to all hired workers on the farm, including bookkeepers, secretaries, and mechanics who are generally not considered to be hired farm workers. Expenditure data do not include payment in-kind, such as lodging or meals provided to workers.
- Census data are collected only once every 5 years and may not reflect the most recent changes in the farm labor situation.

Farm Costs and Returns Survey

Responsible agency	Economic Research Service and National Agricultural Statistics Service, U.S. Department of Agriculture
Date of origin	1984
Frequency of data collection	Annual
Reference period	Year
Degree of coverage	Sample of farms
Geographic detail	U.S., region, state ¹

The Farm Costs and Returns Survey (FCRS) is conducted annually by the U.S. Department of Agriculture's National Agricultural Statistical Service (NASS) and the Economic Research Service (ERS). The FCRS is used to determine production input costs for various commodities (as mandated by Congress), estimate farmers' net farm

income, and determine the characteristics and financial situation of farm operators and their households. Information is collected for a variety of farm expenditures, including farm labor. These data are published annually by NASS in the Farm Production Expenditures series and by ERS in the Economic Indicators of the Farm Sector series (U.S. Department of Agriculture, 1992, 1994a, 1994b).

Methodology. The FCRS is a probability sample featuring multiple frame sampling from a list frame (consisting of mostly larger, more specialized operations) and an area frame of small land areas to account for farms not on the list. The FCRS is conducted in all states except Alaska and Hawaii. Data are collected for the entire year. Each year the useable sample size is about 12,000 farms.

In the past, the FCRS undercounted the number of farms due to problems with both undercoverage and nonrespondents. Beginning with the survey of the 1992 calendar year, NASS and ERS implemented adjustment procedures for expanding FCRS data to provide more complete coverage of all U.S. farms. Data for 1991 were re-summarized using the new estimation procedures. Data prior to 1991 will not be revised and will not be directly comparable to more recent FCRS data. See USDA (1993a) for information on the new estimation procedures associated with the FCRS.

Types of data available. ERS and NASS publish separate estimates of farm labor expenses based on the FCRS. ERS's expense items are consistent but not identical with those published by NASS. NASS's estimates are derived solely from the survey based on 48 states. In the ERS series, data for Alaska and Hawaii are estimated separately and added to the 48-state statistics. Some ERS components are also adjusted for conceptual differences between the ERS and NASS publications.

NASS publishes annual estimates of labor expenditures, number of farms reporting labor expenditures, and average labor expenditures per farm for the United States, 10 farm production regions, 5 gross sales classes, and crop and livestock farms.

ERS publishes separate estimates of expenses for cash wages, employers' contribution to Social Security, perquisites, contract labor, and machine hire and customwork at the national level. The FCRS itself yields reliable statistics only at the national and regional level. However, ERS publishes estimates of combined hired and contract labor expenses for states. These estimates are derived from regional totals allocated to states based on distribution patterns constructed by ERS staff using alternative data sources such as the Census of Agriculture.

Data uses and limitations.

- The FCRS provides annual, detailed data on labor expenses, such as value of perquisites and employer's contribution to Social Security, that are generally unavailable from other sources. Expenditure data can be used to indicate the relative magnitude of labor use by size and type of farm.
- The FCRS, along with Census of Agriculture, are the only data sources that collect information on customwork. However, expenses for labor involved in customwork are combined with expenses for the use of equipment and cannot be separated out.
- The survey does not collect information on the number of hired or contract workers or on their demographic characteristics.
- Data on hired workers refer to all hired workers on the farm, including bookkeepers, secretaries, and mechanics who are generally not considered to be hired farm workers.
- Estimates of labor expenses provided by NASS and ERS differ. Users should be aware of the differences when selecting the estimates most appropriate for their research.
- Due to the new estimating procedures associated with the FCRS, data prior to 1991 are not strictly comparable with more recent data, thereby limiting historical analyses.

Farm Labor Survey

Responsible agency	National Agricultural Statistics Service, U.S. Department of Agriculture
Date of origin	1910
Frequency of data collection	Quarterly
Reference period	Week
Degree of coverage	Sample of farms
Geographic detail	U.S., region, selected states

The Farm Labor Survey (FLS), conducted by the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS) provides seasonal estimates of farm employment. Information on wages

of hired farm workers collected in this survey is used in Federal determinations of the Adverse Effect Wage Rates for H-2A workers and is a component of USDA's Parity Index. The survey has been conducted since 1910, although numerous changes in the frequency, detail, and methodology have occurred since that time. Data are reported quarterly in the NASS publication, Farm Labor (see U.S. Department of Agriculture, 1993b).

Methodology. The survey is conducted 4 times per year (in January, April, July, and October) in all states except Alaska. During each quarterly survey, data are collected for a one-week period that includes the 12th of the month. The FLS is a probability survey using a list of farm operators supplemented by an area frame of respondents not on the list. The list sample for each survey period contains about 11,000 farms and the area frame contains another 3,500 farms. Useable reports are obtained from about 80–90 percent of the sample. To collect information on the number of contract workers, a sample of farm labor contractors are interviewed in California and Florida. All other states collect information on contract labor directly from the farm operators in the survey. The survey is collected by mail, telephone, and personal interview.

Types of data available. The FLS provides quarterly estimates of the number of hired workers (including those expected to be employed 150 days or more and 149 days or less), average weekly hours worked, and average wage rates for hired workers for 16 separate states and 15 regions. Hourly wage rates for hired workers are provided by type of worker (field, livestock, supervisor, and other) and method of pay. Information on number of agricultural service workers, their hours worked, and their wage rates are provided for the United States, California, and Florida. In addition, annual average wage rates of hired workers are published for all states.

Data uses and limitations.

- The FLS offers the most detailed and timely information available on hired farm labor wage rates by state. Data are collected 4 times per year and released one month after collection.
- Data do not measure total hired labor use during the year since data collected represent a total of only 4 weeks out of the year. Because of the seasonality of hired farm work, estimates for 4 one-week periods may not accurately reflect labor use during the rest of the year.

- The survey does not collect information on the demographic characteristics of workers.
- Farm operators who hire a crew leader or agricultural service firm on a contract basis may be unable to accurately estimate the number of contract workers working on their farms because they do not hire the workers directly. Labor contractors are interviewed directly only in California and Florida.
- Data on hired workers refer to all hired workers on the farm, including bookkeepers, secretaries, and mechanics who are generally not considered to be hired farm workers.
- Duplication in numbers of workers may occur when an individual works on more than one farm during the survey week; the number of hours worked and wages earned are not duplicated.
- Data on the number of hired workers are limited to 16 states and 15 regions; data on the number of contract workers are reported for California, Florida, and the U.S. total.
- Hourly wage rates are derived by dividing gross weekly wages by hours worked per week, and are therefore influenced more by workers who work longer hours.
- Persons involved in the operation of a farm, but who pay themselves a regular salary, such as a shareholder in a corporation or partnership, are counted as hired workers.

Household Surveys

Three major sources of household data on farm labor are the Decennial Census of Population, the Current Population Survey, and the National Agricultural Worker Survey. Household surveys generally provide more detailed economic and demographic information on hired and contract workers and less information on the characteristics of the job or farm.

Decennial Census of Population

Responsible agency	Bureau of the Census, U.S. Department of Commerce
Date of origin	1790
Frequency of data collection	Every 10 years
Reference period	Week
Degree of coverage	Sample of households
Geographic detail	U.S., state, county

The Decennial Census of Population was first conducted by the Bureau of the Census in 1790 and has been taken every 10 years since. The Census counts persons at their usual residence—the place where the person lives and sleeps most of the time—to determine how many representatives each state will have in Congress. The Census also collects household data on the demographic and economic characteristics of the U.S. population which are used for a variety of statistical purposes by government agencies, businesses, and public and private groups. Data are available in published volumes and in public-use microdata computer tape files (see U.S. Department of Commerce 1992a, 1992b).

Methodology. Information from the 1990 Census was collected primarily through mail surveys—95 percent of the population was enumerated by the mailback procedure. Some data, including number of people, race, Spanish origin, gender, age, and household relationship, were based on a complete count of households. Other information such as employment status, occupation, industry of employment, and previous year's income was based on a 17-percent sample of households. All employment data were based on the respondent's chief job activity or business during the reference week, generally the last week of March or the first week of April. Total wage and salary income before deductions is combined and reported for all jobs held in the previous year.

Types of data available. The Census reports a variety of demographic and employment information on U.S. individuals and their households. Employment data are reported by 2-digit SIC code (livestock production, crop production, agricultural services, and horticultural

services) and for various occupational categories of hired farm workers, such as farm managers, horticultural specialty managers, supervisors of farm workers, farm workers, and nursery workers. Demographic data as well as information on number of weeks worked, usual hours worked per week, and wages earned during the previous year are also available by occupation and industry.

Data uses and limitations.

- The Decennial Census provides demographic and employment information on all U.S. residents at the county, state, and national level and allows comparisons to be made between hired farm workers and other occupation and industry groups. Since data are collected from all persons in a household, information can be obtained on the other members of the farm worker's household.
- Census data are collected only once in every 10 years and may not reflect recent changes in agricultural employment or earnings.
- Census data undercount the number of hired farm workers since the employment data are based on primary activity during the reference week, generally the last week of March or the first week of April. Because of the seasonality of agricultural work, many hired farm workers would not be counted in this occupational category since they did not work on farms during these time periods.
- Census data are more likely to exclude seasonal workers and characterize year-round hired farm workers—a group more likely to be white, older, engaged in livestock production, and dependent on hired farm work as a primary activity (Whitener 1984).
- Foreign nationals who had not established a residence in the United States as well as migrant farm workers who live most of the year outside the United States would not be included in the data. Census data are also more likely to miss households that have non-traditional or complex housing arrangements, move frequently, speak a non-English language, and have members with low educational levels. These key factors suggest an undercount of racial/ethnic minorities and probably farm workers.

- Wage and salary income is reported collectively for all jobs worked during the previous year and cannot be tied to the specific occupation or industry reported by respondents as their major activity during the census year.
- The Census does not report information on the characteristics of the farm or the farm job beyond industry or occupational classification.

Current Population Survey

Responsible agency	Bureau of Labor Statistics, U.S. Department of Commerce
Date of origin	1940
Frequency of data collection	Monthly
Reference period	Week
Degree of coverage	Sample of households
Geographic detail	U.S., state ²

The Current Population Survey (CPS) is conducted each month by the Bureau of the Census for the Bureau of Labor Statistics. The survey, conducted since 1940, is the source of the official Federal statistics on employment and unemployment in the United States and is also used to collect demographic information on the population. Results from the survey are published in BLS's monthly *Employment and Earnings* (U.S. Department of Labor 1994), in periodic Bureau of Census reports, and USDA's biennial *Profile of Hired Farm workers* (Runyan 1994). Data are also available in public-use computer tapes from the Bureau of the Census.

Methodology. The CPS is based on a probability sample of households, designed to represent the U.S. civilian noninstitutional population. Each month, the CPS collects information from a sample of households in all 50 states. About 57,000 households are interviewed in the CPS each month; about two-thirds are interviewed by telephone and the remainder by personal interview. Employment data are collected for individuals 15 years of age and older but published for those 16 years and older. The data collected refer to the activity or status reported for the week containing the 12th of the month.

Each month, workers in about one-quarter of the interviewed households are asked additional questions on weekly hours worked and earnings. These data are combined into the annual earnings

microdata file which includes all records from the 12 monthly surveys during the year that were subject to having these questions on hours worked and earnings asked. Average weekly earnings are derived from this file.

Each March, supplemental questions are added to the CPS to obtain information on family characteristics, income during the previous year, weeks worked, and occupation and industry of longest job during the previous year. Data from this March Annual Demographic File are based on the full CPS sample plus an additional 2,500 Hispanic households.

A redesign of the CPS, affecting the questionnaire, data collection methods, and the data processing system, began in January 1994 to help improve information on the labor force. Some of these changes, such as those designed to clarify the concept of unpaid family worker and the addition of questions determining the second occupation of multiple jobholders, may lead to more comprehensive data on farm employment. See U.S. Department of Labor (1993b) for more information on the redesign of the CPS.

Types of data available. The CPS provides a variety of demographic and employment information on the U.S. work force. Employment information is provided by 2-digit SIC codes and for various occupational categories of hired farm workers, including farm managers, horticultural specialty managers, supervisors of farm workers, farm workers, and nursery workers. Demographic data as well as information on hours worked and weekly earnings of hired farm workers are available.

Data uses and limitations.

- The CPS provides employment and demographic information on the entire U.S. work force, allowing comparative analyses between farm workers and other occupation and industry groups. The CPS is conducted on a monthly basis and provides the most timely data of all the data sources reviewed here. Since data are collected from all persons in a household, information can be obtained on other members of farm workers' households.
- The CPS is based on a sample of households and is likely to undercount hired farm workers. Individuals living in more unconventional living quarters such as trailers or labor camps are more likely to be missed in the CPS, and studies suggest that these persons are more likely to be Hispanic, a group

that comprises a large portion of the hired farm work force in the United States. In addition, unauthorized foreign nationals doing farm work in this country may not be counted because they tend to avoid survey enumerators due to their illegal status.

- The CPS classifies employed persons according to the job at which they worked the greatest number of hours during the survey week. As a result, farm workers who spent more time during the survey week at a nonfarm rather than a farm job would not be included as farm workers.
- The small sample size raises questions about generalizing from sample data to describe all U.S. farm workers. On average, about 500 hired farm workers are interviewed each month. The annual earnings file is comprised of records from fewer than 1,400 farm workers. Also, the CPS sample is too small to allow publication of reliable estimates for states.

The National Agricultural Workers Survey

Responsible agency	Office of the Assistant Secretary for Policy, U.S. Department of Labor
Date of origin	1989
Frequency of data collection	3 times per year
Reference period	Week
Degree of coverage	Sample of households
Geographic detail	U.S., 6 regions

The National Agricultural Workers Survey (NAWS) is a national survey of perishable crop field workers commissioned by the U.S. Department of Labor (DOL). The NAWS was first conducted in 1989 to meet DOL's Federally mandated responsibility to estimate the supply of agricultural workers performing Seasonal Agricultural Services (SAS) as required by IRCA. Although DOL is no longer required to estimate annual changes in the labor supply, the NAWS continues to collect a variety of demographic, employment, and earnings data on SAS workers each year. Results from the survey are published annually in DOL reports (see Mines et al. 1991) and data are available on public-use computer files.

Methodology. Each fiscal year, the NAWS collects information from personal interviews with 2,000 to 2,700 randomly selected workers

performing Seasonal Agricultural Services. The sample was selected using probabilities proportional to farm labor expenditure data from the 1987 Census of Agriculture. Using this method, a sample of 73 counties covering 25 states was selected to represent 12 distinct agricultural regions. No fewer than 4 counties were chosen from each region. Interview cycles lasting six to ten weeks are conducted three times a year beginning in January, May, and September to reflect the seasonality of agricultural work. For each cycle, approximately 30 of the 73 counties are selected randomly as interviewing sites. A random sample of SAS employers is generated from a county list of employer names obtained from Federal agencies and other sources. Employers are contacted and a random sample of workers are selected for interview. Site selection and interview allocations are proportional to seasonal payroll size.

Types of data available. NAWS provides detailed information on the demographic and employment characteristics of SAS workers, including their legal status; literacy and education; family composition; income, assets, and use of government programs; and employment history, earnings, and job characteristics. NAWS also collects information on migrant farm workers defined as SAS workers that traveled 75 miles or more from home while looking for work or from job to job during the year.

Data uses and limitations.

- NAWS provides detailed social and economic characteristics on SAS farm workers—the group of workers most likely to be affected by immigration reform. NAWS is currently the only national level data source that provides information on the characteristics of migrant farm workers.
- NAWS data include only workers performing Seasonal Agricultural Services—in effect, perishable crop field workers. Livestock workers are excluded from the survey.
- Published data do not provide estimates of the number of SAS workers.
- NAWS data have been collected only since 1989 and do not allow long-term historical comparisons of patterns and trends.
- The small sample size and the use of simple random sampling of employers and workers raises questions about the ability to generalize from the data. Only 2 percent of all counties and half of the states in the United States were sampled.

The geographic detail in published reports is limited to six regions; Alaska and Hawaii are not included in the data.

Administrative Records

The administrative records of Government agencies which operate employment-related programs provide employment, earnings, or expenditure data typically obtained from employers. This information is usually less detailed than other types of data and the universe of the administrative data may be limited by program definitions. The major sources of farm labor data from administrative records are the Bureau of Labor Statistics Unemployment Insurance data and the Bureau of Economic Analysis Employment and Income data.

Bureau of Labor Statistics Unemployment Insurance Data

Responsible agency	Bureau of Labor Statistics, U.S. Department of Labor
Date of origin	1978
Frequency of data collection	Quarterly (published on annual basis)
Reference period	Week
Degree of coverage	Census of Unemployment Insurance covered farm employers
Geographic detail	U.S., state, county

The Unemployment Insurance (UI) Program was enacted in 1938 to provide unemployed workers with partial income in a temporary period of involuntary unemployment. In 1978, agricultural labor was first covered by unemployment insurance under the Federal Unemployment Tax Act. The program is state-administered with Federal participation. Employer taxes are the major source of financing for the compensation program. Employers of agricultural labor are required to pay UI coverage for their employees if they: (1) paid wages of \$20,000 or more for agricultural labor during any calendar quarter in the current or preceding calendar year or; (2) employed at least 10 persons in agricultural labor for some portion of a day in each of the 20 different weeks during the current or preceding calendar year with each day being in a different calendar week. Each state establishes the tax structure and requirements for qualification, and some states

have stricter requirements than others. These size-of-firm coverage provisions apply to crew leaders as well as farm operators. State and national totals are published in the Bureau of Labor Statistics (BLS) annual report, *Employment and Wages* (see U.S. Department of Labor 1993a). Unpublished county level data are available on a cost-reimbursable basis from BLS.

Methodology. The UI data file is a byproduct of the administration of the Unemployment Insurance program. Qualifying employers are legally required to file quarterly tax reports with their respective state employment security agency which compiles data from these reports to send to BLS. Employers report their employment for the payroll period including the 12th of each month comprising the quarter and total wages paid during the quarter.

Types of data available. UI data provide a complete sum of wages paid to workers on farms and in agricultural service establishments that are covered by the Unemployment Insurance program. Summary statistics are available on annual average employment, total wages paid, annual wages per employee, and average weekly wages. Information is reported at the county, state, and national level by industry. Data are reported at the 4-digit SIC code.

Data uses and limitations.

- UI data report the numbers and earnings of hired farmworkers at the 4-digit SIC code—the finest level of detail among the data sources reviewed here—and provide information at the county level.
- Generally, only hired farm workers employed on the larger farms are covered under the UI program. BLS estimates that about 44 percent of all workers in agricultural industries are covered (U.S. Department of Labor 1992).
- State comparisons of UI data must consider the differences in laws and coverage among states. For example, California, Florida, Minnesota, Rhode Island, and Texas have laws that are more inclusive than others.
- UI data measure jobs not persons, and individuals working for more than one covered firm during the quarter are reported more than once; wages are not duplicated.
- Data are reported by industry not occupation. Therefore, data on agricultural industries will include all wage and salary

workers on the farms, such as bookkeepers and mechanics who are not generally considered to be hired farm workers.

- Since employment is measured for only one week during each month, but wages refer to wages paid in all 52 weeks, the average weekly wages reported by BLS do not take into account variations in employment levels during the other 40 weeks of the year.
- Average weekly wages do not control for hours worked and are therefore affected by the ratio of full-time to part-time workers. Computation of average annual wages per employee are computed by dividing total annual wages by annual average employment. (This estimate of average annual wages per employee fails to account for seasonality of employment and turnover among workers.) Average annual wage per employee is then divided by 52 to derive average weekly wages per employee. (This accepts the unlikely premise that workers worked all 52 weeks at farm work during the year.)

Bureau of Economic Analysis Employment and Income Data

Responsible agency Bureau of Economic Analysis,
U.S. Department of Commerce
Date of origin 1967
Frequency of data collection Annually
Reference period Year
Geographic detail U.S., state, county

The Bureau of Economic Analysis (BEA) has provided annual estimates of personal income by industry for states and local areas since 1929. Since 1967, BEA has also prepared annual estimates of employment by industry, as a supplement to its personal income series. Together, the data provide estimates of the number of farm wage and salary workers and their income at the state and county level. Employment and income data at the state and county level are not currently published but are available to the public on computer printouts and tapes from BEA.

Methodology. BEA uses information collected by others to prepare its employment and income estimates. For most industries, earnings and employment estimates are compiled from administrative records, such as the state unemployment insurance (UI) programs. However,

because of the large numbers of farm wage and salary workers not covered under the various administrative programs, BEA uses different estimating procedures to estimate their numbers.

BEA estimates the annual average wage and salary employment on farms by state based on data from USDA's Farm Labor Survey.¹ An annual average number of wage and salary workers by region is estimated by averaging the 4 survey weeks of regional data from the Farm Labor Survey. The regional data are distributed into individual states in proportion to cash farm wages as estimated by the USDA's Farm Costs and Returns Survey. State data are then distributed into counties using data on the number of workers working 150 days or more from the Census of Agriculture. In nine states (Arizona, California, Rhode Island, Connecticut, Delaware, Florida, Hawaii, Massachusetts, New Jersey, and Washington) UI data are considered to have adequate coverage and are used to allocate numbers of workers to counties. County level data on the number of corporate farms (used to represent the number of corporate officers) reported in the Census of Agriculture are added to these figures to generate total farm wage and salary employment.

BEA estimates farm wages and salary earnings by taking estimates of cash wages by state from the Farm Costs and Returns Survey and distributing it to the county level using data on hired labor expenditures from the Census of Agriculture. In nine states (Arizona, California, Rhode Island, Connecticut, Delaware, Florida, Hawaii, Massachusetts, New Jersey, and Washington) UI data are used to allocate county level income. To this figure is added the value of pay-in-kind such as food and lodging as reported in the Farm Costs and Returns Survey which is then distributed into counties using data on the number of workers working 150 days or more from the Census of Agriculture. County level estimates of the salaries of corporate officers included in the data on hired workers are based on amounts reported in the Census of Agriculture. BEA makes further adjustments to account for sources of other labor income, such as employer contributions to private pension and welfare funds.

Types of data provided. BEA employment and income files provide information on the annual average number of farm wage and salary workers and their wage and salary earnings at the U.S., state, and county level.

Data uses and limitations.

- BEA provides the only annual estimates of the employment and income of farm wage and salary workers at the county level.

Table B.1. General Characteristics of the Major Data Series

Data series	Frequency of data collection	Survey reference period	Level of greatest geographic detail	Number of workers	Data provided on:		
					Labor expenditures	Demographic characteristics of workers	Wages or earnings per worker
							Hourly Weekly Annual
Establishment Surveys:							
Census of Agriculture	Every 5 years	Year	County	Yes ¹	Yes	No	No
Farm Costs and Returns	Annually	Year	Region	No	Yes	No	No
Farm Labor	Quarterly	Week	Region ²	Yes	No	No	Yes ³
Household Surveys:							
Decennial Census of Population	Every 10 years	Week ⁴	County	Yes	No	Yes	No
Current Population Survey	Monthly	Week	State ⁵	Yes	No	Yes	Yes ³
National Agricultural	3 times per year ⁶	Week ⁴	Region	No	No	Yes	No
Worker Survey							Yes
Administrative Records:							
Unemployment Insurance Program	Quarterly ⁶	Week ⁷	County	Yes	Yes	No	Yes
BEA Data	Annually	Year	County	Yes	No	No	No

¹Data on the number of workers who worked less than 150 days and those who worked 150 days or more are collected periodically.
²Annual average wage rates are reported at the State level, while quarterly data on number of workers and wage rates are reported at the regional level and for selected States.

³Can be estimated from data provided.

⁴Some information is collected for the entire year.

⁵State data available but not published, due to small sample size and low reliability of the estimates.

⁶Data are published on an annual basis.

⁷Data on employment are based on a one-week period for each month comprising the quarter, while data on wages are based on the entire quarter.

- Calculations used in deriving estimates of employment and personal income come from different data sets based on different years which may not be strictly comparable.
- Data include all workers on the farm, even bookkeepers and secretaries not generally considered as hired farm workers.
- BEA data do not collect information on the demographic and employment characteristics of hired and contract workers.
- BEA reports separate estimates for employment and earnings in agricultural services. However, data on contract labor cannot be separated out of the broader group of agricultural services, which includes non-farm work such as lawn and garden services, landscape planning, veterinary services for pets, boarding kennels, and others.

Points to Consider

Agricultural employment data vary widely among different secondary sources and users should understand the methodological and conceptual differences that underlie the data sets they choose for their research and program evaluations. While data shown in Table B.2 are not strictly comparable, they provide a general indication of the magnitude of variation in estimates among different data sources. For example, the annual average number of hired farm workers (excluding contract or agricultural service workers) ranged from 698,000 reported by the 1991 Unemployment Insurance Program to 904,000 reported by the 1990 BEA employment and income data—a difference of over 200,000 workers. However, the 1992 Census of Agriculture reports 3.8 million hired workers employed by farm operators during the year. Estimates of the number of contract or agricultural service workers range from an annual average of 54,000 reported by the 1992 CPS Earnings File to an annual average of 256,000 reported by the 1993 Farm Labor Survey—a difference of 200,000. Labor expenditure data also differed, ranging from \$12.5 million reported in the 1991 Unemployment Insurance data to \$15,300 reported by the 1992 Census of Agriculture.

A detailed analysis of variations in employment and labor expense estimates is beyond the scope of this chapter (but see Daberkow and Whitener 1986; Martin and Martin 1994). However, in general, these data variations are due to differences in the population uni-

verse examined, concepts and definitions used, age criteria, time of data collection and employment reference period. For example, some data series limit the population universe for which data are collected. The Unemployment Insurance data are collected only for those employers covered by the UI program; the National Agricultural Workers Survey includes only those workers who performed Seasonal Agricultural Services. Also, agricultural labor data are affected by the unknown number of unauthorized aliens who work in agriculture. These workers are more likely to be included in establishment surveys such as the Farm Labor Survey or in the NAWs which makes initial survey contact at the place of work. Unauthorized aliens are more likely to be missed in household surveys because many live in non-standard housing units or because they wish to avoid detection. Several data sets do not include contract or agricultural service workers or do not distinguish between these and other hired workers when reporting data.

Definitions of farm workers and labor expenditures differ among the data sets and data collection. Establishment and administrative data, for example, are more likely to include bookkeepers, accountants, and other professional staff people who work on farms; household data do not. Some expenditure data include payments-in-kind and fringe benefits; while others report only cash wages. Age criteria also differ among the data sources. The Current Population Survey, for example, collects employment information only on persons 15 years of age and over while the Census of Agriculture and Farm Labor Survey have no age criteria.

Because of the seasonality of agriculture, worker estimates differ depending on the employment reference period. The Census of Population, for example, collects employment information based on respondent's chief activity during one reference week during the year, generally the last week of March or first week of April. The NAWs conducts interviews during a 6–10 week period at three times during the fiscal year. The CPS is conducted monthly and the Farm Labor Survey is taken quarterly; annual averages can be computed for both. FCRS and the Census of Agriculture report expenditure data representing the entire year. Also, data users should consider differences in survey coverage, sample size, frequency of data collection, historical availability, and data access when selecting sources for analysis.

Selection of the most appropriate data source to explore farm labor issues depends upon individual research questions and objectives. Data users should also keep in mind that many Federal agencies are currently facing budget reductions and must control costs.

Cost-cutting measures may result in the modification, reduction, or elimination of existing agricultural employment data in the near future, and potential data users should continue to closely monitor changes in federal data sources.

NOTES

1. Not all data are reported at the state level.
2. State data are not published.
3. At this time, BEA has no published documentation explaining in detail the methodology used in estimating farm employment.

Table B.2. Numbers of Workers and Expenditures for Labor as Reported by the Major Data Series for the Most Current Year for which Data Are Available

Data series	Workers			Expenditures for labor		
	Hired	Contract	Total	Hired	Contract	Total
	Number (in thousands)			Dollars (in millions)		
Establishment surveys:						
Census of Agriculture						
(1987)	3,802 ¹	--	3,802 ¹	12,962 ²	2,324	15,286 ²
Farm Costs and Returns						
ERS (1992)	--	--	--	12,043	2,016	14,060
NASS (1992)	--	--	--	NA	NA	14,500
Farm Labor (1993)	857 ³	256 ³	1,113 ³	--	--	--
Household surveys:						
Census of						
Population (1990)	NA	NA	1,099	--	--	--
Current Population						
Survey Earnings						
File (1992)	749 ⁴	54 ⁴	803 ⁴	--	--	--
National Agricultural						
Worker Survey (1991)	--	--	--	--	--	--
Administrative Records:						
Unemployment						
Insurance (1991)	698 ⁵	254 ^{5,6}	952 ^{5,6}	9,893 ⁷	3,356 ^{6,7}	12,482 ⁷
BEA Data (1990)	904 ⁵	NA	NA	--	--	--

-- = Data are not collected.

NA = Data not available.

¹Total hired workers employed by Farm operators during the year; subject to double-counting.

²Excludes pay-in-kind.

³Annual average computed from survey data, based on 4 weeks of data.

⁴Annual average computed from survey data, based on 12 weeks of data.

⁵Published annual average.

⁶Data reported here do not include veterinary and horticultural services performed on the farm.

⁷Refers to total wages and excludes pay-in-kind and employer's contributions to social security, workers' compensation, health insurance, unemployment insurance, private pensions, and welfare funds.

Table B.3. Labor Expenses Reported in the 1987 Census of Agriculture

State	Hired labor expenses		Contract labor expenses		Total labor expenses	
	\$1000	% of U.S.	\$1000	% of U.S.	\$1000	% of U.S.
Alabama	140,414	1.1	15,095	0.6	155,509	1.0
Alaska	3,928	0.0	176	0.0	4,104	0.0
Arizona	190,442	1.5	72,997	3.1	263,439	1.7
Arkansas	223,124	1.7	25,890	1.1	249,014	1.6
California	2,922,390	22.5	967,377	41.6	3,889,767	25.4
Colorado	209,675	1.6	26,105	1.1	235,780	1.5
Connecticut	77,980	0.6	3,901	0.2	81,881	0.5
Delaware	23,911	0.2	3,674	0.2	27,585	0.2
Florida	937,571	7.2	367,000	15.8	1,304,571	8.5
Georgia	252,721	1.9	35,626	1.5	288,347	1.9
Hawaii	178,788	1.4	6,406	0.3	185,194	1.2
Idaho	245,990	1.9	32,386	1.4	278,376	1.8
Illinois	300,090	2.3	15,302	0.7	315,392	2.1
Indiana	209,089	1.6	16,567	0.7	225,656	1.5
Iowa	259,210	2.0	19,833	0.9	279,043	1.8
Kansas	239,629	1.8	25,166	1.1	264,795	1.7
Kentucky	202,545	1.6	34,570	1.5	237,115	1.6
Louisiana	146,667	1.1	11,560	0.5	158,227	1.0
Maine	61,086	0.5	7,348	0.3	68,434	0.4
Maryland	93,631	0.7	7,688	0.3	101,319	0.7
Massachusetts	77,337	0.6	6,406	0.3	83,743	0.5
Michigan	318,276	2.5	22,488	1.0	340,764	2.2
Minnesota	261,649	2.0	21,620	0.9	283,269	1.9
Mississippi	168,464	1.3	16,705	0.7	185,169	1.2
Missouri	190,051	1.5	20,629	0.9	210,680	1.4
Montana	107,632	0.8	15,244	0.7	122,876	0.8
Nebraska	254,132	2.0	18,344	0.8	272,476	1.8
Nevada	31,652	0.2	3,672	0.2	35,324	0.2
New Hampshire	21,601	0.2	1,140	0.0	22,741	0.1
New Jersey	115,161	0.9	11,665	0.5	126,826	0.8
New Mexico	115,633	0.9	32,608	1.4	148,241	1.0
New York	336,461	2.6	18,485	0.8	354,946	2.3
North Carolina	388,338	3.0	41,893	1.8	430,231	2.8
North Dakota	99,790	0.8	9,370	0.4	109,160	0.7
Ohio	259,501	2.0	16,012	0.7	275,513	1.8
Oklahoma	144,750	1.1	23,629	1.0	168,379	1.1

Table B.3. (con't).

State	Hired labor expenses		Contract labor expenses		Total labor expenses	
	\$1000	% of U.S.	\$1000	% of U.S.	\$1000	% of U.S.
Oregon	367,047	2.8	31,329	1.3	398,376	2.6
Pennsylvania	352,456	2.7	25,590	1.1	378,046	2.5
Rhode Island	9,076	0.1	508	0.0	9,584	0.1
South Carolina	111,836	0.9	15,223	0.7	127,059	0.8
South Dakota	95,956	0.7	10,668	0.5	106,624	0.7
Tennessee	138,434	1.1	24,663	1.1	163,097	1.1
Texas	729,915	5.6	125,550	5.4	855,465	5.6
Utah	72,014	0.6	6,866	0.3	78,880	0.5
Vermont	38,323	0.3	2,359	0.1	40,682	0.3
Virginia	188,671	1.5	17,113	0.7	205,784	1.3
Washington	601,614	4.6	58,402	2.5	660,016	4.3
West Virginia	26,956	0.2	3,520	0.2	30,476	0.2
Wisconsin	362,356	2.8	18,705	0.8	381,061	2.5
Wyoming	57,677	0.4	8,831	0.4	66,508	0.4
United States	12,961,640	100.0	2,323,904	100.0	15,285,544	100.0

Source: U.S. Department of Commerce, Bureau of the Census, 1987
Census of Agriculture.

Table B.4. Number of Workers Reported in the 1992 Census of Agriculture

State	Number of workers		Total number	% of U.S.
	Working less than 150 days	Working 150 days or more		
Alabama	31,958	11,918	43,876	1.2
Alaska	940	154	1,094	0.0
Arizona	20,358	14,003	34,361	0.9
Arkansas	35,414	17,172	52,586	1.4
California	495,607	182,287	677,894	17.8
Colorado	32,059	14,365	46,424	1.2
Connecticut	6,848	4,568	11,416	0.3
Delaware	3,226	1,504	4,730	0.1
Florida	93,010	68,037	161,047	4.2
Georgia	46,805	17,779	64,584	1.7
Hawaii	5,737	9,008	14,745	0.4
Idaho	56,778	15,453	72,231	1.9
Illinois	63,213	20,763	83,976	2.2
Indiana	50,425	14,909	65,334	1.7
Iowa	85,399	21,779	107,178	2.8
Kansas	42,735	16,784	59,519	1.6
Kentucky	181,657	18,128	199,785	5.3
Louisiana	29,388	12,068	41,456	1.1
Maine	19,566	3,385	22,951	0.6
Maryland	14,067	6,386	20,453	0.5
Mass	8,445	4,024	12,469	0.3
Michigan	83,923	20,501	104,424	2.7
Minnesota	84,671	19,509	104,180	2.7
Mississippi	26,732	14,353	41,085	1.1
Missouri	56,692	17,164	73,856	1.9
Montana	19,168	8,669	27,837	0.7
Nebraska	46,679	16,722	63,401	1.7
Nevada	3,446	2,312	5,758	0.2
New Hampshire	3,183	1,351	4,534	0.1
New Jersey	14,366	8,175	22,541	0.6
New Mexico	19,236	8,506	27,742	0.7
New York	45,858	22,224	68,082	1.8
North Carolina	126,611	27,185	153,796	4.0
North Dakota	29,860	7,115	36,975	1.0
Ohio	63,785	19,238	83,023	2.2

Table B.4. (con't).

State	Number of workers		Total number	% of U.S.
	Working less than 150 days	Working 150 days or more		
Oklahoma	40,582	12,613	53,195	1.4
Oregon	99,646	21,060	120,706	3.2
Pennsylvania	41,987	25,098	67,085	1.8
Rhode Island	770	565	1,335	0.0
South Carolina	29,077	9,049	38,126	1.0
South Dakota	25,409	8,502	33,911	0.9
Tennessee	157,687	14,608	172,295	4.5
Texas	142,915	61,107	204,022	5.4
Utah	20,072	6,050	26,122	0.7
Vermont	5,103	3,398	8,501	0.2
Virginia	54,251	16,046	70,297	1.8
Washington	216,683	34,251	250,934	6.6
West Virginia	14,152	3,322	17,474	0.5
Wisconsin	77,855	31,589	109,444	2.9
Wyoming	8,623	4,438	13,061	0.3
United States	2,882,657	919,194	3,801,851	100.0

Source: U.S. Department of Commerce, Bureau of the Census, 1992
Census of Agriculture

Table B.5. Farm Labor Expenses Based on the 1992 Farm Costs and Returns Survey

State	Total hired and contract labor expenses	
	\$ millions	% of U.S.
Alabama	126.7	0.9
Alaska	3.3	0.0
Arizona	207.4	1.5
Arkansas	266.4	1.9
California	3,809.1	27.1
Colorado	168.8	1.2
Connecticut	78.6	0.6
Delaware	28.1	0.2
Florida	910.9	6.5
Georgia	213.7	1.5
Hawaii	215.7	1.5
Idaho	176.5	1.3
Illinois	316.1	2.2
Indiana	228.7	1.6
Iowa	327.4	2.3
Kansas	193	1.4
Kentucky	202.4	1.4
Louisiana	158.6	1.1
Maine	62.4	0.4
Maryland	97.4	0.7
Massachusetts	81	0.6
Michigan	385.4	2.7
Minnesota	385.5	2.7
Mississippi	187	1.3
Missouri	196.6	1.4
Montana	98.3	0.7
Nebraska	219.6	1.6
Nevada	31.3	0.2
New Hampshire	21.8	0.1
New Jersey	107.8	0.8
New Mexico	99.6	0.7
New York	332.9	2.4
North Carolina	363.1	2.6
North Dakota	78.6	0.6
Ohio	254.9	1.8

Table B.5. (con't).

State	Total hired and contract labor expenses	
	\$ millions	% of U.S.
Oklahoma	155.2	1.1
Oregon	357.1	2.5
Pennsylvania	352.9	2.5
Rhode Island	11.4	0.1
South Carolina	95.5	0.7
South Dakota	81	0.6
Tennessee	151.8	1.1
Texas	798.1	5.7
Utah	50.3	0.3
Vermont	37.9	0.3
Virginia	180.5	1.3
Washington	583.4	4.1
West Virginia	30.2	0.2
Wisconsin	489.3	3.5
Wyoming	50.6	0.4
United States	14,059.5	100.0

Source: U.S. Department of Agriculture, Economic Research Service, 1992 Farm Costs and Returns Survey.

Regional estimates of farm labor expenses are derived from the Farm Costs and Returns Survey. The Economic Research Service distributes these regional estimates by State using expenditure data from the Census of Agriculture.

Table B.6. Number of Hired Workers Reported by the 1993 Farm Labor Survey

State and region	Quarterly estimates				Annual average	
	Jan. Thou.	April Thou.	July Thou.	Oct. Thou.	Thou.	% of U.S.
Northeast I	35	43	53	57	47	5.5
New York	19	23	25	31	24.5	2.6
Other	16	20	28	26	22.5	2.6
Northeast II	28	37	42	32	34.75	4.0
Pennsylvania	20	22	24	19	21.25	2.5
Other	8	15	18	13	13.5	1.6
Appalachian I	25	36	67	52	45	5.2
North Carolina	13	25	49	32	29.75	3.5
Virginia	12	11	18	20	15.25	1.8
Appalachian II	29	30	41	34	33.5	3.9
Southeast	33	39	55	39	41.5	4.8
Florida	54	61	48	63	56.5	6.6
Lake	45	54	86	77	65.5	7.6
Michigan	14	17	29	28	22	2.6
Minnesota	10	14	25	24	18.25	2.1
Wisconsin	21	23	32	25	25.25	2.9
Cornbelt I	39	48	66	57	52.5	6.1
Cornbelt II	20	26	31	31	27	3.1
Delta	24	37	57	41	39.75	4.6
Northern Plains	23	39	43	46	37.75	4.4
Southern Plains	54	64	85	59	65.5	7.6
Oklahoma	9	14	15	13	12.75	1.5
Texas	45	50	70	46	52.75	6.1
Mountain I	17	23	29	26	23.75	2.8
Mountain II	13	14	24	23	18.5	2.1
Mountain III	13	22	19	16	17.5	2.0
Arizona	7	13	11	11	10.5	1.2
New Mexico	6	9	8	5	7	0.8
Pacific	30	59	92	56	59.25	6.9
Oregon	12	23	38	17	22.5	2.6
Washington	18	36	54	39	36.75	4.3
California	120	188	215	211	183.5	21.4
Hawaii	9	8	9	8	8.5	1.0
United States	611	828	1062	928	857.25	100

Table B.7. Average Annual Hourly Wage Rates for Hired Workers Reported in the 1993 Farm Labor Survey

State	Hourly wage rates (Dol.)
Alabama	5.53
Arizona	6.03
Arkansas	5.84
California	6.56
Colorado	5.84
Delaware	6.56
Florida	6.62
Georgia	5.94
Hawaii	9.47
Idaho	6.05
Illinois	6.27
Indiana	6.71
Iowa	6.39
Kansas	6.33
Kentucky	5.35
Louisiana	5.63
Maryland	6.16
Michigan	6.36
Minnesota	6.78
Mississippi	5.26
Missouri	5.79
Montana	5.56
Nebraska	6.12
Nevada	6.87
New Jersey	7.56
New Mexico	5.95
New York	6.16
North Carolina	5.54
North Dakota	6.49
Ohio	5.96
Oklahoma	5.93
Oregon	6.75
Pennsylvania	6.02
South Carolina	5.64
South Dakota	5.69

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, 1993 Farm Labor Survey.

Table B.7. (con't).

State	Hourly wage rates (Dol.)
Tennessee	5.81
Texas	5.34
Utah	6.25
Virginia	5.83
Washington	6.98
West Virginia	5.03
Wisconsin	5.29
Wyoming	5.49
Other States (CT, ME, MA, NH, RI, VT)	7.4
United States	6.25

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, 1993 Farm Labor Survey.

Average wage rate is average of the published wage rates for each survey week weighted by number of hours worked during the week. The annual average is based on data collected for January, April, July, and October.

Data exclude Alaska.

Table B.8. Number of Hired Farmworkers Reported in the 1990 Decennial Census of Population

State	Number of workers	% of total
Alabama	13,300	1.1
Alaska	500	0.0
Arizona	21,000	1.8
Arkansas	20,300	1.7
California	237,500	20.4
Colorado	16,600	1.4
Connecticut	3,600	0.3
Delaware	1,900	0.2
Florida	71,100	6.1
Georgia	30,200	2.6
Hawaii	6,900	0.6
Idaho	18,600	1.6
Illinois	31,200	2.7
Indiana	20,500	1.8
Iowa	26,000	2.2
Kansas	16,300	1.4
Kentucky	24,600	2.1
Louisiana	14,200	1.2
Maine	5,800	0.5
Maryland	9,100	0.8
Massachusetts	5,800	0.5
Michigan	23,700	2.0
Minnesota	23,200	2.0
Mississippi	19,400	1.7
Missouri	22,700	2.0
Montana	10,200	0.9
Nebraska	18,900	1.6
Nevada	2,900	0.2
New Hampshire	2,000	0.2
New Jersey	9,400	0.8
New Mexico	11,900	1.0
New York	28,900	2.5
North Carolina	35,100	3.0
North Dakota	9,000	0.8
Ohio	21,300	1.8
Oklahoma	17,500	1.5

Table B.8. (con't).

State	Number of workers	% of total
Oregon	25,200	2.2
Pennsylvania	22,400	1.9
Rhode Island	,600	0.1
South Carolina	13,600	1.2
South Dakota	8,700	0.7
Tennessee	16,700	1.4
Texas	106,200	9.1
Utah	6,000	0.5
Vermont	5,300	0.4
Virginia	18,900	1.6
Washington	37,000	3.2
West Virginia	2,300	0.2
Wisconsin	28,400	2.4
Wyoming	4,700	0.4
NA	14,400	1.2
United States	1,161,500	100.0

Source: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing Public Use Microdata (1 Percent) Sample.

Data exclude Alaska.

NA=State not identified

Table B.9. Number of Workers and Median Weekly Wages Reported in 1992 Current Population Survey Earnings File

Farm production region	Number of workers		Median weekly earnings
	Thou.	Pct.	Dol.
Northeast	57	6.7	220
Lake States	85	10	200
Corn Belt	79	9.3	200
Northern Plains	37	4.4	--
Appalachia	84	9.9	180
Southeast	109	12.9	212
Delta States	49	5.8	--
Southern Plains	72	8.5	200
Mountain	59	7.0	220
Pacific	216	25.5	220
United States	848	100.0	205

Source: U.S. Department of Labor, Bureau of Labor Statistics, 1992 Current Population Survey Microdata Earnings File.

Regions include: Northeast - CT, ME, MA, NH, RI, VT, NY, NJ, PA, MD, DE, and D.C.; Lake States - MN, WI, MI; Corn Belt - IA, MO, IL, IN, OH; Northern Plains - ND, SD, NE, KS; Appalachia - VA, WV, KY, TN, NC; Southeast - SC, GA, AL, FL; Delta States - MS, LA, AR; Southern Plains - OK, TX; Mountain - MT, ID, WY, NV, UT, CO, AZ, NM; Pacific - WA, OR, CA, HI, AK.

Annual averages were computed by summing the weekly estimates for each month and dividing by 12.

-- = Median earnings not shown where base is less than 50,000.

Table B.10. Agricultural Employment and Wages Covered by Unemployment Insurance in 1990

State	Employment		Wages	
	Number	% of U.S.	\$ million	% of U.S.
Alabama	6,431	0.9	94.6	1.0
Alaska	123	0.0	1.8	0.0
Arizona	14,305	2.0	197.9	2.1
Arkansas	8,173	1.2	121.2	1.3
California	228,965	32.7	3,191.2	33.5
Colorado	8,320	1.2	127.2	1.3
Connecticut	5,330	0.8	93.3	1.0
Delaware	1,508	0.2	28.9	0.3
Florida	71,207	10.2	936.1	9.8
Georgia	11,182	1.6	149	1.6
Hawaii	8,870	1.3	177.1	1.9
Idaho	10,724	1.5	142.3	1.5
Illinois	11,212	1.6	179.5	1.9
Indiana	9,820	1.4	147.3	1.5
Iowa	4,824	0.7	74.9	0.8
Kansas	5,603	0.8	105.7	1.1
Kentucky	3,244	0.5	46.8	0.5
Louisiana	5,358	0.8	65.5	0.7
Maine	2,251	0.3	29.8	0.3
Maryland	3,675	0.5	55.4	0.6
Massachusetts	3,562	0.5	63	0.7
Michigan	13,488	1.9	166.4	1.7
Minnesota	8,269	1.2	122.6	1.3
Mississippi	9,171	1.3	114.3	1.2
Missouri	5,998	0.9	81.3	0.8
Montana	2,095	0.3	28	0.3
Nebraska	5,225	0.7	90.8	0.9
Nevada	1,611	0.2	23.3	0.2
New Hampshire	538	0.1	7.3	0.1
New Jersey	7,490	1.1	126.5	1.3
New Mexico	5,245	0.7	67.4	0.7
New York	13,722	2.0	208.6	2.2
North Carolina	14,979	2.1	214.6	2.2
North Dakota	1,152	0.2	16.4	0.2
Ohio	12,153	1.7	159.8	1.7
Oklahoma	3,908	0.6	57.6	0.6

Table B.10. (con't).

State	Employment		Wages	
	Number	% of U.S.	\$ million	% of U.S.
Oregon	20,930	3.0	249	2.6
Pennsylvania	15,594	2.2	232.5	2.4
Rhode Island	746	0.1	12.5	0.1
South Carolina	5,709	0.8	64.7	0.7
South Dakota	914	0.1	16.2	0.2
Tennessee	3,749	0.5	51.1	0.5
Texas	43,333	6.2	546	5.7
Utah	1,975	0.3	26.5	0.3
Vermont	760	0.1	10.9	0.1
Virginia	7,605	1.1	103.6	1.1
Washington	59,181	8.4	535	5.6
West Virginia	852	0.1	9.5	0.1
Wisconsin	7,995	1.1	124.6	1.3
Wyoming	1,402	0.2	19.1	0.2
United States	700,476	100.0	9,536.5	100.0

Source: Data derived from Martin, Philip L. and David A. Martin, *The Endless Quest: Helping America's Farm Workers*. Boulder, CO: Westview Press, 1994.

Data exclude agricultural service and contract workers.

Table B.11. Number of Farm Wage and Salary Workers Reported by the
Bureau of Economic Analysis, 1990

State	Farm wage and salary workers	% of U.S.
Alabama	13,716	1.5
Alaska	132	0.0
Arizona	12,131	1.3
Arkansas	17,691	2.0
California	168,038	18.6
Colorado	16,327	1.8
Connecticut	5,121	0.6
Delaware	1,931	0.2
Florida	52,363	5.8
Georgia	23,418	2.6
Hawaii	9,886	1.1
Idaho	13,702	1.5
Illinois	22,884	2.5
Indiana	15,831	1.7
Iowa	23,476	2.6
Kansas	12,885	1.4
Kentucky	22,293	2.5
Louisiana	11,368	1.3
Maine	4,918	0.5
Maryland	7,258	0.8
Massachusetts	5,076	0.6
Michigan	21,798	2.4
Minnesota	23,892	2.6
Mississippi	14,290	1.6
Missouri	14,548	1.6
Montana	8,153	0.9
Nebraska	14,449	1.6
Nevada	2,712	0.3
New Hampshire	1,538	0.2
New Jersey	6,893	0.8
New Mexico	5,033	0.5
New York	26,807	3.0
North Carolina	29,771	3.3
North Dakota	6,035	0.7
Ohio	17,170	1.9
Oklahoma	10,261	1.1

Table B.11. (con't).

State	Farm wage and salary workers	% of U.S.
Oregon	25,871	2.9
Pennsylvania	24,130	2.7
Rhode Island	672	0.1
South Carolina	11,971	1.3
South Dakota	5,616	0.6
Tennessee	14,943	1.7
Texas	50,236	5.6
Utah	5,249	0.6
Vermont	3,134	0.3
Virginia	15,429	1.7
Washington	44,411	4.9
West Virginia	2,833	0.3
Wisconsin	31,830	3.5
Wyoming	3,877	0.4
United States	903,997	100.0

Source: U.S. Department of Commerce, Bureau of Economic Analysis,
1990 BEA Employment and Income File.