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Hired Farm Labor Use on Fruit, Vegetable, and Horticultural Specialty Farms

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Hired Farm Labor Use on Fruit, Vegetable, and Horticultural Specialty Farms. By Victor J. Oliveira, Anne B.W. Effland, Jack L. Runyan, Agriculture and Rural Economy Division, and Shannon Hamm, Commodity Economics Division, Economic Research Service, U.S. Department of Agriculture. Agricultural Economic Report No. 676.

Abstract

Fruit, vegetable, and horticultural specialty (FVH) farms are the largest users of hired and contract labor on a per-farm basis. Because of the unique nature of FVH production, the use of labor on FVH farms differs markedly from that on other types of farms. FVH production requires a large number of workers for short, intermittent periods during critical planting and harvest seasons. Migrant farmworkers and undocumented foreign workers are most often associated with seasonal hand-harvest jobs in the FVH sector. The use of contract labor is prevalent on fruit and vegetable farms as well. Factors such as future production and consumer demand trends, continued mechanization of FVH production, foreign competition and international trade, immigration reform, and changes in Federal laws, regulations, and programs affecting farm labor could have important implications on the adequacy of farm labor supply on FVH farms.

Keywords: Hired labor, contract labor, mechanization, foreign competition, immigration reform

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Contents

Glossary iii
Summary iv
Introduction 1
Sources of Hired Farmworkers 2
Domestic Farmworkers 2
Foreign Nationals Admitted Under Federal Temporary Worker Programs 4
Other Foreign Workers 5
Patterns of Hired Farm Labor Use 9
Farms Using Hired or Contract Labor 9
Labor Expenses 9
Wages 9
Seasonality of Employment 12
Contract Labor 13
Size of Farm 15
Geographic Patterns 15
Laws and Assistance Programs Affecting Hired Farm Labor 15
Laws Protecting Agricultural Laborers 15
Farmworker Assistance Programs 17
Current Availability of Hired Farmworkers 19
Future Hired Farm Labor Issues 21
Mechanization 21
Consumer Demand and Production Patterns 22
Foreign Competition and International Trade 22
Immigration Reform 24
Federal Laws, Regulations, and Programs 25
Economic Conditions 26
References 26

Glossary

Hired farmworkers--Persons who did farmwork for cash wages or salary. Hired farmworkers are sometimes differentiated by whether they are hired directly by the farmer or are contract workers. In this report, hired farmworkers include contract workers, unless specifically excluded.

Contract workers--Workers furnished on a contract basis by a labor contractor, crew leader, or agricultural service firm. Excludes persons doing customwork.

Migrant farmworkers--Farmworkers who stay away from home overnight to do temporary or seasonal farmwork.

Hired farm labor expenses--Includes gross salaries and wages, commissions, dismissal pay, vacation pay, and paid bonuses to hired farmworkers. Also, includes supplemental costs for benefits such as employers' Social Security contributions, unemployment compensation, workers' compensation insurance, life and medical insurance, pension plans, and so on.

Contract labor expenses--Includes the labor costs of workers furnished on a contract basis by a labor contractor, crew leader, agricultural service firm, or cooperative for harvesting fruit, vegetables, or horticultural specialties, shearing sheep, etc. Costs of customwork and machine hire are excluded.

Seasonal agricultural services--The performance of fieldwork relating to planting, growing, and harvesting of fruits and vegetables of every kind and perishable commodities. Includes all crops except grain sorghum/milo, hay and other forage, silage, crops grown for seed (except lettuce seed), sugarcane, coffee, tea, and flax. All livestock and livestock products are excluded.

Fruits--Berries, grapes, citrus fruits, deciduous fruit trees, avocados, bananas, coffee, dates, figs, olives, pineapples, and tropical fruit.

Vegetables--Vegetables and melons grown in the open.

Horticultural specialties--Bedding plants, bulbs, florists' greens, flower and vegetable seeds, flowers, foliage, fruit stocks, nursery stock, Christmas trees, ornamental plants, shrubberies, sod, mushrooms, and vegetables grown under cover.

Summary

Fruit, vegetable, and horticultural specialty (FVH) farms spend nearly six times as much on hired and contract labor per farm as do other farm types. FVH farms that used hired and/or contract labor had average labor expenses of $52,446 per farm, compared with $8,886 for all other types of farms.

Because of the unique nature of FVH production, the use of labor on FVH farms differs markedly from that on other types of farms. Although much of U.S. farm production is mechanized, many FVH crops require hand harvesting to preserve the quality and value of the produce, especially that intended for fresh market where consumers prefer an unblemished appearance. Thus, labor is the largest input expense on FVH farms, accounting for 37-44 percent of total production expenses, compared with an average of 8 percent on all other types of farms.

Factors likely to affect farm labor patterns include:

Immigration reform. FVH production requires a large number of workers for short, intermittent periods during critical planting and harvest seasons. Migrant farmworkers and foreign workers are often associated with seasonal hand-harvest jobs in the FVH sector. Changes in immigration policy or stricter enforcement may affect the supply of foreign farmworkers, while changes in Federal laws and programs designed to benefit farmworkers may make seasonal work more attractive to both U.S. and foreign workers.

Consumer demand. The share of all U.S. farm labor expenses attributed to FVH farms has grown from 34 percent in 1974 to 41 percent in 1987. Population growth and an increased concern over a healthy diet have increased consumer demand for fresh fruits and vegetables in the United States. The production of horticultural specialties has experienced an even greater increase than fruits and vegetables. As measured by grower cash receipts, the output of greenhouse and nursery crops increased 7 percent annually between 1970 and 1992.

Foreign trade. Modification of current agricultural trade policies could alter the flow of fruits, vegetables, and horticultural specialties between the United States and other countries, and thus affect the demand for labor in the United States. NAFTA's impact on the U.S. farm labor market is unclear. The cumulative effect of increases and decreases in U.S. production for various commodities (each demanding varied amounts of labor) will determine the net effect of NAFTA on the demand for labor.

Hired Farm Labor Use on Fruit, Vegetable, and Horticultural Specialty Farms

Victor J. Oliveira, Anne B. W. Effland, Jack L. Runyan, and Shannon Hamm

Introduction

The availability of an adequate supply of hired farmworkers to maintain and harvest the Nation's agricultural products continues to be a major concern for many U.S. farmers. These concerns are especially prevalent among farmers in the fruit, vegetable, and horticultural specialty (FVH) industries, where production requires a large number of workers for short, intermittent periods during critical planting and harvest seasons. Over 65 percent of FVH farms use hired and/or contract labor during the year and labor is the single largest input expense on these farms.

In recent years, several issues, including the enactment of immigration reform legislation and negotiations over new trade agreements among the United States, Canada, and Mexico, have raised questions about the continued availability and costs of hired farm labor, particularly on FVH farms. Under the Immigration Reform and Control Act of 1986 (IRCA), for example, the U.S. Congress mandated a study of the effects of immigration reform on the supply, wages, and working conditions of farmworkers who work with perishable agricultural commodities. Also, under the Food, Agriculture, Conservation, and Trade Act of 1990, Congress identified the availability of an adequate supply of labor for fruit and vegetable production as a major Federal research priority. This report examines the importance of hired farm labor to the FVH industry and explores issues associated with the availability of hired farm labor on FVH farms in the United States.

Although much of U.S. farm production is highly mechanized, the production of fruits, vegetables, and horticultural specialties (FVH) is still largely dependent on hand labor. Workers on FVH farms perform a wide range of jobs, including planting, pruning, thinning, hoeing, irrigating, fertilizing, and fieldpacking. However, more workers are involved in harvesting the crop than in any other activity. Harvesting by hand requires a lower outlay of capital and allows for selective and multiple harvesting (Thompson, 1992). Cost-effective methods of machine-harvesting many FVH crops without physical damage have not yet been developed. These crops require hand-harvesting to preserve the quality and value of the produce, especially that intended for fresh market where consumers prefer an unblemished appearance.

As a result, the mechanization of FVH crops has been largely limited to crops used for processing. An estimated 89 percent of fruit production and 37 percent of vegetable production were hand-harvested in the early 1980's (Brown, 1984). These percentages have not changed much since that time. Although comparable figures on the hand-harvesting of horticultural specialties are not available, anecdotal evidence suggests that a relatively small proportion of its production is mechanized.

Because of their reliance on hand labor, FVH farms are the largest users of hired and contract workers on a per-farm basis:

- Sixty-five percent of all FVH farms used hired and/or contract labor in 1987, compared with only 44 percent of all other types of farms.
- Although FVH farms comprised only 7 percent of all farms, they accounted for 41 percent of total U.S. farm labor expenses in 1987.
- Labor is the single largest input expense on FVH farms, accounting for 37-44 percent of total production expenses, compared with an average of only 8 percent on all other types of farms.
- As a group, those FVH farms that used hired or contract labor had labor expenses of $52,446 per farm, compared with $8,886 for all other farms.
- The share of total U.S. farm labor expenses attributed to FVH farms increased from 34 percent in 1974 to 41 percent in 1987.

As the most labor-intensive of all farm types, FVH farms are more likely to be affected by farm labor policies, programs, and changing labor-use patterns than are other types of farms. Therefore, FVH producers are especially concerned with issues affecting farm labor. Continuation of increased FVH production trends, as a result of high consumer demand for plants, flowers, and fresh fruits and vegetables, ensures the importance of farm labor issues for FVH producers in the future.

Sources of Hired Farmworkers

FVH farmers have traditionally drawn from several sources of hired farm labor: domestic workers, foreign nationals admitted under Federal temporary worker programs, and foreign workers illegally employed in the United States.

Domestic Farmworkers

Because of differences in survey design, definitions, and data collection methods, estimates of the number of hired farmworkers vary widely. Data used in this report to examine the number of domestic farmworkers come from USDA's Agricultural Work Force Survey (Oliveira and Cox, 1989). This survey probably counted few illegal aliens either because they had returned home before the December survey or because they avoided enumerators for fear of revealing their illegal status. However, the data provided good coverage of domestic farmworkers and reflected general trends in the domestic hired farm work force.

The number of domestic hired farmworkers employed on all U.S. farms declined by over 40 percent during the 1950's and 1960's, falling from 4.3 million in 1950 to about 2.5 million in 1970 (fig. 1).[1] Most of this decline was the result of increased mechanization and other technological advances, such as higher yielding crops and improved fertilizers, pesticides, and irrigation equipment, that reduced the labor input per unit of output.

The development of machines and other labor-saving technology did not occur evenly among all commodity groups, however. While large numbers of hired workers were displaced with the mechanization of cotton and sugarbeets in the 1950's and 1960's, mechanization did not occur to the same degree in FVH crops. Mechanical harvesting of FVH crops was largely limited to those used for processing. For example, the mechanical tomato harvester was used for most

[1] The decrease in the number of domestic hired farmworkers in the early 1950's was due to expanding employment opportunities in higher wage nonagricultural industries, including a shift of workers to defense plants during the Korean War (Oliveira, 1989). Inductions and enlistments in the Armed Forces also depleted the number of domestic hired farmworkers. Many farmers substituted legal and illegal foreign workers for domestic workers during this period. The number of domestic hired farmworkers increased after the war ended in 1953.

Figure 1
Number of hired farmworkers, 1950-87
The decrease in number of farmworkers leveled off after 1970.

Source: Oliveira, 1989.

Migrant Farmworkers

Because of the seasonality of FVH crops, large numbers of workers are needed for short periods of time, especially during peak labor-use seasons such as planting and harvesting. Labor for harvesting these highly perishable crops is needed at exact time periods to prevent deterioration of the crop. When the demand for farmworkers exceeds the supply of farmworkers living in the local area, migrants can supplement the local supply of labor. Migrant farmworkers are persons who stay away from home overnight to do temporary or seasonal farmwork.

Despite the important role of migrant farmworkers in FVH production, statistics do not provide a reliable estimate of their numbers. Varied definitions of migrant workers and problems associated with counting a transient population moving across regions complicate data collection (Whitener, 1992). Anecdotal evidence suggests that many migrants live in unconventional housing, such as barns, garages, and makeshift shelters, making it likely they will be missed in a survey of households (La Cooperativa Campesina de California, 1991).

tomatoes grown for processing, while tomatoes for fresh market were picked by hand. As a result, hired farm labor use on FVH farms probably declined, but to a lesser degree than for other crops.

Between 1970 and 1987 (the last year of the Agricultural Work Force Survey), the number of domestic farmworkers remained relatively stable at around 2.5 million as the rate of growth in mechanization leveled off. Low labor costs relative to the costs of capital slowed the trend toward greater mechanization. By this time, large-scale mechanization had been achieved in many areas of the farm sector and further mechanization was less efficient and more costly. The remaining hand-labor jobs were the most difficult to mechanize.

Foreign Nationals Admitted Under Federal Temporary Worker Programs

Foreign nationals have participated legally as farmworkers in the United States through several labor supply programs. The first program was under the Immigration Act of 1917, which allowed foreign workers to fill anticipated gaps in the American work force during World War I. This program satisfied the needs of employers for importing labor until the outbreak of World War II.

The Bracero Program

The largest Federal temporary worker program, known as the "bracero" (Spanish for manual laborer) program, began in 1942 during World War II as a temporary program that authorized the U.S. Government to contract with the Mexican Government for farm labor. Congress extended the wartime emergency program until the end of 1947 to allow for orderly reintegration of domestic labor into agriculture after the war and because of continued demand for food in war-damaged areas of the world (Rasmussen, 1951). From 1942 to 1947, an annual average of 37,000 Mexican workers were admitted for temporary employment in U.S. agriculture (U.S. Department of Labor, 1992).

The bracero program continued after 1947 through annual agreements with Mexico under provisions of the 1917 immigration law. Under these agreements, growers recruited workers directly, both in Mexico and from among Mexicans living illegally in the United States, without government intermediaries. This annual program continued until 1951, when a formal government-to-government recruitment system replaced it. An annual average of 70,000 Mexican workers were admitted from 1948 to 1950 (U.S. Department of Labor, 1992).

In 1951, Congress authorized a new program that lasted through 1964. Under the provisions of Public Law 78, the U.S. Government guaranteed contracted Mexican workers minimum wages and acceptable working conditions and paid transportation to and from Mexico (Craig, 1971; Hawley, 1966). During this third phase of the bracero program, from 1951 to 1964, an annual average of 296,000 Mexican workers were admitted into the United States, including a peak of 445,000 in 1956 (U.S. Department of Labor, 1992).

Most braceros worked on fruit and vegetable farms, with many also working on cotton and some on sugar farms. By 1963, braceros accounted for nearly 15 percent of the hours worked by seasonal labor in vegetable crops and almost 10 percent of the hours worked in fruit crops (McElroy and Gavett, 1965). The bracero program ended in 1964 as a result of concern about the welfare of domestic migrant workers and the reduced demand for workers because of increased mechanization, especially of cotton (U.S. Library of Congress, 1980).

The H-2A Program

While the bracero program governed the importation of Mexican labor, foreign farmworkers from other areas, primarily the Caribbean and Canada, also entered the United States. However, only 7 percent of all foreign farmworkers admitted to the United States from 1942 to 1964 came from outside Mexico. The 1917 immigration law governed the entry of these non-Mexican workers until 1952, when the Immigration and Nationality Act of that year superseded the 1917 law and established the H-2 Temporary Foreign Worker Program. The

Immigration Reform and Control Act in 1986 transformed the H-2 program into the H-2A program, providing for continued temporary importation of foreign nationals to perform farm labor when qualified domestic farmworkers are not available.

Before foreign labor can be obtained, the H-2A program requires employers to apply for certification from the U.S. Department of Labor (DOL) that a shortage of domestic farmworkers exists.[2] DOL must also certify that the employment of alien workers will not adversely affect the wages and working conditions of similarly employed U.S. workers (U.S. Department of Labor, 1992). Any labor obtained through the H-2A program must be paid at a minimum wage rate, the adverse effect wage rate (AEWR), which is deemed to have no adverse effect on domestic workers. Employers must pay the AEWR to all workers in similar jobs on the same farm regardless of whether they are domestic or H-2A workers. Imported farmworkers under the H-2A program, along with any domestic workers employed on the same farm, also receive free transportation to and from the job (after they complete 50 percent of the work contract period) and free housing.

The number of H-2 and H-2A farmworkers admitted into the United States has been substantially less than that admitted under the bracero program. For example, from 1980 to 1991, an annual average of 22,000 jobs were certified for foreign workers (table 1). The composition of the temporary foreign farm work force also changed under the H-2 and H-2A programs as workers from the British West Indies supplanted Mexicans as the primary source of labor.

Unlike under the bracero program, H-2A workers on FVH farms account for a relatively small and decreasing percentage of the total number of H-2A workers annually certified for U.S. agriculture, as well as a small percentage of the total farm labor used by U.S. FVH farms. In 1991, only 7,620 or 30 percent of all H-2A jobs were in FVH crops. Most of these (6,494) involved the harvesting of apples along the east coast (table 2). Historically, most H-2 and H-2A workers have been employed in the East because farm employers in the West had a large supply of illegal aliens available to them (U.S. General Accounting Office, 1988).

Other Foreign Workers

Undocumented foreign nationals, chiefly from Mexico, long made up a significant proportion of the hired farm work force. High unemployment in Mexico and the availability of higher paying jobs in the United States stimulated illegal immigration. Foreign workers found that their lack of education, work experience, and language fluency created less of a barrier to employment in agriculture than in other types of jobs. At the same time, the seasonality of employment, relatively low wages, strenuous nature of the work, and lack of job security associated with much hired farmwork made these jobs unattractive to many domestic workers. As a result, many U.S. farm producers came to rely on illegal workers as a source of farm labor. Although unauthorized workers were employed in all types of commodities, they were most often associated with seasonal hand-harvest jobs in the FVH sector. The exact number of illegal workers in U.S. agriculture is unknown since many of these workers are reluctant to participate in surveys for fear of revealing their legal status.

Immigration Reform

Enacted to stem the large flow of illegal workers into the United States, the Immigration Reform and Control Act of 1986 (IRCA) imposed strict hiring requirements on U.S. employers (Public Law 99-603). Under this law, employers must verify that anyone hired after November 6, 1986, is eligible to work in the United States. Employers must complete and sign form I-9, provided by the Immigration and Naturalization Service (INS), which indicates the employer checked proper employee documents. IRCA specified the documents acceptable for verifying worker eligibility. Those

[2] The Attorney General may admit workers without DOL certification, but it seldom has.

Table 1--Number of H-2A jobs certified, and H-2A jobs in fruits, vegetables, and horticultural specialties, 1980-91

Year	Total H-2A jobs certified[1]	H-2A jobs in fruits, vegetables, and horticultural specialties[1]	
	Number	*Number*	*Percent of all H-2A jobs*
1980	18,371	6,713	37
1981	17,953	6,406	36
1982	19,778	7,444	38
1983	19,498	6,804	35
1984	19,933	6,819	34
1985	20,682	7,053	34
1986	21,161	7,050	33
1987	24,532	7,621	31
1988	23,745	6,541	28
1989	26,607	8,601	32
1990	25,412	7,511	30
1991	25,702	7,620	30

[1] The number of jobs certified may overestimate the actual number of foreign workers admitted for employment. An employer may use only part, all, or none, of the certifications granted. Also, some admitted foreign workers may work in two or more certified jobs.

Source: U.S. Department of Labor, 1992.

Table 2--Number of H-2A jobs certified in fruits, vegetables, and horticultural specialties, by crop or activity, 1991

Crop or activity	Jobs certified[1]
Total	7,620
Apple (harvest)	6,494
Vegetable (harvest)	360
Citrus (hand harvest)	191
Nursery (general)	156
Greens (harvest)	152
Horticulture	68
Blueberry (harvest)	65
Cabbage (harvest)	40
Apple (pruning)	27
Cranberry (harvest)	16
Strawberry (harvest)	12
Tomato (harvest)	10
Sod	9
Christmas tree	9
Vegetable/berry (harvest)	9
Grapevine (pruning)	2

[1] The number of jobs certified may overestimate the actual number of foreign workers admitted for employment. An employer may use only part, all, or none, of the certifications granted. Also, some admitted foreign workers may work in two or more certified jobs.

Source: U.S. Department of Labor, 1992.

employers who knowingly hire undocumented workers face fines and possible imprisonment.

IRCA also contained several provisions for illegal aliens to become legal residents:

General Amnesty Program. Because of concern over the economic and social disruptions that could occur from deporting all undocumented workers, IRCA provided a general amnesty provision. The provision allowed illegal aliens who had resided in the United States continuously since before January 1, 1982, to apply for legal U.S. resident status. Over 1.7 million persons qualified for resident status. An estimated 7 percent of these legalized aliens were employed at farmwork at the time they applied for legalization; some may have chosen to continue to work in agriculture (U.S. Department of Justice, 1992).

Special Agricultural Worker Program. Because undocumented farmworkers are more likely to work in seasonal than year-round jobs, and to return home when U.S. farmwork is unavailable, many illegal aliens could not meet the continuous residency requirement under the general amnesty provision. Agricultural producers were concerned that failure to grant legal status to a large number of alien farmworkers could lead to labor shortages and serious disruptions in farm production. Agricultural employers in labor-intensive operations who have traditionally relied on unauthorized aliens (especially west coast fruit and vegetable growers) successfully lobbied Congress to include a measure of relief to the agricultural sector in the form of the Special Agricultural Workers (SAW) section of IRCA.

The SAW program allowed undocumented workers who worked in seasonal agricultural services for at least 90 days between April 30, 1985, and May 1, 1986, to apply for legal resident status. Congress defined seasonal agricultural services as the performance of fieldwork relating to planting, growing, and harvesting of fruits and vegetables of every kind and other perishable commodities, as defined by the Secretary of Agriculture.[3] About 1 million SAW applicants were legalized. Although some of these applications were suspected of being fraudulent, the number of workers legalized under the SAW program indicates the magnitude of unauthorized workers employed in U.S. agriculture in recent years.

Replenishment Worker Program. Since newly legalized SAW workers were not required to remain employed in agriculture, growers were concerned that many would leave agriculture, causing a shortage of farmworkers. As a result, the law also contained a Replenishment Agricultural Worker (RAW) Program that allowed the replacement of SAW's with new immigrants in the event of a shortage of agricultural workers in any fiscal year from 1990 to 1993. However, the U.S. Departments of Agriculture and Labor, which had joint responsibility for determining the shortage number, determined each year that no national shortage existed. As a result, no replenishment workers were permitted into the United States under the RAW program.

Although IRCA legalized a large number of formerly unauthorized aliens, it did not eliminate illegal aliens in U.S. agriculture. Because of the easy availability of fraudulent documents used by illegally employed workers and the difficulties associated with the verification process, the unauthorized population continues to comprise a substantial (although unknown) segment of the hired farm work force (Hepple and Amendola, 1991).

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[3] The Secretary of Agriculture's definition included all fruits and vegetables, plus Christmas trees, herbs, hops, horticultural specialties, Spanish reeds, spices, sugarbeets, and tobacco. This is an exclusive list, and anything not listed is excluded. All livestock and livestock products, for example, are excluded from the program.

Characteristics of Farmworkers Performing Seasonal Agricultural Services

Although several data sources describe the characteristics of hired farmworkers, none examine FVH workers specifically. Data from a recent U.S. Department of Labor survey provides information on the characteristics of farmworkers performing seasonal agricultural services (SAS)--those workers eligible for the SAW program--during fiscal year 1990 (Mines and others, 1991). Ninety percent of the SAS workers in the study worked in fruits, vegetables, or horticulture.

Demographic Characteristics

Farmworkers were mainly young, male, married, Hispanic, foreign-born, and had low education levels.

Age: The median age was 31 years. About two-thirds of the workers were less than 35 years of age.
Sex: 71 percent were male.
Marital status: 64 percent of the workers were married, 7 percent were divorced, widowed, or separated, and 29 percent had never been married.
Ethnicity: 71 percent were of Hispanic origin.
Country of birth: 62 percent of the workers were foreign-born, 92 percent of whom were born in Mexico.
Years in the United States: Most foreign-born workers had lived in the United States less than 10 years.
Primary language: Spanish was the primary language for 65 percent of the workers.
Education: 53 percent had completed 8 or fewer years of formal education.

Employment Characteristics

Farmwork was characterized by low wages and seasonal, short-term employment resulting in low annual earnings. Harvesting crops was the most common work task.

Task: About half of the workers were involved in harvesting crops.
Wages: The median wage of farmworkers for their main task was $4.85 per hour.
Hours worked: Workers spent an average of 37 hours per week performing SAS work.
Weeks worked: Workers worked an average of 26 weeks during the year performing SAS work.
Non-SAS work: 36 percent of the workers worked at non-SAS jobs during the year.
Annual earnings: Half of the workers earned less than $7,500 during the year.
Poverty level: Half of the workers' families had incomes below the poverty level.

Patterns of Hired Farm Labor Use

Because of the unique nature of FVH production, the use of labor on FVH farms differs markedly from that on other types of farms.

Farms Using Hired or Contract Labor

FVH farms are more likely to use hired and/or contract labor than most other types of farms.[4] Sixty-eight percent of all fruit and tree nut farms, 65 percent of all horticultural specialty farms, and 55 percent of all vegetable farms used hired and/or contract labor in 1987 compared with an average of only 44 percent of all other U.S. farms (table 3).[5] Farms using hired and/or contract labor accounted for 98 percent of the total value of sales on fruit and tree nut farms and 97 percent on vegetable and horticultural specialty farms. In contrast, farms using paid labor accounted for 82 percent of total value of sales on all other farms.

Labor Expenses

Farmers on FVH farms spent over $5 billion on hired and contract labor in 1987, including $2.1 billion on fruit and tree nut farms, $1.8 billion on horticultural specialty farms, and $1.2 billion on vegetable farms (table 4).[6] Although these farms comprised only 7 percent of all farms, they accounted for 41 percent of total U.S. farm labor expenses in 1987.

Among those farms with labor expenses, FVH farms had the highest average labor expenses per farm. Horticultural specialty farms incurred average labor expenses of $88,715, vegetable farms $74,709, and fruit and tree nut farms $34,585, while the average labor expense on all other U.S. farms was only $8,886. Many horticultural specialty farms operate year-round, which may explain their higher average labor expenses compared with fruit or vegetable farms.

Labor was the single largest input expense on FVH farms, accounting for 44 percent of total production expenses on horticultural specialty farms, 40 percent on fruit farms, and 37 percent on vegetable farms. No other type of farm had more than 18 percent of its total production expenses attributed to labor (fig. 2).

The share of all U.S. farm labor expenses attributed to fruit, vegetable, and horticultural specialty farms grew from 34 percent in 1974 to 41 percent in 1987 (U.S. Department of Commerce, 1977 and 1989). Most of this growth is attributed to the increased production of horticultural specialty crops. Horticultural specialty farms' share of total U.S. farm labor expenses increased from 9 percent in 1974 to 14 percent in 1987. During the same period, fruit farms' share increased from 15 to 17 percent, while vegetable farms' share remained at about 10 percent.

Wages

Cash wages comprise the major expense item associated with hired labor, accounting for about 85 percent of total hired labor expenses on all U.S. farms (U.S. Dept. Agr., 1991b).[7] The average wage for fieldworkers was $5.69 per hour in 1992 (U.S.

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[4] Although a high percentage of some other types of farms, such as cotton and dairy, used some hired and/or contract labor, in other measures of labor use, such as average labor expense per farm or share of total production expenses attributed to labor, they ranked well below that of FVH farms.

[5] Labor expenditure data for fruit farms comes from the 1987 Census of Agriculture, which included tree nut farms with fruit farms. However, the inclusion of tree nut farms has little practical effect, since tree nut production accounts for only a small portion of total fruit production.

[6] Labor expenses include gross salaries and wages, commissions, and paid bonuses, as well as supplemental costs for benefits such as employers' Social Security contributions, unemployment compensation, workers' compensation, life and medical insurance, and pension plans. Contract labor expenses include the labor costs for workers furnished on a contract basis by a contractor, crew leader, or cooperative.

[7] Employers' contribution to Social Security and in-kind perquisites (board, lodging, transportation, and food) accounted for the remaining 15 percent of total hired labor expenses.

Table 3--Farms using hired and/or contract labor, by type of farm, 1987
FVH farms are more likely to use hired/contract labor than are most other types of farms.

Type of farm	Farms			Total value of sales		
	All farms	Farms using hired and/or contract labor		All farms	Farms using hired and/or contract labor	
	Number	*Number*	*Percent of all farms*	*$1,000*	*$1,000*	*Percent of total value of sales*
All farms	2,087,750	954,278	46	134,568,585	112,798,264	84
All FVH farms	149,324	97,088	65	17,111,351	16,648,066	97
Fruit and tree nut	89,070	60,774	68	6,968,092	6,807,331	98
Vegetable	29,793	16,532	55	4,453,948	4,306,288	97
Horticultural specialty	30,461	19,782	65	5,689,311	5,534,447	97
All non-FVH farms	1,938,426	857,190	44	117,457,234	96,150,198	82
Cash grain	461,116	197,496	43	24,895,881	17,183,271	69
Cotton	27,466	21,065	77	4,180,004	3,988,974	95
Tobacco	88,204	51,831	59	1,619,182	1,409,163	87
Other crop	183,956	76,713	42	8,596,881	7,784,710	91
Beef, hogs, and sheep	898,715	359,188	40	45,017,713	37,263,423	83
Dairy	136,528	91,018	67	17,840,369	14,801,532	83
Poultry and egg	36,479	23,064	63	12,537,218	11,374,125	91
Other livestock	105,962	36,815	35	2,769,985	2,344,999	85

Source: Oliveira, 1991

Table 4--Farm labor expenses by type of farm, 1987
FVH farms have the highest average labor expense per farm.

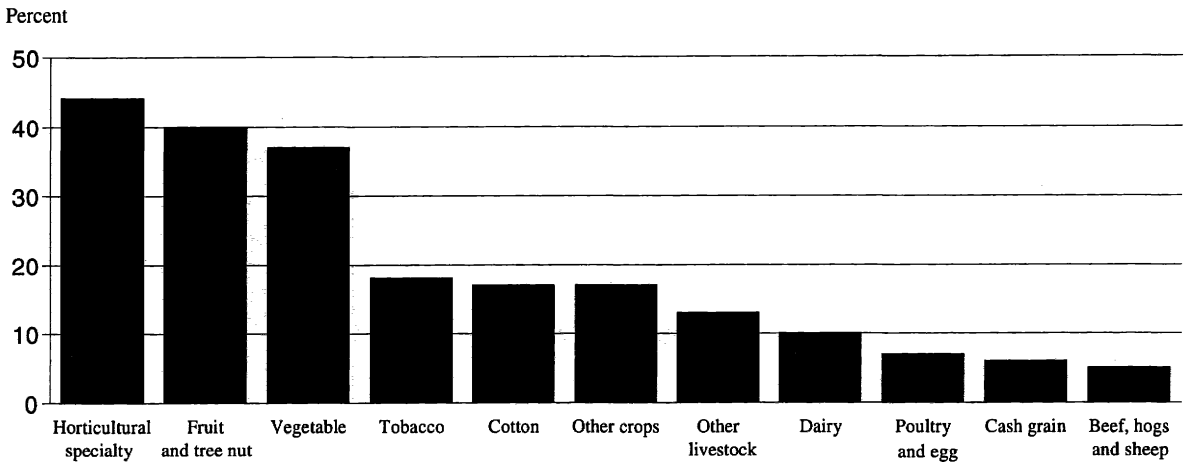
Type of farm	Farms with labor expenses	Total labor expenses	Average labor expense per farm[1]
	Number	*$1,000*	*$1,000*
All farms	954,278	12,709,220	13,318
All FVH farms	97,088	5,091,914	52,446
Fruit and tree nut	60,774	2,101,862	34,585
Vegetable	16,532	1,235,083	74,709
Horticultural specialty	19,782	1,754,969	88,715
All non-FVH farms	857,190	7,617,306	8,886
Cash grain	197,496	1,193,992	6,048
Cotton	21,065	514,729	24,435
Tobacco	51,831	195,056	3,763
Other crop	76,713	1,209,168	15,762
Beef, hogs, and sheep	359,188	2,094,767	5,832
Dairy	91,018	1,300,093	14,284
Poultry and egg	23,064	786,910	34,119
Other livestock	36,815	322,592	8,763

[1] Average of only those farms with labor expenses.
Source: Oliveira, 1991.

Figure 2

Labor's share of total farm production expenses, 1987

Labor accounts for over 40 percent of expenses on FVH farms; no other farm type had more than 18 percent of production expenses attributed to labor.

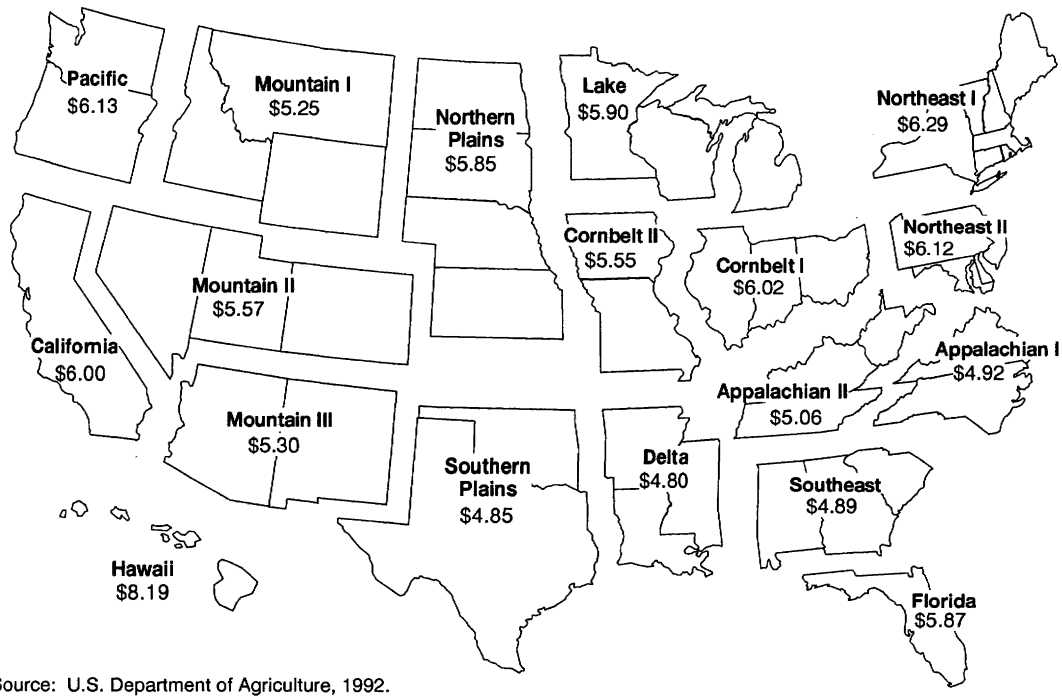


Source: Oliveira, 1991.

Figure 3

Annual average wage rates for fieldworkers, by region, 1992

Average wage rates vary across regions.

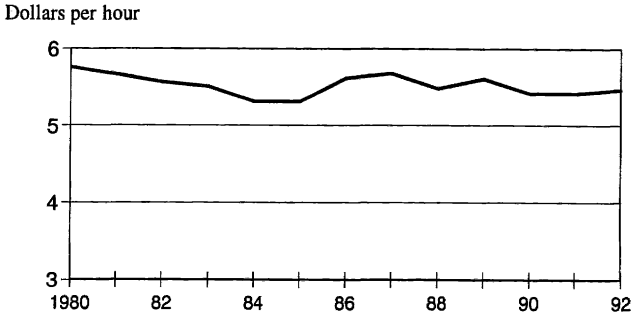


Source: U.S. Department of Agriculture, 1992.

Wage Rates Over Time

Average wages for fieldworkers rose from $3.38 in July of 1980 to $5.47 in July of 1992, an increase of 62 percent (U.S. Dept. Agr., 1991a and 1992a). (Because of inconsistencies in the estimation of annual average wage rates from 1980 to 1992, July average wage rates were used.) However, this increase did not keep pace with inflation as real wages, that is, wages that have been adjusted for inflation, declined about 5 percent over the same time period (fig. 4). Wage rates in some areas of the country experienced even greater declines. For example, annual average real wages for field workers in California fell by 17 percent. In California, the abundant supply of workers from Mexico willing to work in agriculture, plus a surplus labor supply due to high unemployment and poor economic conditions, may have contributed to wages rising more slowly than inflation.

Figure 4
Real average wage rates for fieldworkers in July 1980-92



Source: USDA, 1991a, 1992a.

Dept. Agr., 1992a).[8] However, wage rates varied greatly across regions (fig. 3). Hawaii, at $8.19, reported the highest hourly wage rate, followed by the Northeast I with an average of $6.29. At the other extreme, the Delta region, with hourly wages of $4.80, and the Southeast region ($4.89) paid the lowest wage rates.

Average wage rates for fieldworkers in 1992 also varied by season. The average wage was highest in January ($5.99), when a higher proportion of jobs are performed by higher paid, full-time workers, and lowest in July ($5.47), when more low-paid temporary workers are in the work force.

[8] Fieldwork includes planting, tending, and harvesting crops (including nursery and greenhouse crops), and operating farm machinery on crop farms. Wage data exclude contract workers.

Seasonality of Employment

Because of the seasonal nature of farmwork, the number of hired farmworkers varies widely throughout the year. In most areas of the country, farmwork on crop farms slackens during the winter, picks up during the spring as planting and cultivating begin, and peaks during the harvest season in late summer and early fall. Employment then drops off sharply when the harvest is completed. Florida represents an exception to the usual pattern in that employment peaks in the winter, remains high during the fall and early spring, and slackens during the summer (U.S. Dept. Agr., 1992a).

The number of seasonal workers (workers working less than 150 days during the year), and regular and year-round workers (those working 150 days or

more) indicates seasonality by type of farm. Data from the 1982 Census of Agriculture show that among farms that used hired farmworkers, fruit and vegetable farms employed more seasonal workers than did other types of farms.[9] Both vegetable and fruit farms averaged 19 seasonal workers per farm (table 5). Although work on horticultural specialty farms (an average of 9 seasonal workers per farm) was less seasonal than work on fruit and vegetable farms, horticultural specialty farms still employed considerably more seasonal workers than did all other types of farms, which averaged only 4 seasonal workers per farm. Horticultural specialty farms also employed more workers who worked 150 days or more (7 per farm) than vegetable farms (5 per farm) and fruit farms (3 per farm). This is likely the result of many horticultural specialties being produced in greenhouses year-round.

Contract Labor

While most farmers hire their workers directly, some employ farm labor contractors or crew leaders to provide farmworkers (usually referred to as contract labor). Farm labor contractors, who act as intermediaries matching farmworkers with farm jobs, usually recruit, hire, transport, and supervise workers. Contract labor plays an especially important role on fruit and vegetable farms, accounting for 28 and 25 percent of all labor expenses in 1987, compared with an average of 15 percent for all U.S. farms (table 6). The use of contract labor was not as prevalent on horticultural specialty farms, accounting for only 8 percent of total labor expenses. Because the work on horticultural specialty farms is less seasonal than work on fruit and vegetable farms, there is less need for contract labor.

The use of contract labor has increased in recent years. In 1974, 13 percent of vegetable farms, 24 percent of fruit and tree nut farms, and 7 percent of horticultural specialty farms used contract labor during the year (U.S. Department of Commerce, 1977). By 1987, contract labor was used on 23 percent of vegetable farms, 38 percent of fruit and tree nut farms, and 25 percent of horticultural specialty farms (Oliveira, 1991). Contract labor's share of total labor expenses also increased substantially between 1974 and 1987: from 18 to 25 percent on vegetable farms, from 21 to 28 percent on fruit and tree nut farms, and from 2 to 8 percent on horticultural specialty farms. The enactment of IRCA likely contributed to increased use of contract labor over time. An increasing number of growers may be relying on contractors to provide documented workers to avoid the responsibility of worker verification as required under the law (Hepple and Amendola, 1991).

Table 5--Average number of hired workers per farm, by type of farm and days worked, 1982
FVH farms use more seasonal workers than other types of farms.

Type of farm	Average number of workers who worked:[1] less than 150 days	150 days or more
	Number	
All farms	4.5	1.1
All FVH farms	16.9	3.8
Fruit and tree nut	19.1	2.5
Vegetable	18.6	4.9
Horticultural specialty	9.1	6.7
All non-FVH farms	4.0	.8
Cash grain	2.8	.7
Cotton	5.6	2.4
Tobacco	6.7	.4
Sugar and other field crops	5.3	1.3
General farms, primarily crop	6.4	1.4
Livestock, except dairy, poultry, and animal specialty	2.6	.5
Dairy	2.5	1.5
Poultry and egg	4.0	2.3
Animal specialty	2.8	1.1
General farms, primarily livestock	3.1	.8

[1] Average number of hired workers refers to the average number of workers on those farms that used hired labor.
Source: U.S. Department of Commerce, 1984.

[9] Data do not include contract workers. More recent data on the number of workers per farm are not available.

Table 6--Use of contract labor by type of farm, 1987
Fruit/tree nut and vegetable farms use more contract labor that other types of farms.

Type of farm	Farms			Labor expenses		
	All farms	Farms with contract labor expenses		Total labor expenses	Contract labor expenses	
	Number	*Number*	*Percent of all farms*	*$1,000*	*$1,000*	*Percent of total labor expenses*
All farms	2,087,750	272,094	13	12,709,220	1,842,984	15
All FVH farms	149,324	48,610	33	5,091,914	1,035,431	20
Fruit and tree nut	89,070	34,064	38	2,101,862	589,351	28
Vegetable	29,793	6,945	23	1,235,083	305,924	25
Horticultural specialty	30,461	7,601	25	1,754,969	140,156	8
All non-FVH farms	1,938,426	223,484	12	7,617,306	807,553	11
Cash grain	461,116	41,978	9	1,193,992	109,813	9
Cotton	27,466	9,096	33	514,729	73,905	14
Tobacco	88,204	10,098	11	195,056	23,670	12
Other crop	183,956	25,132	14	1,209,168	183,092	15
Beef, hogs, and sheep	898,715	100,919	11	2,094,767	216,952	10
Dairy	136,528	15,424	11	1,300,093	65,551	5
Poultry and egg	36,479	8,409	23	786,910	106,792	14
Other livestock	105,962	12,428	12	322,592	27,779	9

Source: Oliveira, 1991.

Table 7--Distribution of labor expenses by sales class and type of farm, 1987
Farms with sales of $500,000 and over account for most of the labor expenses on FVH farms.

Characteristic	Total labor expenses	Sales class		
		Less than $250,000	$250,000-499,999	$500,000 and over
	Dollars	*Percent*		
All farms	12,709,220	30	16	54
All FVH farms	5,091,914	19	10	71
Fruit and tree nut	2,101,862	11	8	81
Vegetable	1,235,083	29	12	60
Horticultural specialty	1,754,969	13	10	77
All non-FVH farms	7,617,306	37	19	43
Cash grain	1,193,992	61	25	15
Cotton	514,729	34	19	47
Tobacco	195,056	76	15	9
Other crop farms	1,209,168	25	16	58
Beef, hogs, and sheep	2,094,767	37	18	45
Dairy	1,300,093	43	23	35
Poultry and egg	786,910	6	17	77
Other livestock	322,592	36	15	49

Source: Oliveira, 1991.

Size of Farm

Most workers are employed on larger farms with labor needs greater than can be provided by farm operators and their families. The largest 5 percent of vegetable farms, those with sales of $500,000 or more, accounted for 81 percent of total vegetable-farm labor expenses in 1987, while fruit farms with sales of $500,000 or more (the largest 3 percent) accounted for 60 percent of total fruit-farm labor expenses. The 8 percent of horticultural specialty farms with sales of $500,000 or more accounted for 77 percent of total horticultural specialty-farm labor expenses (table 7). In contrast, among all other farms, only 43 percent of farm labor expenses were attributed to farms with sales of $500,000 or more.

Geographic Patterns

The bulk of FVH production and labor use is concentrated in a few States. However, even in some relatively low labor-use States, there may be small areas of high labor use. To identify areas of high labor use, counties were classified into three groups based on their expenditures for labor: less than $1 million, $1 million to less than $20 million, and $20 million or more.

Fruit and tree nut farms. California had labor expenses of $1.2 billion, or 55 percent of the U.S. total, in 1987, followed by Florida (13 percent) and Washington (9 percent) (Oliveira, 1991). No other State accounted for over 3 percent of the U.S. total. At the county level, 142 counties in 26 States had fruit and tree nut farm labor expenses of $1 million or more, including 27 counties with labor expenses of $20 million or more (fig. 5). Four contiguous counties in California had the largest farm labor expenses--Fresno ($174 million), Tulare ($146 million), Kern ($146 million), and Ventura ($82 million).

Vegetable farms. Two States comprised over two-thirds of total labor expenses: California (46 percent) and Florida (18 percent). Arizona (6 percent) and Texas (4 percent) accounted for another 10 percent. One hundred and three counties in 21 States had vegetable farm labor expenses of $1 million or more, including 17 counties with labor expenses of $20 million or more (fig. 6). Monterey, CA, with labor expenses of $132 million, led the Nation, followed by Palm Beach, FL ($73 million), Imperial, CA ($63 million), and Fresno, CA ($62 million).

Horticultural specialty farms. California (27 percent), Florida (14 percent), and Pennsylvania (7 percent) accounted for almost half of all labor expenses on horticultural specialty farms. One hundred and seventy-five counties in 33 States had labor expenses of $1 million or more, including 18 counties with labor expenses of $20 million or more (fig. 7). Many of these high labor-expense counties were located near large metropolitan areas. The counties with the largest labor expenses were San Diego, CA ($61 million), Monterey, CA ($56 million), Los Angeles, CA ($57 million), and Chester, PA ($47 million).

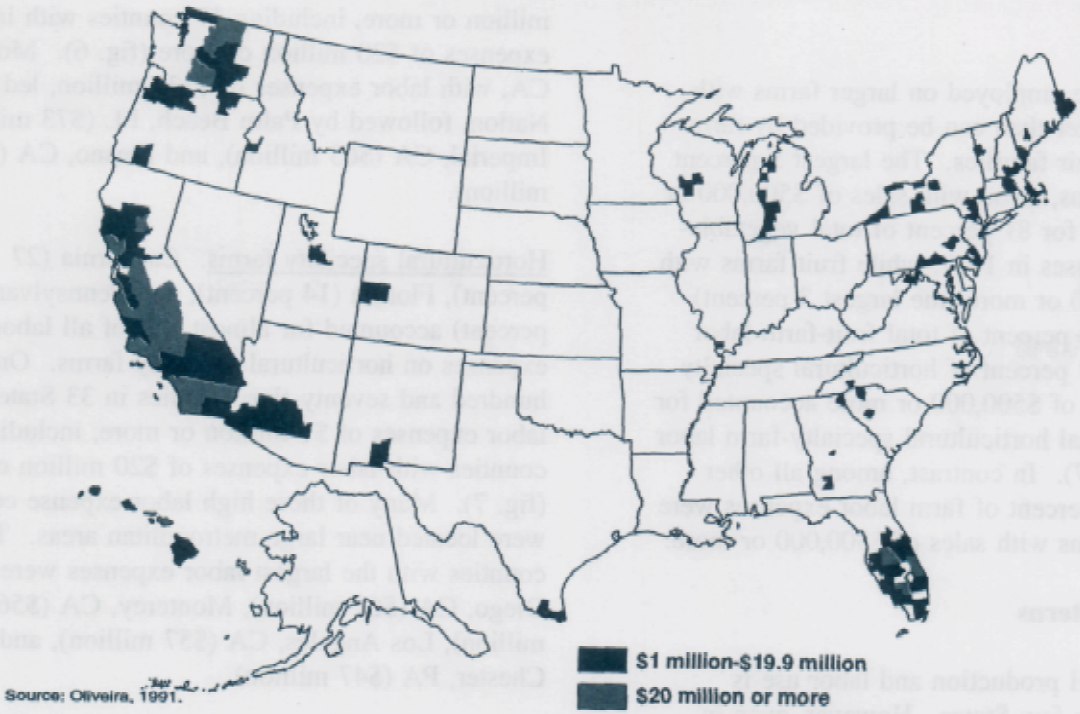
Laws and Assistance Programs Affecting Hired Farm Labor

A variety of Federal laws and regulations governing employment, taxes, wages, and working conditions exist to protect the income, health, and safety of agricultural workers. In addition, the Federal Government has established housing, education, health, employment training, and legal assistance programs targeted specifically to agricultural workers. These laws and programs affect employers of hired farm labor in varying degrees, but they are particularly important to FVH producers, who rely on large amounts of hired labor.

Laws Protecting Agricultural Laborers

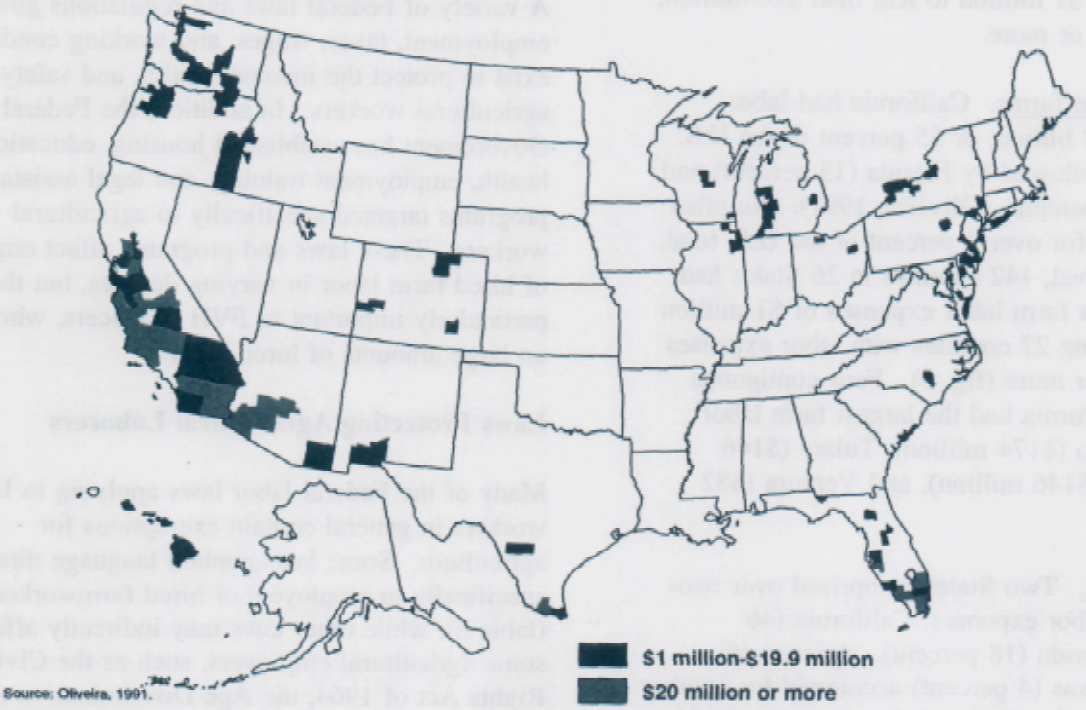
Many of the Federal labor laws applying to U.S. workers in general contain exemptions for agriculture. Some laws contain language directed specifically to employers of hired farmworkers (table 8), while other laws may indirectly affect some agricultural employers, such as the Civil Rights Act of 1964, the Age Discrimination Act of 1967, the Americans with Disabilities Act, and the Family and Medical Leave Act (Runyan 1992).

Figure 5
Labor expenses on fruit and tree nut farms, by county, 1987



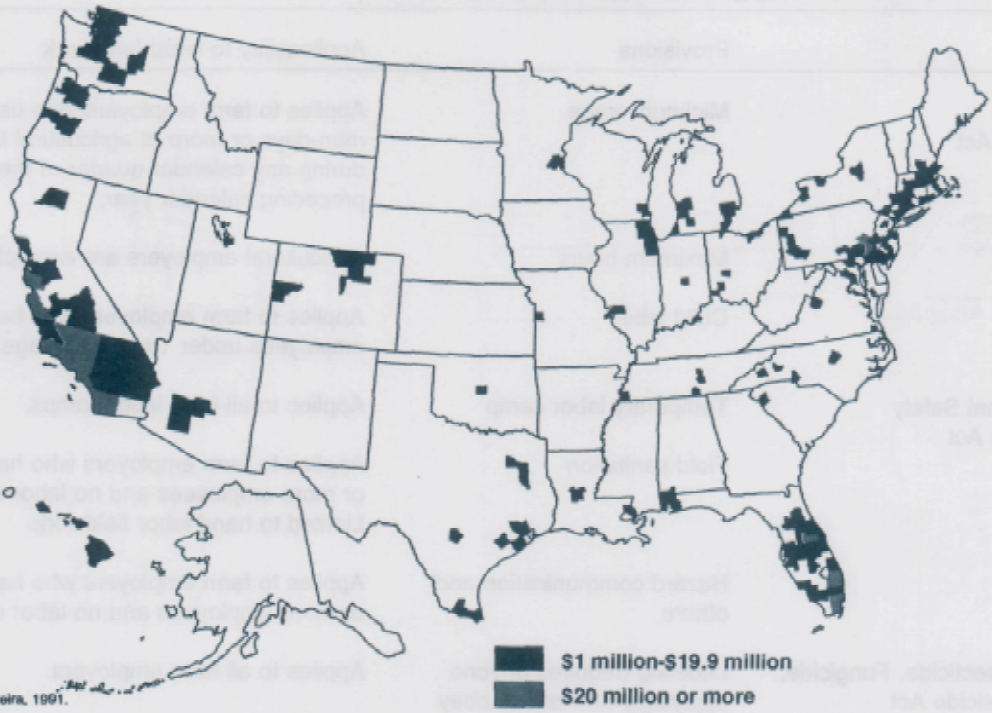
Source: Oliveira, 1991.

Figure 6
Labor expenses on vegetable farms, by county, 1987



Source: Oliveira, 1991.

Figure 7
Labor expenses on horticultural specialty farms, by county, 1987



Source: Oliveira, 1991.

Since the 1950's, agricultural employees have gradually attained coverage under state workers' compensation laws. Workers' compensation laws, except those covering Federal employees and certain maritime employees, are not Federal laws. Workers' compensation laws provide medical and cash benefits to employees (or their dependents) who incur a work-related injury or illness regardless of fault. The laws also relieve employers of liability from lawsuits involving negligence.[10]

Farmworkers are fully covered in 14 jurisdictions and partially covered in 23 others.[11] The specific requirements of workers' compensation laws vary by jurisdiction.

[10] The U.S. Supreme Court ruled in 1990 that farmworkers who have received compensation for damages under workers' compensation could also sue to receive damages under the Migrant and Seasonal Agricultural Worker Protection Act's private right of action.

[11] There are 54 jurisdictions in the United States--50 States, the District of Columbia, the Commonwealth of Puerto Rico, the U.S. Virgin Islands, and the U.S. Government.

Farmworker Assistance Programs

Federal assistance programs for migrant and other seasonal farmworkers have existed since the 1960's, when public concern about farmworker welfare prompted adoption of social programs targeted directly toward agricultural workers. These programs offer assistance in housing, nutrition, employment, education, child care, health care, job training, and legal services. Similar programs designed for the U.S. population may also assist farmworkers when they meet income and other guidelines (Effland, 1991; Martin and Martin, 1992).

Employer awareness of these programs may be useful in some cases such as housing assistance, where programs offer support directly to the farm employers to improve conditions for their workers.

Access to these programs may enhance the availability and productivity of farmworkers. Table 9 highlights Federal assistance programs targeted directly to migrant or seasonal farmworkers (Martin and Martin, 1992; FAPRS, 1992). In addition, migrant and seasonal farmworkers may qualify for

Table 8--Federal laws affecting hired farm labor

Law	Provisions	Applicability to hired farmwork
Fair Labor Standards Act	Minimum wage	Applies to farm employers who used 500 man-days or more of agricultural labor during any calendar quarter of the preceding calendar year.
	Maximum hours	Agricultural employers are exempt.
	Child labor	Applies to farm employers who have employees under 16 years of age.
Occupational Safety and Health Act	Temporary labor camp	Applies to all farm labor camps.
	Field sanitation	Applies to farm employers who have 11 or more employees and no labor camp. Limited to hand-labor fieldwork.
	Hazard communication and others	Applies to farm employers who have 11 or more employees and no labor camp.
Federal Insecticide, Fungicide, and Rodenticide Act	Labeling (requires anyone applying pesticides to obey instructions on label)	Applies to all farm employers.
	Worker protection standards	Applies to farm employers who may require employees to perform hand-labor operations in treated fields.
Migrant and Seasonal Agricultural Worker Protection Act	Farm labor contractor registration	Applies only to those contracting labor for others.
	Migrant and seasonal agricultural workers protection	Applies to farm employers who used 500 man-days or more of agricultural labor during any calendar quarter of the preceding calendar year.
Immigration Reform and Control Act of 1986	Employer sanctions	Applies to all farm employers.
Equal Pay Act of 1963	Pay same wages to males and females doing same work, etc.	Applies to all farm employers who used 500 man-days or more of agricultural labor during any calendar quarter of the preceding calendar year.
Federal Insurance Contributions Act (FICA)	Employers must withhold FICA and Medicare taxes from employees' earnings, match their withholdings, and deposit them at the proper time.	Applies to all farm employers who pay $150 or more in cash wages in a calendar year to an employee or $2,500 or more per year to all employees for agricultural labor.

--Continued

Table 8--Federal laws affecting hired farm labor, cont.

Law	Provisions	Applicability to hired farmwork
Federal Unemployment Tax Act (FUTA)	Employer pays State and Federal unemployment taxes	Applies to farm employers who paid cash wages of $20,000 or more for agricultural labor during any calendar quarter of the current or preceding calendar year, and employed at least 10 workers for 1 day (or portion thereof) in each of 20 different weeks during the current or preceding calendar year or if covered by state law.
Federal Income Tax	Unless specifically exempt, every employer paying wages must deduct and withhold taxes on those wages.	Applies to farm employment where employees are performing agricultural labor as defined in the Internal Revenue code, and are eligible for FICA. Taxes must be withheld from wages of employees not performing agricultural labor as defined in the Internal Revenue code.

Source: Runyan, 1992.

other Federal assistance, including Food Stamps, Aid to Families with Dependent Children (AFDC), literacy and homeless programs, bilingual and immigrant education, and low-income energy assistance.

Current Availability of Hired Farmworkers

Because of the importance of hired and contract labor on FVH farms, especially at such crucial times as harvesting, issues affecting the availability of workers are of major concern to growers. Since a large number of unauthorized workers have traditionally been employed on many FVH farms, immigration reform legislation raised concerns among producers about the potential effects of IRCA on the continued availability of farm labor. Employers feared that if IRCA proved effective in controlling illegal immigration into the United States, it would drastically reduce the number of available farmworkers and result in higher farmworker wages as farmers competed for a smaller work force.

Several factors suggest that the supply of farm labor did not decline and is at present more than adequate to meet producers' needs:

- The RAW provision of IRCA provided for admitting additional foreign workers into the United States in any fiscal year from 1990 to 1993 if a projected shortage occurred in the number of seasonal agricultural service workers. However, USDA and the U.S. Department of Labor (DOL), which had joint responsibility for determining the shortage number, concluded that no national shortage existed during each year of the RAW program.

- The number of workers admitted under the H-2A Temporary Foreign Agricultural Worker Program has shown little growth since the IRCA enactment. The H-2A Program allows agricultural employers who anticipate a shortage of domestic workers to apply for permission to bring nonimmigrant aliens into the United States to do temporary or seasonal farmwork. DOL certified an average of almost 20,000 jobs for temporary foreign workers from

Table 9--Federal farmworker assistance programs

U.S. Department of Agriculture

Farm Labor Housing Loans and Grants funds loans to farmers and loans or grants to nonprofit organizations to provide safe and sanitary low-rent farmworker housing and related facilities.

Rural Rental Assistance Payments funds reduced rents for low-income families occupying housing financed by Farm Labor Housing Loans and Grants.

Women, Infants, and Children (WIC) provides food and nutrition counseling to migrants.

U.S. Department of Education

Migrant Education Basic State Formula Grant Program allocates funds to state education agencies for providing supplementary services to assist in educating children of migrant families.

Migrant Education Coordination Program supports the interstate and intrastate coordination of migrant children's school records and serves as the basis for allocating funding under the Migrant Education Program.

Migrant Education High School Equivalency Program funds colleges and universities to assist migrant students in obtaining equivalency diplomas and to find employment or acceptance in postsecondary training or educational programs, including college or university.

Migrant Education College Assistance Migrant Program funds colleges and universities to assist migrant students in their first year of enrollment at a college or university.

Migrant Education Even Start funds programs to help migrant children succeed in school, involve migrant parents with their children's education, and offer literacy training to those parents.

Migrant Vocational Rehabilitation funds programs to assist disabled migrants.

U.S. Department of Health and Human Services

Migrant Head Start funds comprehensive health, educational, nutritional, social, and other services to preschool children, including involvement of parents in program activities.

Migrant Health Centers Grants fund the development and operation of migrant health clinics and other projects which provide primary, supplemental, and environmental health services to migrant and seasonal farmworkers and their families.

Technical and Nonfinancial Assistance to Migrant Health Centers funds training and technical assistance, programs to encourage support from state agencies for primary care, and collaboration on state or regional issues, shared services, and joint purchasing.

Primary Care Services Resource Coordination and Cooperative Agreements provide funds to coordinate local, State, and Federal resources for primary care service delivery to underserved populations.

Community Services Block Grant Discretionary Awards fund the implementation of projects, particularly those with new and innovative strategies, addressing the special needs of migrant and seasonal farmworkers.

U.S. Department of Labor

Job Training and Partnership Act, Section 402 funds job training, job search assistance, and support services to assist migrant and seasonal farmworkers and their dependents to obtain and retain employment.

Legal Services Corporation[1]

Migrant Legal Services provides free legal services to migrant and seasonal farmworkers.

[1] The Legal Services Corporation is a quasi-official agency that makes quality legal assistance for noncriminal proceedings available to those who would otherwise be unable to afford such assistance.

1980 to 1986, compared with an average of about 25,000 jobs from 1987 to 1991 (table 1). Over the same periods, the number of H-2A jobs certified in fruits, vegetables, and horticultural specialties increased only slightly, from an average of about 6,900 to an average of about 7,600.

- Economic theory suggests that if the supply of labor falls while demand for labor remains constant, then wages will rise as employers compete for a more limited number of workers. However, data on farm wages have shown no upward trend since the enactment of IRCA.

These findings suggest that an adequate number of workers exists to meet current demand and that IRCA has likely had little effect in reducing the farm labor supply. In addition to granting legal status to thousands of workers who had been working in the United States illegally, IRCA may also have indirectly stimulated the supply of illegal foreign workers into the U.S. hired farm work force. Observers of the farm labor market believe that many foreign farmworkers who did not qualify for legal documentation remained in the United States with the expectation of qualifying for IRCA's RAW program (Hepple and Amendola, 1991). Many of the thousands of workers who have been legalized under IRCA now provide a network for friends and relatives from Mexico seeking permanent or seasonal employment (Commission on Agricultural Workers, 1992). Also, farm labor experts argue that despite efforts at immigration reform, large numbers of fraudulently documented workers still work in U.S. agriculture (Hepple and Amendola, 1991).

Although the supply of labor appears adequate at the national level, labor shortages at the local level are possible. The demand for farm labor depends on many factors, including weather conditions, maturation of the crop, crop yield, and the market price of the commodity. Uncertainty underlies these factors on most farm operations and the exact amount and duration of labor required cannot be accurately predicted. For example, favorable weather conditions may cause a crop to ripen earlier than expected (before migrant farmworkers have arrived) or yields may be higher than expected (requiring more than the usual number of workers). The possibility of local labor shortages remains as long as imperfect information on the exact amount and timing of labor needs exists.

Continuing use of the H-2A Program illustrates the existence of local labor shortages. The H-2A Program provides a means for agricultural employers who anticipate a shortage of domestic workers to recruit nonimmigrant foreign nationals to perform temporary, seasonal agricultural labor. In 1991, DOL certified about 1,700 applications from 23 States for temporary alien agricultural workers in FVH production involving over 7,620 jobs (U.S. Department of Labor, 1992).

Future Hired Farm Labor Issues

A number of issues could emerge that would have important implications for the continued adequacy of the farm labor supply on FVH farms, and/or the costs of hired farm labor. These issues could have an especially large impact on fruit, vegetable, and horticultural specialty farms, where labor is the single largest input expense.

Mechanization

Although much of U.S. farm production is highly mechanized, large-scale mechanization has not occurred to the same degree in the more labor-intensive FVH crops. Adoption of mechanical harvesting systems could dramatically reduce the amount of labor needed to harvest some horticultural crops. However, cost-effective methods of machine harvesting many FVH crops without damaging the quality and value of the crop have not yet been developed. Substantial mechanization is unlikely in the near future unless there are large increases in labor costs.

Consumer Demand and Production Patterns

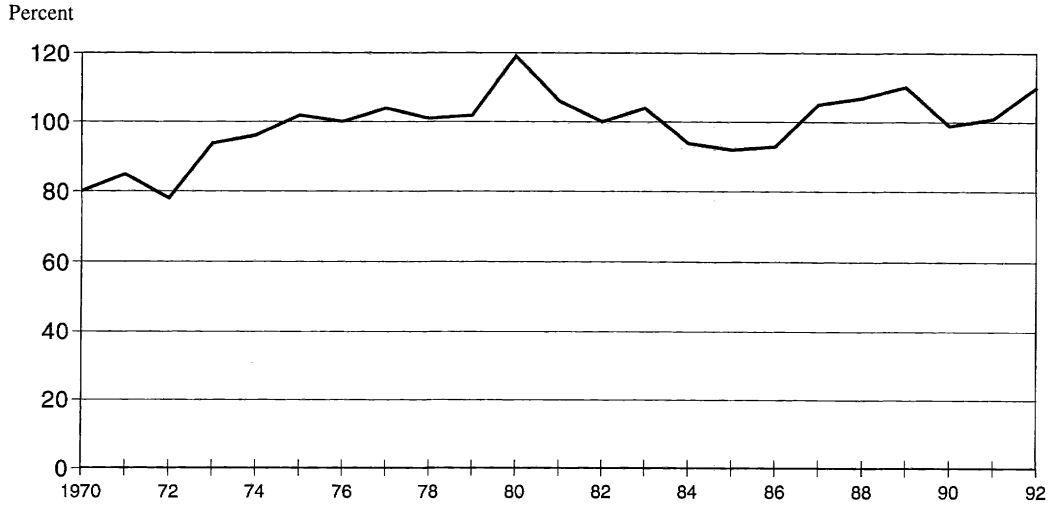
Population growth and increased concern over a healthy diet have increased consumer demand for fresh fruits and vegetables in the United States. The increased domestic demand, along with increased export demand, led to expanded production levels in the United States. Between 1970 and 1992, fruit and vegetable production increased about 2-3 percent a year (fig. 8 and 9). The production of horticultural specialties has experienced an even greater increase than fruits and vegetables. As measured by grower cash receipts, the output of greenhouse and nursery crops increased 7 percent annually between 1970 and 1992 (fig. 10). This dramatic increase in horticultural specialty production has been tied to an increased consumer demand for plants and flowers as well as the vegetable and fruit industry's need for specialized products (Palerm, 1991).

Consumer demand for fruits, vegetables, and horticultural specialties should remain high in the future. As a result, the production of fruits, vegetables, and horticultural specialties is expected to continue growing in the 1990's (Hamm, 1990; Johnson, 1990). In the absence of new labor-saving technology, continued increases in production will eventually lead to increased demand for farm labor.

Foreign Competition and International Trade

While many U.S. FVH producers maintain a competitive position in the domestic and international markets, some producers are more vulnerable than others to economic competition from foreign producers. Modification of current agricultural trade policies could alter the flow of fruits, vegetables, and horticultural specialties between the United States and other countries, and thus affect the demand for labor in the United States.

Figure 8
Fruit and tree nut output, 1970-92 (1982 = 100)
Fruit production increased an average of 2 percent per year between 1970 and 1992.

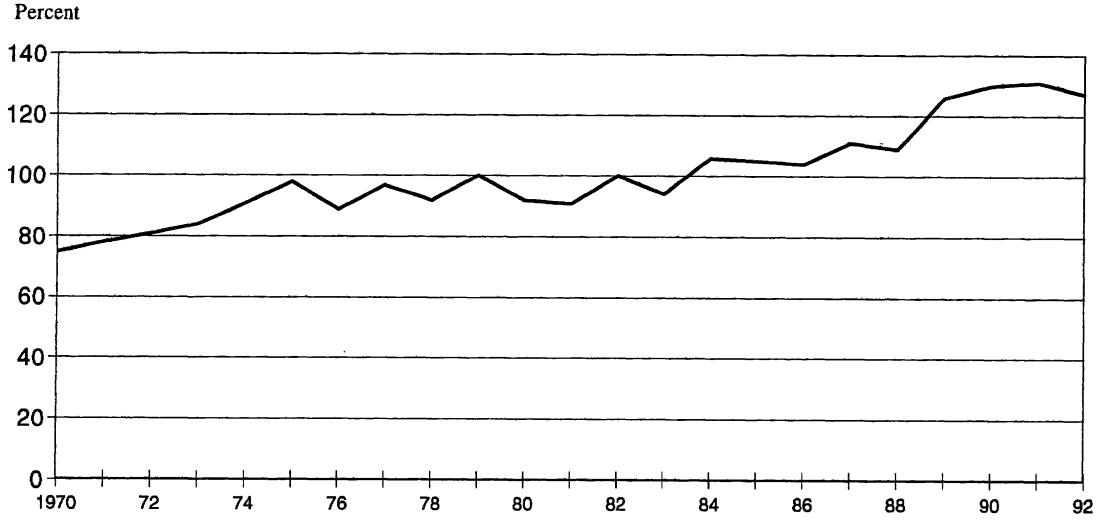


Source: Economic Research Service, USDA.

Figure 9

Vegetable output, 1970-92 (1982 = 100)

Vegetable production increased an average of 3 percent per year between 1970 and 1992.

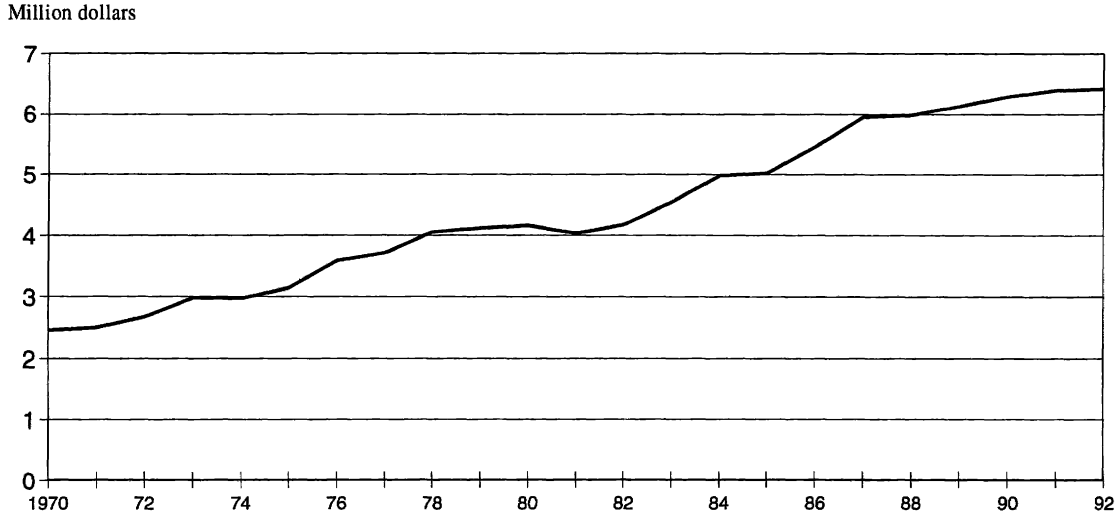


Source: Economic Research Service, USDA.

Figure 10

Grower cash receipts for greenhouse and nursery crops, 1970-92 (in real terms, 1982-84 = 100)

Receipts increased an average of 7 percent per year between 1970 and 1992.



Source: Economic Research Service, USDA.

On August 12, 1992, the United States, Mexico, and Canada concluded negotiations on the North American Free Trade Agreement (NAFTA), which would eliminate most trade barriers among the countries. The agreement, scheduled to go into effect on January 1, 1994, will eliminate immediately, or over a period not exceeding 15 years, all tariffs, quotas, and licenses that act as barriers to horticultural (all crops, including fruits, vegetables, and horticultural specialties) trade among the three countries. Because the Canadian market is already being liberalized under the U.S.-Canada Free Trade Agreement, enacted in 1988, the most significant changes in U.S. imports and exports will be with Mexico.

Although Mexico grows some of the same crops as the United States, they are generally grown and sold during different times of the year because of seasonal differences between the countries. In general, U.S. horticultural imports from Mexico occur during the winter. Under NAFTA, U.S. tariffs will be eliminated on some horticultural commodities during the U.S. offseason. Tariffs on other commodities will be phased out gradually, with longer phase-out periods applying to tariffs during the seasons when Mexican imports compete directly with U.S. production.

NAFTA is expected to increase incomes in Mexico, spurring Mexican consumers to demand more high-quality fresh produce, which in turn will increase U.S. exports of fresh vegetables to Mexico during the offseason. U.S. exports of fresh apples, pears, and peaches are also expected to increase under NAFTA. NAFTA includes a special agricultural safeguard in the form of a tariff rate quota (TRQ), which will be available to certain horticultural items especially sensitive to imports. Under the safeguard provision, imports up to the quota amount can enter at preferential NAFTA tariffs, while amounts over the quota will be assessed higher rates. U.S. commodities with a TRQ safeguard include eggplant, onions, chili peppers, squash, tomatoes, and watermelon. Mexican products with a TRQ safeguard include potato products and apples. Orange juice is subject to a special rule that includes a TRQ provision for U.S. and Mexican producers.

NAFTA's impact on the U.S. farm labor market is unclear. Increased exports could lead to an expansion in U.S. production, which would increase the demand for labor. Conversely, increased imports could lead to a decrease in U.S. production which, in turn, would lead to a decrease in the demand for labor. The cumulative effect of increases and decreases in production for various commodities (taking into account the amount of labor used in the production of each commodity) will determine the net effect of NAFTA on the demand for labor. (For further details on NAFTA's effect on U.S. FVH producers, see U.S. Dept. Agr., 1992b.)

Immigration Reform

Immigration reform in the farm sector remains controversial. One point of view claims that undocumented workers displace U.S. workers. However, many farm employers claim that unauthorized workers take jobs that are unattractive to most U.S. workers and that stopping illegal immigration will reduce the farm labor supply and put upward pressure on farm wages. Although it appears that IRCA has had little effect on reducing the supply of hired farmworkers, several factors, such as increased enforcement of IRCA, could reduce the supply of undocumented foreign nationals available to work in the United States. To address that possibility, some farm labor experts have advocated extending the RAW program past its 1993 expiration date or modifying the H-2A temporary worker program to increase the availability of farm labor if worker shortages occur.

IRCA established a Commission on Agricultural Workers, whose functions included reviewing the impact of the legalization program, the adequacy of the supply of agricultural labor in the United States, and whether this supply needs to be further supplemented with foreign labor. The Commission's report to Congress, issued in early 1993, concluded that there is an oversupply of farm labor nationwide and recommended the curtailment of illegal immigration by more effective border controls, better internal apprehension mechanisms, increased enforcement of employer sanctions, and

development of a better employment eligibility and identification system (Commission on Agricultural Workers, 1992). Although the Commission's recommendations are only advisory, they may affect the cost and supply of farm labor if they lead to changes in the immigration law or its enforcement.

Federal Laws, Regulations, and Programs

Congressional hearings in 1990, 1991, and 1992 focused on a broad range of farm labor topics, including the lack of workplace safeguards for many hired farmworkers and barriers to participation in assistance programs (Association of Farmworker Opportunity Programs, 1991; U.S. General Accounting Office, 1991). In 1992, the General Accounting Office (GAO) responded to a Congressional request and found Federal laws, regulations, and programs designed to protect and assist farmworkers inadequate (U.S. General Accounting Office, 1992). The GAO report noted, however, the need to balance protection of farmworkers with costs to farm employers and the ability of the Federal Government to fund expanded programs.

Continued reports of poor living and working conditions for farmworkers could increase pressure on Congress and State legislatures to change laws and programs for farm labor. These issues affecting the conditions of farmworkers will probably continue to receive consideration by Congress and attention from the media in the near future. Some of the issues currently under debate are discussed below.

Workplace Protections for Hired Farmworkers

While basic workplace protections have increased for farmworkers in recent years, most Federal and State programs still have special exemptions for agriculture based on size of payroll, number of employees, or number of workdays during a specified period. The extension of basic workplace protections to greater numbers of farmworkers could help to improve the economic and personal well-being of many hired farmworkers, thereby increasing the supply of labor, but at the same time could substantially raise labor costs to some farmers (Oliveira and Whitener, 1993).

Potential legislative issues affecting agricultural labor include transportation, OSHA reform, and health care. The U.S. Department of Labor is considering whether an employer must reimburse an employee's transportation costs (from the point of hire) when those costs reduce the employee's wages in that week below the legal minimum wage (Fair Labor Standards Act). In 1992, Congress debated (but failed to enact) OSHA reform that would have given employees a considerably stronger voice in workplace safety, and considered a requirement that employers provide health care to all employees or pay a portion of health care costs (directly or through payroll taxes).

In 1992, the Environmental Protection Agency (EPA) issued its standards to protect employees who might enter a pesticide-treated area within 30 days of the restricted-entry interval (the time specified on the label in which no entry is permitted) elapsing. Pesticide labels containing the stricter entry information must be in place by October 1, 1995. Requirements concerning decontamination facilities; training; notification of pesticide applications and information about the pesticide(s) used; cleaning, inspection, and maintenance of personal protective equipment; and emergency assistance when required will be enforced beginning April 15, 1994.

Existing farm labor laws and regulations are also subject to changes in judicial interpretation. The Supreme Court recently ruled in *Adams Fruit* vs. *Barrett* that farmworkers may sue their employers under the provisions of the Migrant and Seasonal Agricultural Worker Protection Act when they are injured as a result of unsafe working conditions, even if the farmworker has already collected payment under State workers' compensation laws. Congress passed short-term legislation overturning that decision just before its 1992 recess. Before the end of 1994, Congress will either pass new legislation to nullify the Adams Fruit decision permanently or allow the Supreme Court decision to

stand. If the decision stands, growers may face similar lawsuits in the future, which could raise their labor costs.

Farmworker Assistance Programs

Few of the Federal assistance programs for farmworkers affect the cost and supply of farm labor directly. However, programs that improve the living and working conditions of hired farmworkers may also increase the number of U.S. workers willing to accept agricultural jobs. Although Federal programs provide a variety of employment, training, education, housing, and health care services to hired farmworkers, program evaluations suggest that only a small proportion of those eligible receive program assistance. Increased funding, expanded criteria, better service delivery, and improved coordination among programs could help extend program benefits, but at increased government costs (Oliveira and Whitener, 1993).

Economic Conditions

The number of workers available for farmwork is related to overall economic conditions in the United States. During periods of high unemployment, more workers may be willing to work on farms, increasing farm labor supply. Conversely, expanding employment opportunities in nonfarm industries offering higher wages, and regular, full-time work may encourage some workers to leave the farm workforce. In the case of foreign farmworkers, the economic, social, or political conditions in their native country can affect their decision to enter the United States to do farmwork.

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U.S. Department of Agriculture
Economic Research Service

SUMMARY OF REPORT AIB-686

Farm and Farm-Related Jobs Continue To Favor Wholesale and Retail Trade

November 1993

Contact: Jacqueline Salsgiver, 202-219-0525

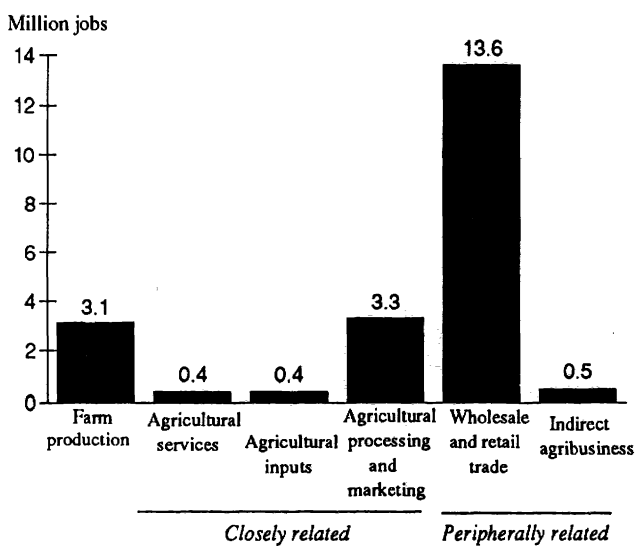
Farm and farm-related industries provided over 21 million jobs, or 15.7 percent of U.S. employment, in 1990 (the most recent year for which data are available). Farm and farm-related industries employed 264,000 more workers in 1990 than in 1989, up 1.3 percent, with most of the new jobs (381,000) in agricultural wholesale and retail trade. The largest decline, over 90,000 jobs, occurred in agricultural processing and marketing.

According to a new report by USDA's Economic Research Service, *U.S. Farm and Farm-Related Employment in 1990: A Significant Source of Jobs in Many Areas*, the number of farm and farm-related jobs rose, but their share of U.S. employment declined from 15.8 percent in 1989.

Farm and farm-related jobs ranged from 10.7 percent of total State employment in Nevada to 25.7 percent in North Dakota. **Wholesale and retail trade of agricultural products** contributed the bulk of farm and farm-related jobs, providing 9-12 percent of total employment in all States.

Farm and farm-related employment, 1990

Wholesale and retail trade, although only peripherally related to farming, accounted for most farm and farm-related employment.



North Dakota led all States in the share of **farm production** jobs, which provided 11.7 percent of total State employment.

Alaska led in the share of jobs in **agricultural services, forestry, and fishing** (5.6 percent).

Agricultural input jobs were most important in Iowa (1.9 percent of total employment), Nebraska (1.6 percent), and North Dakota (1.4 percent).

Agricultural processing and marketing provided over 5 percent of total State employment in North and South Carolina, Alabama, Mississippi, Arkansas, and Georgia. The apparel and textile industry is the source of much of this employment in these States.

Estimates of farm and farm-related employment differ from those previously released by ERS because the list of industries considered to be related to farming has been updated. For example, establishments that provide landscape and horticultural services are no longer defined as farm-related, a change that reduces agricultural services employment in 1990 by 455,000 jobs.

To Order This Report...

The information presented here is excerpted from ***U.S. Farm and Farm-Related Employment in 1990: A Significant Source of Jobs in Many Areas***, AIB-686, by Jacqueline Salsgiver and T. Alexander Majchrowicz. Cost is $7.50.

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