

## Farm Labor Research Needs: How Do Workers Fare When Production Increases?

Don Villarejo, Ph.D.  
P. O. Box 381, Davis, CA 95617  
[donfarm@comcast.net](mailto:donfarm@comcast.net)

The year 2004 was a notable one for California's agricultural industry. Cash receipts from farm marketing rose 10 percent to a new record high of \$31.8 billion. As the nation's No. 1 agricultural producer, the Golden State's cash receipts ... were more than Texas and Iowa combined.

- *California Agriculture Resource Directory 2005*  
California Department of Food and Agriculture, p. 17

California's remarkable record of agricultural production reflects little-noticed long-term trends in U.S. farming. During the 28-year period 1974-2002 the agricultural census reports the share, by type of crop, of U.S. farm cash receipts from fruits, vegetables and horticultural specialty crops (F-V-N crops) has increased dramatically. In 1974, those commodities accounted for 17% of U.S. farm-gate crop value. Just 28 years later they accounted for 40% of the U.S. total.

In part, the growth in the share of total U.S. crop value attributed to F-V-N commodities can be understood in terms of the absolute increase in their production volume. The reported total harvested production of fruits and vegetables from U.S. farms during this period, measured in tons, increased by 55% [1]. The land area devoted to F-V-N commodities, although a very small fraction of U.S. cropland, also increased substantially. Agricultural census reports for the U.S. from 1974 and 2002 show:

- Land in orchards increased by 1,140,099 acres (+27%);
- Harvested vegetable land increased by 574,487 acres (+18%);
- Harvested berry land increased by 84,907 acres (+70%);
- Greenhouse area under glass increased by 893 million square feet (+219%).

Remarkably, U.S. farmers now receive more from the sale of Horticultural Specialty Crops than from wheat production [2].

At the same time, there have been major reductions in the acreage devoted to some traditionally important commodities, notably sugar beets and tobacco. Importantly, prices for most USDA program crops have failed to keep pace with inflation during this period, which also contributes to their reduced share of annual crop value.

No state has benefited more from the increased importance of F-V-N crops than has California. Agricultural census reports from 1974 and 2002 show that California has experienced major increases in the land area devoted to those crops:

- Land in orchards increased by 1,101,805 acres (+62%);
- Harvested vegetable land increased by 457,055 acres (+62%);
- Harvested berry land increased by 24,462 acres (+208%)

- Greenhouse area under glass increased by 110 million square feet (+111%).

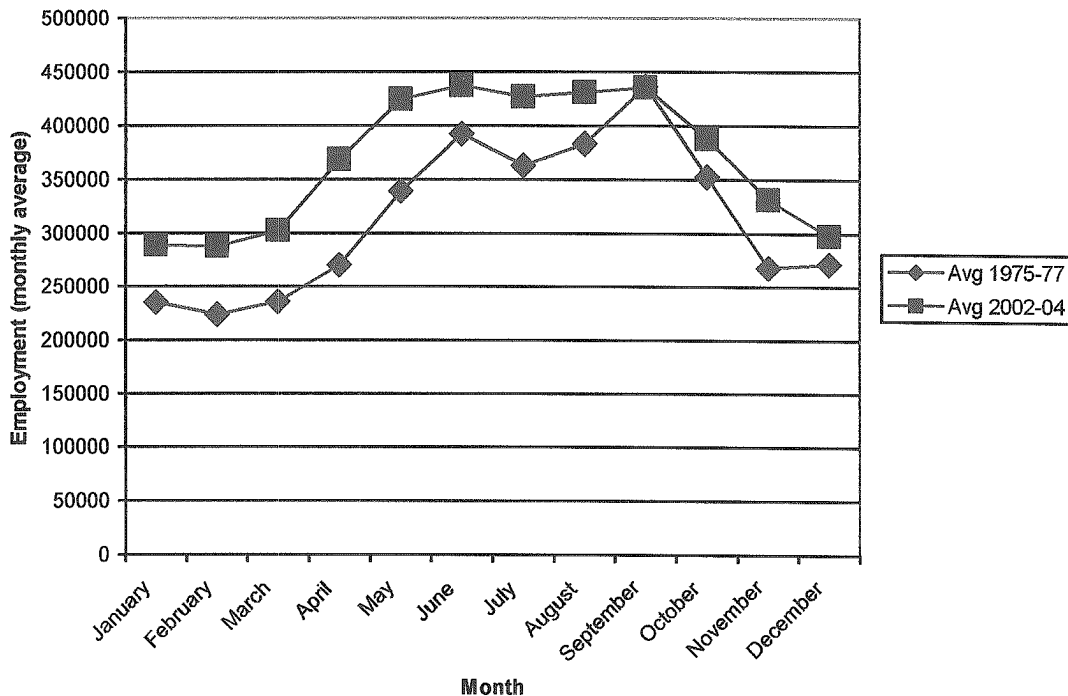
California captured the majority shares of the net increases of orchard and harvested vegetable land for the nation as a whole: 97% of the net increase of orchard land and 80% of the net growth of harvested vegetable acres. During this time frame, California's physical output of fruits and vegetables, in annual tons harvested, increased by 75% [3].

There have also been major adjustments in the amount of land in California devoted to some historically important crops. During this same 28-year interval, the agricultural census reports the area devoted to several traditionally important crops has seen major decreases: barley acreage plummeted by 700,735 acres (-90%); cotton acreage decreased by 454,776 acres (-40%); and wheat acreage fell by 290,579 acres (-42%).

### *Demand for farm labor*

The shift away from traditionally important crops toward greater production of fruits, vegetables and horticultural specialty crops has been accompanied by substantial changes in both the total quantity of farm labor demand as well as its temporal distribution. First, reported annual average farm employment grew from 314,670 during the period 1975-77 to 392,791 during 1999-2001, and then fell back somewhat to 368,666 during 2002-04 [4]. Second, the temporal distribution of farm labor demand in the course of the calendar year has also changed. Figure 1 shows how a single peak

**Figure 1. Employment, Hired Farm Workers, California  
Avg 1975-77 & Avg 2002-04, EDD**



of farm employment during September for the period 1975-77 had evolved into a five-month “peak” extending from May through September for the period 2002-04. Also, farm employment in each and every month of the year for the most recent three-year period (2002-04) is greater than it was during the earlier three-year period (1975-77). The notion of “peak season” may need to be altered insofar as California farm labor is concerned.

A number of factors are involved in understanding both the overall increase of farm labor demand and its temporal distribution. First, there has been an increase of per-capita consumption of numerous commodities for which California has a significant advantage owing to its climate, irrigation systems and labor supply. For example, bagged salad mix didn’t exist twenty-five years ago but today is a \$2 billion a year commodity. The great success of this product has led to a major increase in California’s production of leaf lettuce, romaine and other types of greens.

Second, new varieties of many commodities have led to changed temporal patterns of labor demand such as increases of early- or late-season harvests, or of early-season handwork. Strawberries have evolved into an annual crop in California, no longer a perennial, and are harvested in January and February from fields in San Diego and Orange Counties, then in March and April in Ventura and Santa Barbara Counties, then in Monterey and Santa Cruz Counties through September, and finally from fields in Ventura and Santa Barbara Counties again in the fall. Sometimes, the California strawberry harvest even extends into December.

Another example of the growth of ‘off-peak season’ labor demand is found in the premium wine grape industry where canopy management tasks such as suckering, shoot thinning and positioning, leaf thinning and crop thinning extend from April through July. Recently, replanting of vineyards at much higher vine density has been widely adopted among growers of Cabernet Sauvignon, in some cases raising vine density from 520 vines per acre to 1,550 vines per acre [5]. Obviously, tasks such as pruning as well as those outlined previously will require much greater hand labor per acre in the high-density vineyards as compared with older plantings.

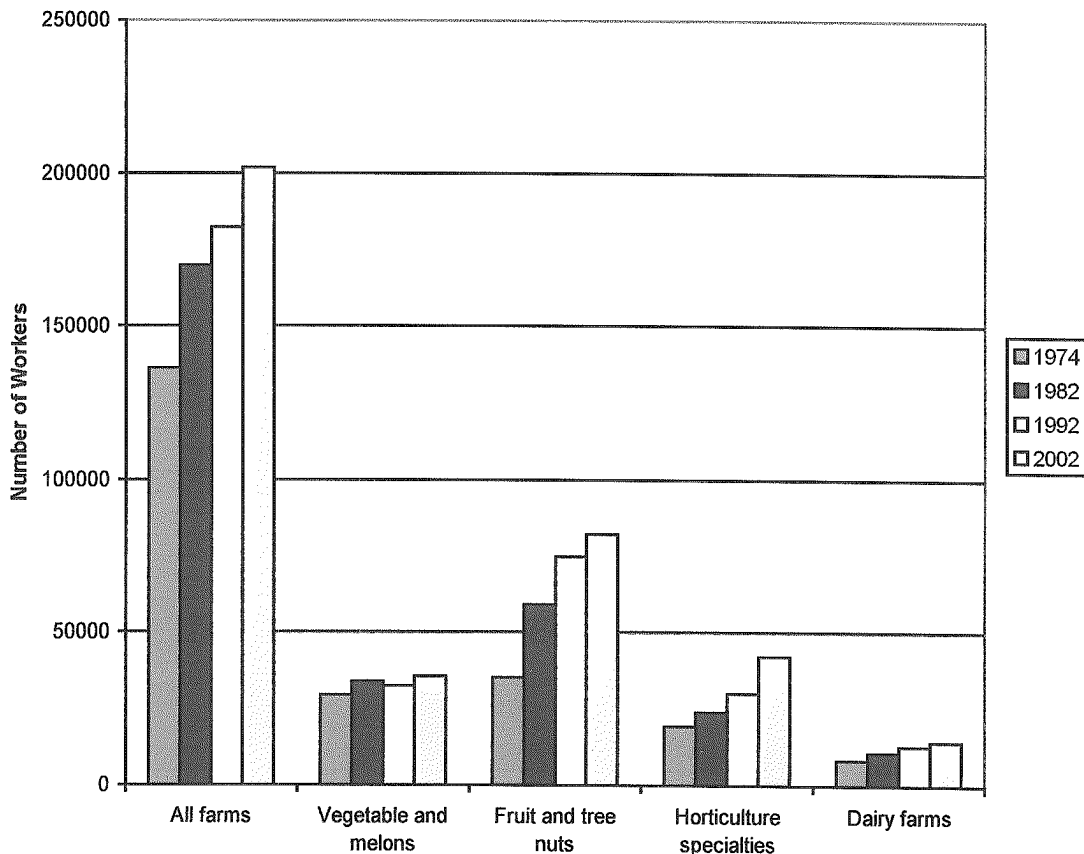
Third, changes in production practices have sometimes led to totally unanticipated shifts in farm labor demand. Processing tomatoes are now nearly entirely grown from transplants hand-placed into fields during April or May, and harvested by color-sorting machines in the summer and early fall months. One major grower of processing tomatoes stated he now has tomato harvest machinery that requires only one person to operate [6]. Instead of large crews of harvest workers in the latter half of the year, the industry now requires workers for the transplant sleds in early spring as well as for hand-hoe thin and weed tasks.

Not only are crops requiring more labor. The sharp increase of milk production in California has been accompanied by a substantial increase in the average number of milk cows per dairy farm, leading to a greater reliance on hired labor. Today, one-fifth of all U.S. milk cows reside on California dairy farms [7]. And Land O’Lakes, a mid-western milk processor in decades past, recently built the largest U.S. facilities in Tulare County [8], California, near where the once-enormous Tulare Lake has been drained and replaced by irrigated fields producing a variety of crops, including alfalfa to feed dairy cattle.

The increase in length of ‘peak season’ employment is also reflected in the pattern of hiring reported by farmers. Figure 2 shows, for intervals extending from 1974 to 2002,

the reported number of direct-hire workers employed on California farms for at least 150 days of the calendar year. The total number of these ‘regular’ workers has grown from about 136,000 in 1974 to more than 201,000 in 2002 (+48%). The figure also indicates how the numbers have increased for each category of F-V-N farms as well as for dairy farms. Fruit and tree nut farms account for more than 70% of the net increase in the total number of these long-term employees in California.

**Figure 2. Direct Hire Workers, 150 Days or More, California  
Census of Agriculture**



The growth of the number of ‘regular’ farm employees is consistent with the most recent findings of the NAWS for California. For 2003-04, the NAWS finds approximately 20% of crop farm workers said they worked for their employer on a year-round basis [9]. An additional 19% did not know if their job would be year-round.

There is evidence that ‘regular’ hired farm labor is replacing farmer and unpaid family labor. According to the EEOC analysis of U.S. Census data, the number of Californians who claim the occupation ‘farmer’ plummeted from 39,271 in 1980 to just 26,770 in 2000 [10].

The factors discussed above tend to increase hired farm worker employment; other factors may be tending to reduce the demand for hired farm labor in California.

These factors can be summarized as mechanization, field packing, urbanization, globalization and the intentional permanent fallowing of farmland.

Recently, mechanization has proceeded in crops and tasks as diverse as the harvesting of raisins, where a reported 40% of the 2005 harvest was at least partially mechanized [11], and the pruning of vineyards. Relatively little is known about the current extent of mechanization of labor-intensive agriculture. There has not been a systematic effort to study the adoption of new technologies to replace or reduce hand labor in California fruit and vegetable industries for three decades.

Field packing of most vegetables is now the norm for much of the fresh produce industry in California, which has blurred the distinction between ‘field labor’ and ‘post-harvest labor.’ In fact, some crews employed by packer-shippers may rotate between hand cutting a crop and then switching to packing the crop on an adjacent machine in the course of a single day. Interestingly, while directly engaged in hand-harvest tasks those workers are excluded from collective bargaining rights under the National Labor Relations Act, but if those same workers change to post-harvest processing in the field for the last half of the work day, then NLRA jurisdiction may provide rights denied during the first half of the work day.

Urbanization is widely regarded as a threat to the long-term survival of California agriculture; some observers point to the history of the Los Angeles basin and of the Santa Clara Valley. But during the 28 years from 1974 to 2002, the agricultural census reports the amount of harvested cropland and of total cropland in the state actually increased, by 159,075 acres (+1.9%) and 364,335 acres (+3.4%), respectively. The summary of major increases in fruit, vegetable and horticultural specialty cropland described at the outset of this report belies claims of serious threats to agricultural production in the state from urbanization, at least for the near term.

It is argued by some that low-wage labor in Mexico, Central America and elsewhere will, in the long run, force the U.S. to abandon portions of its fruit and vegetable production. However, the globalized produce industry has successfully developed complementary production bringing Mexican and Central American fresh product to the U.S. at times when California production is relatively small or non-existent. South American producers, such as Chilean growers, are governed by the climate of the Southern Hemisphere so that their summer is California’s winter, which makes their peak of production counter-seasonal to that of the U.S., and thriving complementary fresh produce programs have benefited both nations’ farmers. Nevertheless, there are a few crops that appear to be seriously threatened by imports, such as apricots, asparagus and garlic for processing.

An unusual development in recent years that has led to reductions of local farm labor demand in some parts of the state is the intentional permanent fallowing of farmland in order to address environmental concerns, or to sell irrigation water to urban users. The largest impact to date has been in the western portion of the San Joaquin Valley where as much as 100,000 acres of farmland located in the Westlands Water District has been permanently retired as a result of salinization damage to the land and/or limits on irrigation water availability imposed by environmental provisions of the Central Valley Project Improvement Act of 1992. Farms have closed, farm labor jobs permanently lost, and nearby communities have experienced economic damage as a result [12].

*Post-IRCA farm labor markets in California*

The post-IRCA period has been one of significant changes in the California farm labor market. First, there has been a sharp increase in the use of labor market intermediaries, such as labor contractors and farm management firms. Second, it is apparent that IRCA stimulated substantial new immigration to California, most significantly of indigenous migrants from the southern Mexican states of Oaxaca, Guerrero, Puebla, Veracruz and Chiapas. Third, in at least the California berry industry, the influx of new migrants, mostly undocumented workers, has been associated with a significant decline in workers' real earnings even as production, productivity and cash receipts from berry marketing increased sharply. Fourth, farm labor unions, despite some significant new organizing efforts, have been mostly unsuccessful in raising the earnings of workers or in improving workplace conditions.

The substantial post-IRCA growth of employment by farm labor market intermediaries, such as farm labor contractors, in California has been discussed elsewhere [13, 14]. What is of special note in the present discussion is how farm operators have come to rely primarily on labor market intermediaries to furnish their short-term labor needs while preferring direct hire workers for longer-term jobs. During the period 1974-2002, in the agricultural census, California farm operators report the number of 'workers' directly employed for less than 150 days fell by more than half, from 725,127 to 333,404 (an individual short-term worker might be employed by two or more farm operators; thus, the figures quoted are more properly described as the number of *jobs*).

Table 1 summarizes the comparison of the number of direct hire 'regular' and short-term workers with the number furnished by crew leaders and custom crews in 2004. Clearly, for all four months for which data is available, labor market intermediaries provided at least 70% of short-term workers on California farms.

**Table 1. Hired Farm Workers, California, 2004**

*Source: "Farm Labor," NASS, USDA*

<i>Workers hired</i>	<i>Jan 11-17</i>	<i>Apr 11-17</i>	<i>Jul 11-17</i>	<i>Oct 10-16</i>
150 days or more	160,000	187,000	167,000	155,000
Less than 150 days	35,000	45,000	43,000	45,000
Agricultural services	86,000	107,000	125,000	122,000

There is strong evidence that the data shown in Table 1 may actually seriously understate the true extent of hired farm worker employment through labor market intermediaries. The author examined individual farm labor employer quarterly wage reports for 2000 as part of a study commissioned by the California Department of Industrial Relations [14]. One of the principal findings was that both the quarterly agricultural labor survey conducted by NASS and the survey of California farm employers conducted by the California Department of Employment Development apparently miss the several hundred labor market intermediaries who choose to identify their industry classification code as something other than "Farm labor contractor," most often using an agricultural code that corresponds to the primary crop for which they

furnish workers. For example, the licensed labor contractor Escamilla & Sons Inc., which operates a reported 140 labor buses throughout California, identified its business as “Vegetable and melon farm” because their clients are mostly vegetable producers.

Table 2 compares the NASS and EDD findings in 2000 regarding the number of persons employed by farm labor contractors with the author’s detailed examination of individual employer reports. What is most striking are the large disparities among the three reports, and especially the degree to which the NASS and EDD samples seriously understate the extent of farm worker hiring through labor market intermediaries.

The average difference for all four months between the NASS report and the employer payroll reports is more than half as great as the farm labor contractor employment reported by NASS (58%).

**Table 2. Farm Labor Contractor Employment, California, 2000**

<i>Month and week</i>	<i>Farm Labor (NASS)</i>	<i>Agricultural Bulletin (EDD)</i>	<i>Employer payroll reports (author)</i>
Jan 9-15	75,000	69,700	96,017
Apr 9-15	85,000	86,600	134,475
Jul 9-15	99,000	150,300	177,409
Oct 8-14	86,000	109,100	135,949
Annual average	n.a.	111,883	134,858

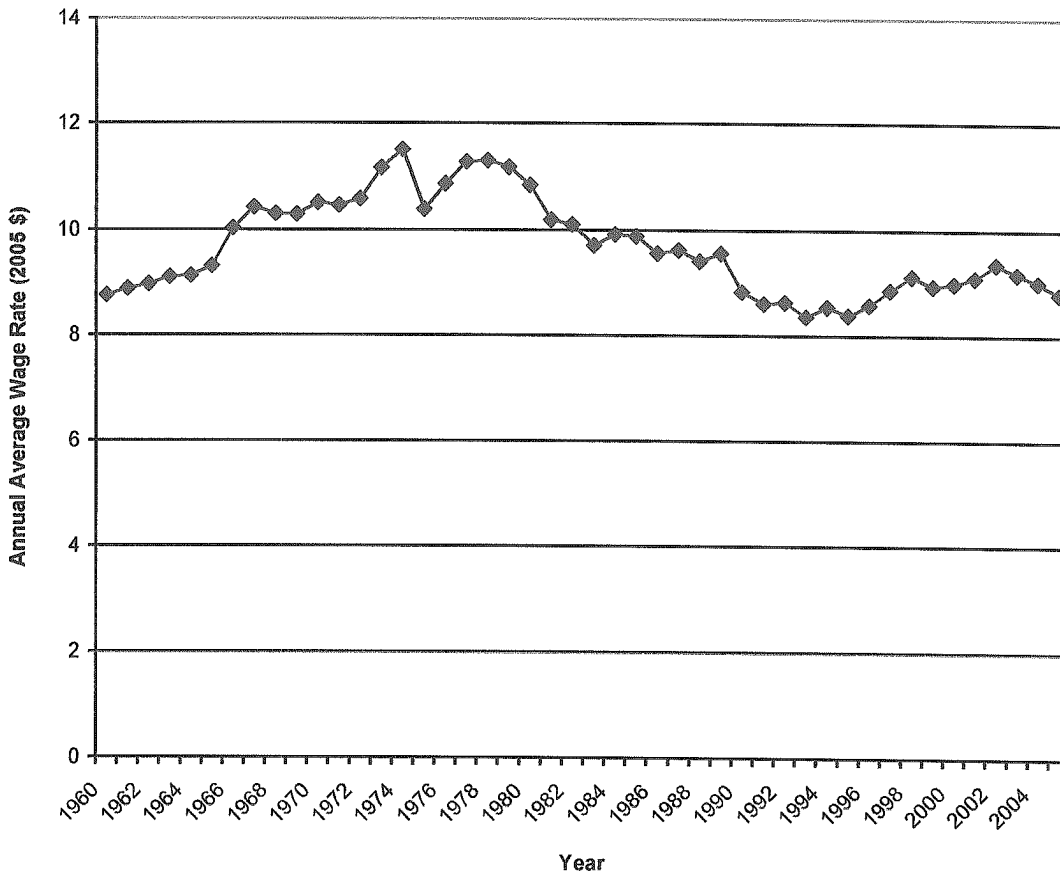
Possibly the most significant development in California’s post-IRCA farm labor market is the influx of large numbers of indigenous migrants from southern Mexico and Central America [15]. Mixtecs from Oaxaca, Purechepas from Michoacan, and other peoples from Puebla, Guerrerro, Oaxaca, Veracruz, Chiapas and points south have become dominant in portions of the California farm labor market. Estimated to number roughly 50,000 in 1991, the total is certainly larger today. The most recent NAWS report for California estimates that between 16% and 20% of the state’s crop farm laborers (100,000 to 128,000 individuals) are indigenous migrants [9]. Of perhaps greater significance is that NAWS finds 38% of farm labor ‘newcomers’ to California are indigenous migrants, and virtually all are undocumented.

A question of considerable interest is the following: what has been the impact on wages and working conditions of the insertion of large numbers of unauthorized workers into the farm labor force of California. NAWS reports that 57% of crop workers interviewed in 2003-04 said they lacked work authorization [9]. In 1989-90, NAWS found just 9% unauthorized [16].

The NAWS report for California for 2003-04 did not include findings regarding wage rates or their trend over time. On the other hand, NASS provides reports of annual average wage rates of field workers for each state. When adjusted for inflation using the California CPI, they show a series of peaks and valleys. Figure 3 shows the inflation-adjusted annual average wage rate for California field workers from 1960 to 2005. The large peak in the period 1972-80 corresponds to the rise of the United Farm Workers of America following the end of the Bracero program. The post-IRCA period, 1988-2005, show a continuing decline followed by an upswing in real wage rates. Care must be taken in interpreting these data: the applicable hourly minimum wage, state or Federal,

whichever was higher, increased to \$4.25 on July 1, 1988; to \$4.75 on October 1, 1996; to \$5.00 on March 1, 1997; to \$5.15 on September 1, 1997; to \$5.75 on March 1, 1998; to \$6.25 on January 1, 2001; and to its current \$6.75 on January 1, 2002 [17]. It is likely that the successive peaks in the annual average field worker hourly wage rates during the period 1998 and 2002 were significantly influenced by these substantial increases in the applicable minimum wage rate.

**Figure 3. Annual Average Wage Rate, Field Workers, California**  
 Source: "Farm Labor," NASS/USDA, Constant 2005 Dollars (CA-CPI)



The impact of the large-scale post-IRCA migration of undocumented workers on one labor market can be examined in more detail: the California berry industry, primarily strawberries. In 2004, farm cash receipts from strawberry marketing were \$1.2 billion, ranking it ahead of tomatoes, cotton and only slightly behind lettuce by value of production [18]. During the post-IRCA period, the harvested acreage of California strawberries increased by 47%, from an average of 20,207 acres in 1988-90 to 29,614 acres in 2002-04; production increased by 79%, from an average of 473,750 tons in 1988-90 to 848,400 tons in 2002-04; and yield increased by 22%, from an average of about 47,000 pounds per acre in 1988-90 to 57,300 pounds per acre in 2002-04 [19].



During this same period, large numbers of indigenous migrants from southern Mexico were inserted into the strawberry labor market, a phenomenon now described by some scholars as the “Mixtec strawberry circuit” [20] that begins in San Diego and Orange counties in January, continues to Ventura County, to Santa Barbara County, to Monterey and Santa Cruz counties, and finally back south again in fall.

Representative data on production worker earnings on berry farms are the reported average weekly wages from the Workers Compensation Insurance Rating Bureau (WCIRB) [21]. All categories of employers – farm operators, labor contractors and packer/shippers – are classified for this insurance purpose by “risk category,” a scheme assigning workers to the type of tasks they perform. Thus, all hired farm workers who directly perform tasks in a berry patch are classified as 0079, strawberry crops, irrespective of the NAICS classification of their employer. The accuracy of WCIRB weekly earnings reports has been reviewed elsewhere [22].

Table 4 shows the findings reported by the WCIRB for California berry work, together with the calculated implied total labor demand and calculated weekly wages in constant 2002 dollars. For various technical reasons that have no bearing on this discussion, the most recent data available pertains to 2000-02.

**Table 4. Strawberry Crop Employment, California, Annual Average**  
*Source: Workers Compensation Insurance Rating Bureau, Code 0040*

	1988-90 average	2000-02 average	change
Total wages paid (\$M, nominal)	\$175	\$377	+116%
Average weekly wages (\$, nominal)	\$229	\$280	+22%
Total labor demand (M, weeks)	0.764	1.346	+77%
California CPI (annual average)	128.3	180.9	+41%
Average weekly wages (constant 2002 \$)	\$323	\$280	-13%

What these data indicate is that total berry labor demand expanded in close correspondence to the increase of total strawberry production (+77% vs. +79%), but apparent productivity increases were not compensated by increases in earnings. In fact, the industry significantly expanded, at least in part because labor costs per unit of production could be kept relatively flat. Note that average hourly earnings were in the range of \$5.75 per hour in 1988-90 and in the range of about \$7.00 per hour in 2000-02. The increase of the state minimum wage during the post-IRCA period likely influenced the increase in average hourly earnings, but the size of this effect can not be determined.

During the post-IRCA period, the four California farm labor unions were relatively acquiescent until the mid-1990s when the United Farm Workers Union began a serious effort to organize among farm laborers in several parts of the state. Several new contracts were signed after 1995. A few years later, the union began a major initiative in the strawberry industry that was supported with substantial financial resources and

personnel provided by the AFL-CIO. The outcome was a major defeat for the union, although one of the largest strawberry producers eventually did sign a contract covering more than 1,000 workers.

However, it is likely that increases in the applicable minimum wage provided the basis for improvements in hired farm worker wage rates in California as noted above. There is no evidence that the UFW strawberry campaign yielded any significant gains in wages for workers in that industry. On the other hand, very recently, the UFW renewed its contract with a large strawberry producer and announced improvements in medical insurance benefits, but wages were frozen in the first year of the contract and are to increase by just 1.5% in each of the last two years of the contract [23].

#### *Farm labor research agenda*

1. Determine the major factors affecting labor demand for specific crops with large labor requirements (crops, states, regions, temporal-by month, mechanization, trade, policy).
2. National survey of farm service businesses should be undertaken. Census Bureau initiated an attempt to do so in 1974 and again in 1978, but the effort was difficult and subsequently abandoned (farm labor contractors, farm management businesses, others; need to consider 3-part sample as well: farm service employers, farm operators, hired workers).
3. Research is needed to compare the experience of H-2A workers with others; matched by crop and farm size (FLOC contract with NCGA; UFW contract with Global Horizons).
4. Evaluations of the effects of labor and safety law enforcement initiatives are needed (increase of enforcement in California; WCIRB finds enforcement is the single most important factor in reducing workers compensation claims associated with permanent disabling injuries).
5. Prospective cohort studies are needed to sort out the various factors in health: acculturation, workplace exposures, environmental exposures, infectious disease and personal risk behaviors.

## References

1. United States. Department of Agriculture, *Agricultural Statistics*, National Agricultural Statistics Service, Washington, DC, Annual, Chapters IV & V.
2. United States. Department of Agriculture, *Census of Agriculture, 2002. United States. Summary and State Data*, National Agricultural Statistics Service, Washington, D.C., June 2004, Vol. 1, Part 51, Table 2, p. 8; *Agricultural Statistics*, op. cit., Chapter I.
3. California. Department of Food and Agriculture, *Agricultural Statistical Review*, California Agricultural Statistics Service, Sacramento, CA, Annual.
4. California. Employment Development Department, *California Employment and Payrolls*, Employment Data and Research, Sacramento, CA, Quarterly, 1975-77; *Agricultural Bulletin*, Monthly & Annual, 1999-2004.
5. United States. Department of Commerce, *Census of Agriculture, 1987. California. State and County Data*, Bureau of the Census, Washington, D.C., May 1989, Vol. 1, Part 5, County Data, Table 28, pp. 354ff.; Napa County Agricultural Commissioner, private communication from Vicki Kemmerer, Deputy Agricultural Commissioner, May 9, 2006.
6. Stuart Woolf, Woolf Enterprises Inc., private communication, July 7, 2004.
7. California. Department of Food and Agriculture, *California Agricultural Resource Directory 2005*, California Agricultural Statistics Service, Sacramento, CA, 2006, pp. 93ff.
8. WetFeet.com. Land O'Lakes Inc., "America's largest, single-site dairy complex is the Land O'Lakes dairy plant in Tulare, California."  
<http://www.wetfeet.com/Content/Companies/L/Land%20O'Lakes%20Inc.aspx>
9. Aguirre International, *The California Farm Labor Force: Overview and Trends from the National Agricultural Workers Survey*, Burlingame, CA, June 2005, p. 18.
10. United States. Department of Commerce, Bureau of the Census, *Census of Population, 1980: Equal Employment Opportunity Special File*, Computer File, Distributed by UC Data Archive and Technical Assistance, University of California, Berkeley, 2004. Cf. Tables P9 and P23; United States, Department of Commerce, Bureau of the Census, *Census 2000 Summary File 4 (SF 4)*,  
<http://factfinder.census.gov/servlet/> Cf. "PCT86. Sex by Occupation for the Employed Civilian Population 16 Years and Over."
11. Pollack, Dennis, "Raisin Growers Recap the Season," *The Fresno Bee*, December 5, 2005. Direct quotation from this article: "Nearly 40% of this year's harvest was completed using some form of mechanical harvesting," said Jon Marthedal, chairman of Sun Maid's Board of Directors."

12. Villarejo, Don, *Jobless After a Man-made Drought*, Fresno County Economic Opportunities Commission and the Fresno County Workforce Investment Board, August 31, 2004.
13. California. Employment Development Department, *Farm Labor Contractors in California*, California Agricultural Studies, No. 92-2, Labor Market Information Division, Sacramento, CA, July 1992.
14. Villarejo, Don, *Who's In Charge? Labor Market Intermediaries in California Employment*, Research Report, Department of Industrial Relations, State of California, March 2003.
15. Zabin C, Kearney M, Garcia A, Runsten D, Nagengast C, *Mixtec Migrants in California Agriculture*, California Institute for Rural Studies and Center for U.S.-Mexican Studies, University of California, San Diego, March 1993.
16. Rosenberg, Howard R, Gabbard, Susan M., Alderete, Eric, and Richard Mines, *California Findings from the National Agricultural Workers Survey: A Demographic and Employment Profile of Perishable Crop Workers*, Research Report No. 3, U.S. Department of Labor, Office of the Assistant Secretary for Policy, Office of Program Economics, Washington, D.C., 1993.
17. California. Employment Development Department, Labor Market Information Division, *History of California Minimum Wage*, <http://www.dir.ca.gov/IWC/MinimumWageHistory.htm>
18. *California Agricultural Resource Directory 2005*, op. cit., p. 18.
19. *Agricultural Statistical Review*, op. cit.
20. Kissam, Ed, private communication via e-mail, August 4, 2005.
21. Workers Compensation Insurance Rating Bureau of California, *2006 Average Wage and Frequency by Classification Projections for Policy Year 2006*, WCIRB California Actuarial Research, April 22, 2005, p. 4; WCIRB, Individual Case Report Summary, Wage Level, 1988-90.
22. Villarejo, Don, "Occupational Injury Rates Among Hired Farm Workers," Proceedings of National Conference on Agricultural Health and Safety, National Institute for Occupational Safety and Health, Morgantown, West Virginia, July 1997, *Journal of Agricultural Health & Safety*, Special Issue (1), 39-46, 1998.
23. Associated Press, "UFW reaches contract with big California strawberry grower," *Sacramento Bee*, March 10, 2006.