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HIRED FARM LABOR: U.S. TRENDS AND SURVEY RESULTS FOR PENNSYLVANIA

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Introduction

The Workforce 2000 report (Johnston and Packer 1987) predicted the development of a labor shortage in the U.S. beginning in the 1990s and continuing into the twenty-first century. Predictions of future labor shortages, coupled with the passage of the Immigration Reform and Control Act of 1986 (IRCA)[1], have raised concern about the adequacy of the agricultural workforce. Two important questions have been raised by American farmers:

(1) Will a national labor shortage and/or immigration reform significantly affect the availability and cost of farmworkers?

(2) Given present and future trends, how can farmers attract and keep farmworkers with the necessary skills?

These questions are important, given that almost 10 percent of the total cost of production on U.S. farms is the cost of hired labor (see Table 1). In Pennsylvania, the percentage is even slightly higher. Although the proportion of total costs paid for hired labor has remained relatively constant over time in both the U.S. and Pennsylvania, predictions of a national labor shortage and recent changes in immigration policy raise concern that labor costs will increase and farmworkers will become more difficult to hire. Whether or not a labor shortage actually materializes in the U.S. in the coming decade,[2] labor remains a critical agricultural input, and future trends in the labor force and in rural labor markets may have important implications for U.S. farms.

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[1]Since there is no requirement that Special Agricultural Worker Program (SAW) workers continue to work in agriculture once they become legal residents (Duffield and Gunter 1991), there has been concern that agricultural workers will leave agriculture after legalization. Provisional findings of a Westat, Inc. study of the employment paths of legalization applicants support the view that applicants leave agriculture at a higher rate than from other industrial sectors (U.S. Department of Labor, Bureau of International Labor Affairs, 1991).

[2]Teixeira and Mishel (1992) argue that a coming labor shortage in rural areas of the U.S. is a "myth." The high rates of underemployment that characterize rural labor markets (Findeis 1992, and Lichter 1987) lend support to this argument. However, demographic changes or changes in industry structure may well result in labor shortages in specific sectors even if an overall *rural* labor shortage does not occur.

Table 1. Hired Labor and Total Production Expenses for the U.S., 1970-88.

Year	(1) Hired Labor Expenses[a] (mil. $)	(2) Total Production Expenses (mil. $)	(1) + (2) Hired Labor Expenses as Proportion of Total Expenses (%)
1970	5,197	47,775	10.88
1971	5,354	50,283	10.65
1972	5,550	55,645	9.97
1973	6,420	69,393	9.25
1974	7,337	74,302	9.87
1975	8,078	78,090	10.34
1976	8,997	85,813	10.48
1977	9,569	91,750	10.43
1978	10,055	105,306	9.55
1979	11,045	124,698	8.86
1980	11,117	134,791	8.25
1981	10,916	140,956	7.74
1982	12,099	145,456	8.32
1983	11,621	146,490	7.93
1984	11,899	149,042	7.98
1985	11,983	140,292	8.54
1986	11,700	132,240	8.85
1987	12,777	136,281	9.38
1988	13,373	143,427	9.32

[a]Includes "cash wages, social security, perquisites, and contract labor, machine hire and custom work expenses" (REIS, BEA, April 1990, Table CA45).

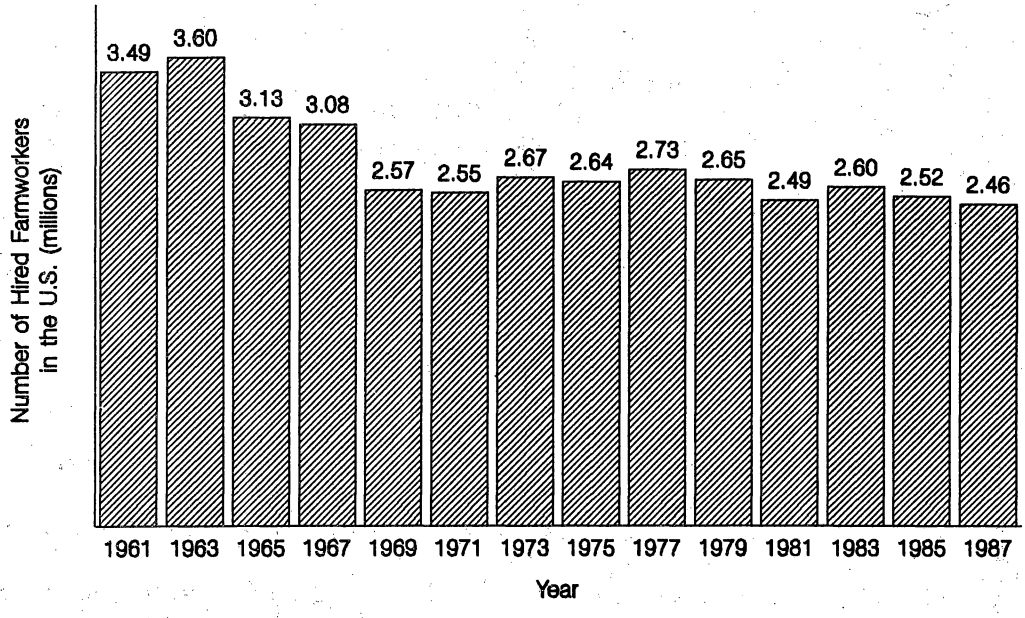
Source: *Regional Economic Information System*, Bureau of Economic Analysis, April 1990, Table CA45.

This report examines trends in the hired farm labor workforce in both the U.S. and Northeast region. Trends in the numbers of workers employed full-time, year-round; part-time, year-round; or on a seasonal basis are assessed, as well as what farms have to pay to keep a qualified workforce, both in wages and perquisites. In addition, this report presents the descriptive results of a 1991 survey of hired labor use by Pennsylvania farms. The discussion of the survey results focuses on both *perceived* and *observed* changes in hired labor use, difficulties in hiring farm labor, and regional differences in labor availability within Pennsylvania. It was possible to assess *observed* changes in hired labor use because the 466 farm households surveyed in 1991 had previously been surveyed in 1986-87 (see Hallberg, Findeis and Lass 1987, for discussion of earlier survey).

U.S. Trends in Farm Labor

At the national level, the number of hired farmworkers has declined over time, as farms have consolidated and become more highly mechanized (see Figure 1). As shown in Figure 1, significantly more farmworkers were employed in the U.S. in the 1960s than in later years. However, since the 1960s, the total number of farmworkers has remained relatively stable, at least until the late 1980s when employment of farmworkers declined.

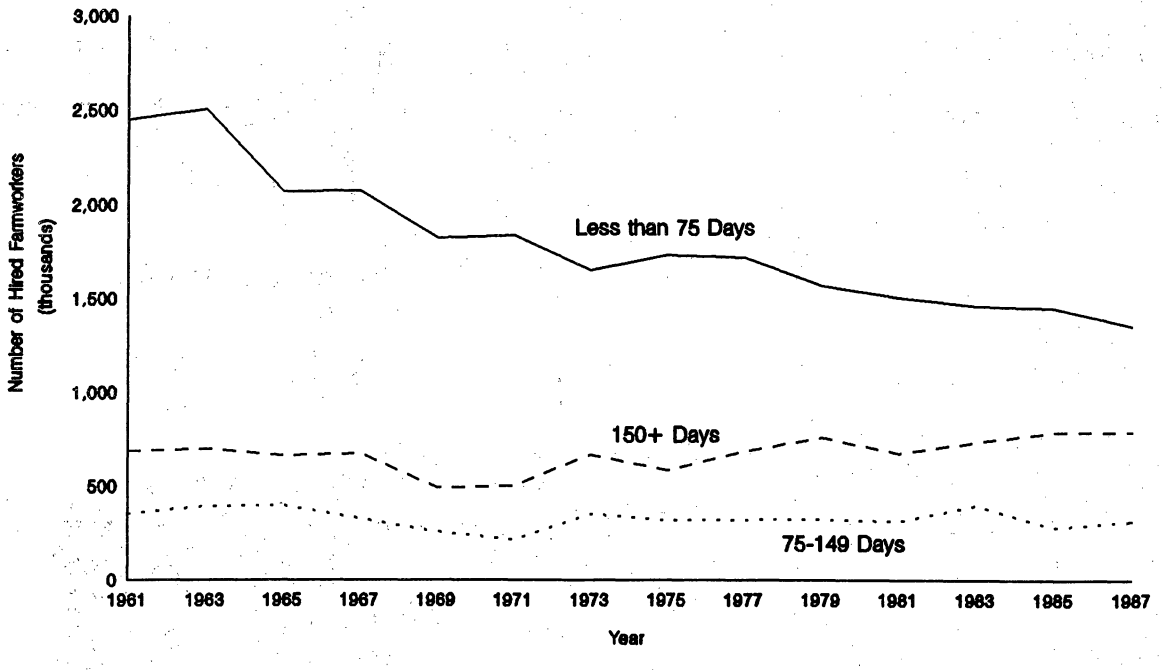
Figure 1. Hired Farmworkers in the U.S., Alternate Years 1961-87.



Source: V. J. Oliveira and C. J. Cox, The Agricultural Work Force of 1987: A Statistical Profile,

Of particular concern for the future are recent statistics on farmworker employment. In 1987, the Economic Research Service of the U.S. Department of Agriculture (ERS/USDA) found that fewer farmworkers (2.46 million) were hired than in any recorded year since at least 1961. Seasonally-reported statistics from the National Agricultural Statistics Service (NASS/USDA) show a similar trend, which is particularly evident during the summer months. For example, in July 1980, there were 1.79 million farmworkers employed in the U.S. By July 1985, this number had declined to 1.37 million, and by July 1990 only 1.10 million workers were employed. Farmworkers employed in other NASS reporting months also declined in numbers over early 1980s levels of employment (Appendix A).

Figure 2. Changes in Numbers of U.S. Hired Farmworkers by Number of Days of Farm Work, Alternate Years 1961-87.



Source: V. J. Oliveira and E. J. Cox, The Agricultural Work Force of 1987: A Statistical Profile.

There has also been a significant change in the composition of the hired farm workforce. The number of full-time farmworkers in the U.S. has increased somewhat, while the number of "casual" or part-time workers has declined significantly. Figure 2 shows changes in the numbers of hired farmworkers by the number of days of farmwork. As shown in Figure 2, there has been a slight upward trend in the number of farmworkers employed full-time (150 days or more annually) in the U.S., particularly during the 1980s. This trend has been accompanied by a substantial drop in the number of farmworkers working less than 75 days a year, while the number of farmworkers employed 75 days a year or more has remained relatively stable (see Figure 2). The decline in the number of farmworkers employed in July likely reflects this decline in part-time workers. Employment declines in other months (when full-time labor comprises a larger proportion of total employment) have not been as substantial in recent years.

Table 2. Wages Paid to Hired Farm Labor in the U.S., 1991.

Type of Work	Reporting Period April 1991	July 1991	October 1991
		---------($)----------	
Field	$5.45	$5.26	$5.67
Livestock	5.35	5.16	5.32
Field and Livestock	5.42	5.24	5.61
Supervisory	8.82	8.56	8.50
All Workers	5.81	5.57	5.88

Source: *Farm Labor* (quarterly reports), NASS, USDA.

The trend toward fewer part-time workers is in part attributable to the long-term decline in the number of farms in the U.S. However, fewer part-time farmworkers may also reflect declines in the numbers of workers willing and able to work on farms on a part-time basis. For example, it is reasonable to expect that fewer older children are now available to work during the summer months on U.S. farms, given the demographic trend toward smaller family sizes. The trend toward fewer part-time workers may also reflect differences in wages and benefits between full- and part-time workers. Full-time workers are more likely to be employed in supervisory roles, that are paid significantly higher hourly wages (Table 2). Full-time workers are also more likely to receive nonmonetary benefits or perquisites -- e.g., health insurance, housing, meals, and bonuses.[3] Finally, changes that have occurred over time in the distribution of farms by farm size have important implications for changes in hired labor use. Over half of all hired farmworkers in the U.S. are hired to work on farms with sales of $250,000 or more annually (Table 3). These farms generally pay the highest average wages, reflecting their employment of supervisory labor and their use of full-time labor. However, as shown in Table 3, small farms also tend to pay higher than average wages. Mid-size farms pay lower wages on average, perhaps reflecting less dependence on full-time labor but more dependence on lower cost casual or part-time labor.

[3]In July 1991, 62% of all farmworkers in the U.S. received wages only; in addition to wages, 6% received both housing and meals, 13% received housing, 4% had meals, 4% earned a bonus wage, and 12% received other benefits (NASS/USDA).

Table 3. Distribution of Hired Farmworkers and Wages Paid by Value of Annual Farm Sales, U.S. 1990.

	Annual Farm Sales				
	Less than $40,000	$40,000 to $99,999	$100,000 to $249,999	$250,000 or more	All Farms
Number of Workers			(% of total employment)		
January	11%	15%	19%	55%	100%
April	10	17	18	55	100
July	15	14	21	50	100
October	11	13	23	53	100
Average Hourly Wages Paid			(dollars per hour)		
January	$5.35	$4.97	$4.88	$6.10	$5.66
April	5.33	4.86	4.80	5.91	5.51
July	4.81	4.75	4.72	5.66	5.27
October	4.89	5.11	5.21	5.95	5.61

Source: *Statistical Bulletin 882*, National Agricultural Statistics Service, USDA, 1991.

Farm Labor Situation in the Northeast Region

Farms in the Northeast region also have recently hired more full-time workers and now rely less heavily on a part-time workforce. These trends are observed for both the Northeast I Region (New York, Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) and Northeast II Region (Pennsylvania, Delaware, Maryland, New Jersey).[4] Both regions are heavily dependent on hired labor that works full-time, or at least 150 days per year. During the 1980s, not only did the *proportion* of full-time hired farmworkers in the Northeast increase but the *number* of full-time workers increased as well (Appendix B).

Compared to the U.S. in general, hired farmworkers in the Northeast are more likely to be employed full-time (Table 4) and are better educated (Table 5). Relative to the U.S. in total, workers in the Northeast are also more likely to be white rather than Hispanic, Black, Asian, or of other races or ethnic groups. Comparing 1987 ERS statistics, 25 percent of hired farmworkers in the Northeast were hired for 250 or more days annually, compared to 19 percent nationally. At the same time, only 25 percent of Northeast hired labor worked 25 days

[4]The NASS regions referred to in this study are defined in Appendix C.

Table 4. Hired Labor Data for Pennsylvania, Northeast II, Northeast I, Cornbelt I, Appalachian I and Appalachian II Regions, 1991.

	Pennsylvania[a]	Northeast II	Northeast I	Cornbelt I	Appalachian I	AppalachianII
			(thousands of workers)			
Number of Hired Farmworkers						
April 7-13, 1991	23	35	39	52	41	29
July 7-13, 1991	35	51	61	54	93	37
October 6-12, 1991	38	53	55	70	58	36
Number of Workers: Expected 150 Days or More						
April 7-13, 1991	NA	27 (77%)	33 (85%)	42 (81%)	29 (71%)	19 (66%)
July 7-13, 1991	NA	42 (82%)	44 (72%)	33 (61%)	36 (39%)	21 (57%)
October 6-12, 1991	NA	48 (91%)	46 (71%)	50 (71%)	26 (45%)	25 (69%)
Number of Workers: Expected 149 Days or Less						
April 7-13, 1991	NA	8 (23%)	6 (15%)	10 (19%)	12 (29%)	10 (34%)
July 7-13, 1991	NA	9 (18%)	17 (28%)	21 (39%)	57 (61%)	16 (43%)
October 6-12, 1991	NA	5 (9%)	19 (29%)	20 (29%)[nn]	32 (55%)	11 (31%)
			(hours worked per week)			
Average Hours Worked Per Week by Hired Labor						
April 7-13, 1991	NA	39.3	40.7	36.1	39.8	32.6
July 7-13, 1991	NA	40.5	40.7	33.9	31.7	33.6
October 6-12, 1991	NA	40.1	39.7	46.1	38.4	32.6

[a]See Appendix D for hired farmworker estimates for Pennsylvania for earlier years. Not all years are available.

Source: *Farm Labor*, (quarterly reports), NASS, USDA.

Table 5. Characteristics of Farmworkers in the U.S. and in the Northeast, 1987.

Characteristics[a]	U.S.	Northeast
	(% by category)	
Racial/Ethnic Group		
White	78%	89%
Hispanic	14	3
Black and other	8	9
Sex		
Male	80%	74%
Female	20	25
Years of Education		
0-4	11%	7%
5-8	16	6
9-11	14	19
12	39	46
13 and over	20	22
Days of Farmwork Per Year		
Less than 25	35%	25%
25-74	20	19
75-149	13	17
150-249	13	14
250 and over	19	25
Primary Employment Status		
Hired farmworker	29%	29%
Operating a farm	5	5
Unpaid farmworker	0	0
Nonfarmworker	22	23
Unemployed	4	0
Keeping house	7	8
Attending school	29	32
Other	4	2

[a]Percentages summed over characteristic categories may not sum to 100% due to rounding.

Source: V. J. Oliveira and E. J. Cox, *The Agricultural Work Force of 1987: A Statistical Profile, 1989.*

or less compared to 35 percent for the U.S. Not only has the reliance of the Northeast region on full-time help increased over time, but the Northeast has historically been more dependent on full-time labor than the U.S. overall.

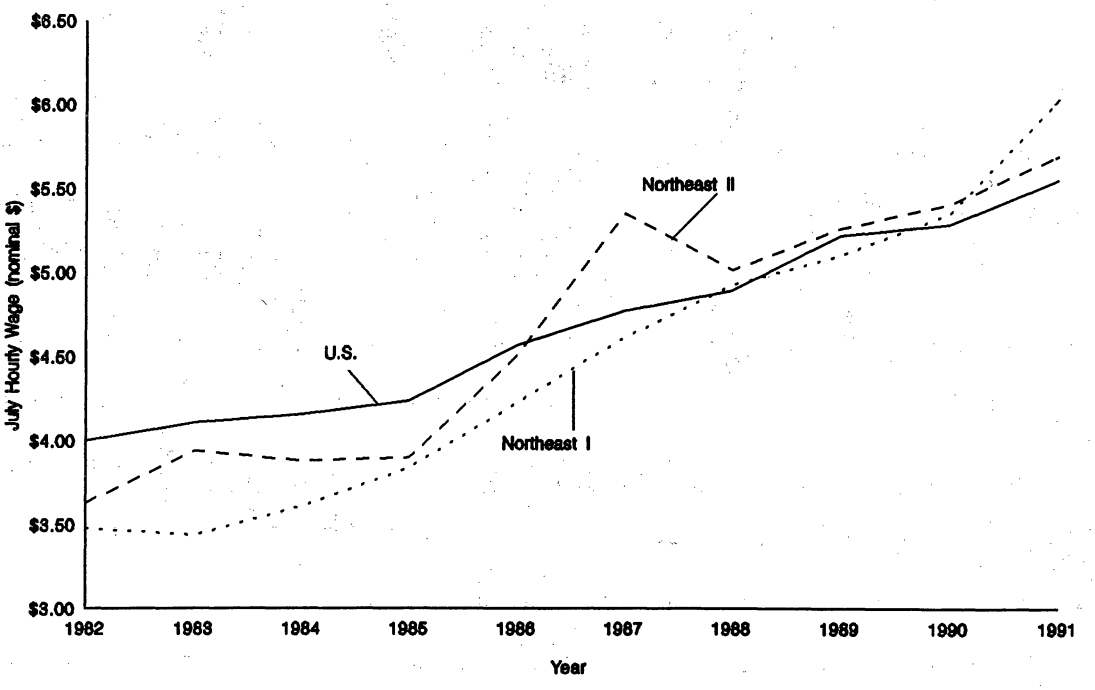
Hired farm labor in the Northeast is also better educated, with 68 percent of Northeast farmworkers having a high school education or better compared to 59 percent of farmworkers in the U.S. In addition, 1 in 4 Northeast farmworkers are female compared to 1 in 5 for the U.S., and 11 percent are non-white compared to 22 percent for the U.S. overall. *Of the total number of hired farmworkers for whom farmwork was not their primary occupation,* 43 percent in the U.S. "attended school" as their major occupation, compared to 48 percent for the Northeast. Also, 33 percent of part-time farmworkers in the U.S. were employed principally in an off-farm job, 10 percent were "keeping house," and 6 percent were unemployed. This compares to 34 percent of comparable farmworkers in the Northeast who reported working principally at an off-farm job, 12 percent that "kept house," and only 3 percent that were otherwise unemployed (Oliveira and Cox 1989).

Comparisons of wage trend data show that prior to 1986, average wages for farmworkers in the Northeast were lower than the national average (see Figure 3 and Table 6). Since then, however, average wages in the Northeast have typically been higher, reflecting higher rates of increase in farm wages in the Northeast relative to the U.S. overall. It is likely that this increase is at least partly attributable to the sharper decline in the numbers of part-time or casual farmworkers employed in the Northeast and to the increase in the number of full-time workers.

Comparisons of wage data also show that both large and small Northeast farms tend to pay higher wages than mid-size farms. For example, in July 1991, smaller farms (less than $40,000 annual sales) paid an average $6.04 per hour, large farms (at least $250,000 in annual sales) paid $6.36 per hour, while farms with annual sales in the $40,000-$99,999 and $100,000-$249,999 ranges paid $4.53 and $5.07, respectively (Table 7). The differences in average wages paid by Northeast farms of different sizes (as measured by sales) reflect similar differences observed at the national level.

In summary, Northeast farms have become more reliant on full-time labor in the past decade, and are employing fewer workers part-time or on a seasonal basis. In recent years, wages paid to farmworkers in the

Figure 3. Average July Hourly Wage for Hired Farmworkers, 1982-91.



Sources: Statistical Bulletin 822 and Farm Labor (1991; quarterly reports), NASS, USDA.

Northeast have increased at a faster rate than for the U.S. overall, and average wages in this region are now higher than for the U.S. Higher wages in the Northeast are likely a reflection of the region's greater dependence on full-time labor.

These changes have two important implications for Pennsylvania agriculture. First, the greater reliance on full-time labor means that labor that can work throughout the year is being sought by Northeast farms. This is especially true for large farms in the region that produce a significant proportion of the region's agricultural output and cannot rely solely on family labor because of their size.

Second, the decline in the number of part-time workers, including seasonal labor, is likely to be a significant problem for fruit and vegetable operations and for the majority of Pennsylvania farms not classified as "large" farms. In particular, mid-size farms may face the greatest difficulty in fulfilling their on-farm labor needs. Mid-size farms may need full-time labor, but not be able to compete against large farms in terms of wages

Table 6. Wages Paid to Hired Farm Labor in Pennsylvania, Northeast II, Northeast I, Cornbelt I, Appalachian I and Appalachian II Regions, 1991.

	Pennsylvania[a]	Northeast II	Northeast I	Cornbelt I	Appalachian I	Appalachian II	Average U.S.
				(dollars per hour)			
Wage Rates for All Hired Workers							
April 7-13, 1991	$5.40	$5.56	$5.93	$6.50	$4.79	$ 5.61	$5.81
July 7-13, 1991	5.62	5.71	6.05	5.70	4.96	5.12	5.57
October 6-12, 1991	5.88	6.08	6.32	5.79	5.43	5.39	5.88
Wage Rates by Worker Type							
Field							
April 7-13, 1991	NA	5.50	5.98	5.94	4.31	4.98	5.45
July 7-13, 1991	NA	5.44	5.81	5.45	4.69	4.94	5.26
October 6-12, 1991	NA	5.81	6.29	5.66	5.33	5.11	5.67
Livestock							
April 7-13, 1991	NA	5.01	5.08	5.46	5.30	4.90	5.35
July 7-13, 1991	NA	5.14	5.18	5.66	5.50	5.04	5.16
October 6-12, 1991	NA	5.10	5.13	5.44	5.26	5.28	5.32
Field and Livestock							
April 7-13, 1991	NA	5.30	5.54	5.80	4.60	4.94	5.42
July 7-13, 1991	NA	5.36	5.56	5.51	4.79	4.96	5.24
October 6-12, 1991	NA	5.66	5.85	5.62	5.32	5.17	5.61
Supervisory							
April 7-13, 1991	NA	7.85	8.43	9.12	7.75	10.32	8.82
July 7-13, 1991	NA	8.59	8.13	6.59	8.04	NA	8.56
October 6-12, 1991	NA	9.35	8.78	6.68	7.37	NA	8.50

[a]Pennsylvania farmworkers received an average $5.60/hour in August (11-17), 1991 and $5.67/hour in September (8-14), 1991.

Source: *Farm Labor (quarterly reports), NASS, USDA.*

Table 7. Distribution of Wages for Hired Farm Labor by Annual Farm Sales, 1991.[a]

	Northeast		Appalachian		Cornbelt	
	July, 1991	October, 1991	July, 1991	October, 1991	July, 1991	October, 1991
Annual Farm Sales	(dollars per hour)		(dollars per hour)		(dollars per hour)	
Less than $40,000	$6.04	$6.88	$4.60	$4.74	$4.58	$5.60
$40,000 - 99,999	4.53	5.23	4.88	4.94	5.06	4.23
$100,000 - 249,999	5.07	4.95	4.87	4.75	5.36	5.24
$250,000 or more	6.36	6.55	5.43	6.20	6.21	6.14
All farms	5.90	6.20	5.01	5.42	5.59	5.67

Source: *Farm Labor*, NASS/USDA.

[a]Northeast: Connecticut, Delaware, Maryland, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

Appalachian: Kentucky, North Carolina, Tennessee, Virginia, West Virginia.

Cornbelt: Iowa, Illinois, Indiana, Missouri, Ohio.

and perquisites. Alternatively, if mid-size farms seek to hire part-time labor, these farms may encounter difficulty due to the shrinking pool of part-time hired labor and to the higher average wages to part-time labor paid by small farms. As shown in this report, both large and small farms pay, on average, higher wages to farmworkers than mid-size farms.

Pennsylvania Hired Farm Labor Survey Results

To assess the availability and utilization of hired farm labor in Pennsylvania, a survey of a sample of farm households in the state was conducted in Spring 1991. The purpose of the 1991 Pennsylvania Hired Farm Labor Survey was two-fold. First, the farm households interviewed in 1991 comprised a sample of Pennsylvania farm households that had been surveyed previously in 1986-87. The principal purpose of the earlier survey was to better understand the prevalence and characteristics of off-farm employment among farm household members on Pennsylvania farms. The 1986-87 survey provided a better understanding of factors affecting farm household time allocation - both on and off the farm. The 1986-87 survey also included questions on the use of and payments to hired farm labor -- full-time, year-round; part-time, year-round; and seasonal.

By resurveying the 1986-87 questionnaire respondents, a panel of longitudinal data was created that allows an assessment of changes in both hired labor use and payments to hired labor over time on Pennsylvania farms. Changes in the use of farm labor provide one indication of the extent to which hired labor is more difficult to hire and retain. Another parallel measure is the farmer's subjective assessment of labor availability. The 1991 survey asked farmers *directly* if they found it easier or harder to hire farmworkers -- full-time, year-round; part-time, year-round; or on a seasonal basis. The panel nature of the data allows an examination of recent changes in hired farm labor use in Pennsylvania.

In addition, the 1991 survey serves a second purpose -- to assess how farm households adjust to changes in hired farm labor availability. One response is to hire less farm labor and use correspondingly more family labor. The result may be less off-farm work, more reliance on the work of children and other relatives, and less time for leisure, to the extent that leisure exists.

Another option is to pay higher wages to hired labor and/or to increase the perquisites offered to hired labor -- to provide housing, meals, bonuses, or even the types of benefits often offered by nonfarm employers. Farmers may also use special strategies other than direct monetary compensation to attract and retain farmworkers. The 1991 survey included questions about wages paid, perquisites given, and strategies that Pennsylvania farm operators use to attract and retain farmworkers.

Sample Description

The sampling plan used for the 1986-87 survey is described in detail in Hallberg, Findeis, and Lass (1987). Each of the households surveyed in 1986-87 was resurveyed, resulting in 466 households surveyed in both years. Those households that were not resurveyed in 1991 included those where the farm operator was now deceased, households that had left farming altogether in the interim, and a very few respondents that did not wish to participate in the second survey. In general, those households that did participate were interested in the study and completed the telephone questionnaire. A majority of the survey participants gave their mailing address and requested a summary of the study results, a gauge of farmer interest in the topic.

The 1991 survey included questions on farm characteristics, use of and payments to hired labor, time allocation of farm family members, difficulties in hiring qualified farm labor, and strategies for keeping farm labor (see Appendix E for survey instrument). Each of these topics will be discussed, and comparisons will be made between farms with and without hired labor. Comparisons also will be made across farms hiring different types of labor. In total, 164 of the 461 farms that responded "yes" or "no" to the question "Did you hire ... farmworkers last year?" were found to hire labor in 1991. Of these, 50 farms hired full-time, full-year labor; 104 farms hired seasonal labor; and 43 farms hired part-time, full-year labor. A total of 297 respondents hired no labor.

Farm Characteristics

Farms surveyed in the 1991 Pennsylvania Hired Farm Labor Survey were *principally* engaged in dairy (33.8% of sample), beef (20.0%), grain (12.4%), forage (10.0%), vegetable and fruit crops (6.4%), hogs (3.0%), sheep (2.8%), and poultry (0.9%). About half of the dairy farms hired labor; dairy and vegetable and fruit operations comprise the types of farms most likely to hire labor in Pennsylvania (Table 8). Farms *principally*

Table 8. Farming Activities and Principal Enterprises on Pennsylvania Farms in 1991 Pennsylvania Hired Farm Labor Survey.

		All Enterprises			Principal Enterprise		
		(1)	(2)	(3)	(1')	(2')	(3')
Enterprise	Number of Farms Engaged in	Percent of Farms Engaged in Enterprise (%)	Farms With No Hired Labor (%)[a]	Farms With Hired Labor (%)[a]	Percent of Farms With Principal Enterprise (%)[b]	Farms With No Hired Labor (%)[a]	Farms With Hired Labor (%)[a]
Dairy	168	36.0	53.0	47.0	33.8	52.6	47.4
Poultry	37	7.9	64.9	35.1	1.1	40.0	60.0
Hogs	53	11.4	64.2	35.8	3.0	78.6	21.4
Beef	158	33.9	70.7	29.3	20.0	74.7	25.4
Sheep	17	3.6	76.5	23.5	2.8	84.6	15.4
Grain	335	71.9	63.9	36.1	12.4	78.6	21.4
Forage	384	82.4	64.7	35.3	10.0	80.4	19.6
Vegetable crops	75	16.1	65.3	34.7	3.3	53.3	46.7
Mushrooms	2	0.4	100.0	0.0	0	0.0	0.0
Nursery crops	15	3.2	46.7	53.3	0.9	50.0	50.0
Tree fruits	25	5.4	60.0	40.0	1.5	28.6	71.4
Grapes	20	4.3	62.5	37.5	0	0.0	0.0
Small fruits	132	28.3	60.0	40.0	0.7	66.7	33.1
Forest products	28	6.0	77.0	23.0	0.9	50.0	50.0

[a]Note that the entries in columns (2) and (3) (and similarly (2') and (3')) sum to 100% for each enterprise.
[b]The column (1') will not sum to 100% because some farmers answered "other" for their principal enterprise.

engaged in grain and forage production or livestock hired labor in some cases, but only about one in five of these farms did so.

The average number of acres operated on farms that hired labor was 365 acres, whereas farms with no hired labor operated 188 acres on average. Similarly, farms with hired labor, on average, included more tillable acres, more acres in pasture, and more forested acres (see Table 9). At the same time, size differences were shown to exist between farms that hired full-time, year-round labor and farms that hired part-time labor, either year-round or seasonally. As shown in Table 9, farms hiring full-time, full-year labor operated an average 560 acres, with an average 375 tillable acres.

Interestingly, farmers with hired labor reported being slightly more likely than farmers with no hired labor to expect to be in farming for the next five years (94.2% compared to 91.1%), and were more likely to be operating a farm that had formerly been operated by the operator's or spouse's family (64.0% compared to 55.4%).

Differences in Time Allocation

The type of farm operation and the size of the farm (both in terms of sales and acreage) clearly have implications for time allocation on-farm by family members and for the need for hired farm labor. Each farm requires a total amount of labor that varies throughout the year. This need for labor can be fulfilled by time allocated to farming by the principal farm operator, by the farm spouse, or by hired farm labor. Older children and other relatives can also provide supplementary labor.

Table 10 provides the average hours of work by farm operators, spouses, children and other relatives, and hired farm labor working on Pennsylvania farms. Table 10 also provides (under each average hours per week estimate) the number of observations included for each estimate, i.e., the number of actual family members or farmworkers that perform this work. Average hours of work per week and numbers of workers performing this work are given in Table 10 by season and by annual sales classification, for farms selling at least $20,000 in farm products annually.

Larger farms in Pennsylvania, i.e., farms with annual farm sales of at least $100,000 were most likely to hire labor. Farm operators on these farms allocated significant amounts of time to farming -- ranging from

Table 9. Characteristics of Pennsylvania Farms in 1991 Pennsylvania Hired Farm Labor Survey.

Characteristics	All Farms	Farms With No Hired Labor	Farms With Hired Labor
Number of farms	464	297	164
Percent of farms operated by same operator 5 years ago	98.1%	98.0%	98.2%
Percent of farms formerly operated by operator's or spouse's family	58.3%	55.4%	64.0%
Respondent plans to farm this farm for next 5 years	92.0%	91.1%	94.2%
Average years respondent farmed since age 18	25.0	25.3	24.3
Average acres operated	249.97	187.80	364.51
Average tillable acres[a]	168.48	127.32	244.30
Average acres in pasture	40.73	29.86	60.89
Average forested acres	46.73	34.84	68.08
Average rented (in) acres	75.94	47.25	129.28
Average rented (out) acres	3.22	3.13	3.46

Characteristics	Full-time, Full-year Labor[b]	Part-time, Full-year Labor[b]	Seasonal Labor[b]
Number of farms	50	43	104
Percent of farms operated by same operator 5 years ago	98.0%	97.7%	98.1%
Percent of farms formerly operated by operator's or spouse's family	68.0%	62.8%	58.7%
Respondent plans to farm this farm for next 5 years	98.0%	92.3%	96.0%
Average years respondent farmed since age 18	21.1	21.6	24.5
Average acres operated	559.86	392.44	368.69
Average tillable acres[b]	375.38	283.57	251.41
Average acres in pasture	78.88	63.60	65.58
Average forested acres	114.16	63.81	57.96
Average rented (in) acres	243.48	148.20	151.16
Average rented (out) acres	4.84	2.90	3.54

[a]Farms with tillable acres equal to zero were deleted.
[b]The numbers of farms hiring each type of labor will not equal the total number of farms hiring labor, since some farms hire multiple types of labor. Because of this, the mean values for farms hiring labor (in general) may appear inconsistent with the mean values by type of labor. This is because the larger farms are more likely to hire multiple types of labor, whereas the smaller farms typically do not.

Table 10. Time Allocation on Pennsylvania Farms by Sales Class, 1991.

Annual Sales Class/Season	Hours of Farm Family Labor Allocated to On- and Off-farm Work					Hours of Hired Farm Labor Per Week		
	Operator		Spouse		Children or Other Relatives	Full-time Year-round	Part-time Year-round	Seasonal
	On-farm	Off-farm	On-farm	Off-farm				
	----(hours/week)---		----(hours/week)----		---(hrs./wk.)--	----------(hours/week)----------		
Large Farms: $100,000 & over								
Spring	78.54 (n=118)	32.35 (n=17)	26.91 (n=101)	29.34 (n=38)	64.00 (n=13)		27.13 (n=23)	
Summer	76.37 (n=118)	22.24 (n=17)	27.85 (n=101)	21.42 (n=38)	86.15 (n=13)	77.21 (n=34)	32.35 (n=23)	38.00 (n=44)
Fall	74.92 (n=118)	30.63 (n=16)	27.39 (n=101)	29.11 (n=38)	63.38 (n=13)		27.48 (n=23)	
Winter	61.54 (n=118)	35.65 (n=17)	20.25 (n=101)	28.61 (n=38)	57.38 (n=13)		21.57 (n=23)	
Mid-size Farms: $40,000-99,999								
Spring	75.02 (n=61)	29.00 (n=14)	36.79 (n=48)	28.25 (n=16)	80.63 (n=8)		20.40 (n=5)	
Summer	73.82 (n=61)	32.07 (n=14)	39.77 (n=48)	26.06 (n=16)	111.75 (n=8)	43.20 (n=5)	24.25 (n=4)	30.09 (n=11)
Fall	70.43 (n=61)	31.50 (n=12)	36.73 (n=48)	25.75 (n=16)	79.38 (n=8)		24.25 (n=4)	
Winter	53.18 (n=61)	32.29 (n=14)	28.75 (n=48)	23.88 (n=16)	67.25 (n=8)		12.00 (n=5)	
Small Farms: $20,000-39,999								
Spring	60.65 (n=34)	33.75 (n=12)	21.70 (n=27)	33.15 (n=13)	60.00 (n=1)		12.00 (n=1)	
Summer	61.85 (n=34)	32.08 (n=12)	25.22 (n=27)	30.08 (n=13)	90.00 (n=1)		12.00 (n=1)	
Fall	57.76 (n=34)	32.50 (n=10)	23.56 (n=27)	33.15 (n=13)	60.00 (n=1)	45.00 (n=2)	12.00 (n=1)	33.50 (n=6)
Winter	39.79 (n=33)	34.42 (n=12)	14.38 (n=26)	31.62 (n=13)	40.00 (n=1)		8.00 (n=1)	

a high of 79 hours per week on average in the spring to 62 hours per week on average in the winter. Operators of smaller farms worked less time on-farm and allocated more time to off-farm work. Operators on farms with annual sales valued from $40,000-$99,999 worked from a high of 75 hours per week in the spring to 53 hours per week in the winter. Fourteen of the 61 farm operators (or 23%) in this group worked off-farm.

Farm spouses were also found to contribute significant numbers of hours to the farm and, in many cases, children and other relatives were working large numbers of hours on farm as well. However, as shown in Table 10, the hours worked by spouses and children/relatives that work on the farm may well be *less* on large farms than on farms in the $40,000-$99,999 sales class. Spouses on farms with more than $100,000 in annual sales worked from a high of 28 hours per week on average in the summer to a low of 20 hours per week in the winter. This compares to 40 hours per week on average in the summer for spouses on farms in the $40,000-$99,999 sales class, and 29 hours per week in the winter. Children and other relatives that provide farm labor on mid-size farms also work more hours on average than on larger farms (see Table 10).

The observed differences in the time that spouses, children, and other relatives allocate to farm work on mid-size versus large farms most likely reflects the greater reliance by large farms on hired farm labor (Tables 11 and 12). Approximately 64 percent of large farms hire labor, compared to only 41 percent of mid-size farms and about 19 percent of small farms. In addition, almost half of the large farms that hire labor hire at least one

Table 11. Distribution of Farm Labor Across Annual Farm Sales Classes.

Type of Hired Labor	Annual Farm Sales: Less than $40,000	$40,000-$99,999	$100,000 and more	Total
	(percent of farms)[a]			
Full-time, Year-round	9.0%	13.6%	77.3%	100.0%
Seasonal	31.0	14.3	54.8	100.0
Part-time, Year-round	16.7	16.7	66.7	100.0

[a]Row total may not sum to 100% due to rounding.

Table 12. Distribution of Farm Labor Within Annual Farm Sales Class, Pennsylvania, 1991.

Type of Hired Labor	Annual Farm Sales			
	Less than $40,000	$40,000-$99,999	$100,000 and more	All Farms
	(percent of farms)[a]			
Full-time, Year-round	2.5%	9.8%	28.3%	12.8%
Seasonal	16.0	19.7	38.3	24.5
Part-time, Year-round	3.7	9.8	20.0	10.5
No Hired Labor	80.9	59.0	35.8	61.2

[a]Column totals will not sum to 100% because some farms hire more than one type of labor.

full-time laborer throughout the year. Large farms rely on large numbers of hours of work allocated by the principal operator and hired labor, and are perhaps less dependent on farm labor provided by other relatives, including children and the farm spouse.

Mid-size farms are observed to use less hired labor, and be more dependent on labor provided by the farm spouse, children, and other relatives. This may well be because of the cost of hired farm labor -- mid-size farm operations may not be able to effectively compete against the wages paid by large farms for labor. And as discussed previously in this report, they may even have difficulty competing against the smallest farms that pay higher average wages than mid-size farms in the Northeast.

Wages and Perquisites for Hired Farm Labor in Pennsylvania

Respondents to the 1991 Pennsylvania Hired Farm Labor Survey were also asked how much they paid their farm labor, in wages and perquisites. Since wages were sometimes reported "per month" or "per year," survey data on hours of work and on months worked (for seasonal labor) were used to convert "wages per week" and "wages per month" into "wages per hour" estimates for laborers. The majority of respondents to the survey reported wages on an hourly basis, so conversion was not necessary in the majority of cases.

The variation in hourly wages paid to full-time, full-year farmworkers is shown to be significant (see Figure 4). A few full-time workers are paid as much as $10.00 per hour, but most are paid in the $4.00-$6.00 per hour range. Because almost 20 percent of full-time workers are paid above $6.00 per hour, the average wage equalled $5.48 per hour.

Part-time and seasonal workers are paid less on average -- $4.62 per hour and $4.70 per hour, respectively. The majority of part-time farmworkers that work throughout the year on Pennsylvania farms earn $3.50-$5.50 per hour (Figure 5). About 15 percent of part-time, full-year workers earn more than $5.50 per hour. In comparison, about 73.7 percent of seasonal farmworkers earn $3.50-$5.50 per hour, with 17.6 percent earning more (see Figure 6).

Hired farmworkers may also receive perquisites in addition to wages. Of the Pennsylvania survey respondents that reported hiring full-time, full-year workers, 69.4 percent reported providing these workers with perquisites, beyond wages. Health insurance was the most frequently cited benefit given to full-time workers; in total, almost half (44.9%) of all farms hiring full-time farmworkers provided health insurance to their employees. Other benefits included life insurance (6.1%), food or meals (26.5%), housing (12.2%, and often with utilities paid), a bonus (4.1%), transportation (4.1%), and paid vacation days (8.2%).

In contrast, only 29.4 percent of farms hiring seasonal farmworkers and 37.2 percent of farms with part-time (year-round) workers gave any benefits. One of the respondents hiring seasonal labor reported providing health insurance, Social Security, workman's compensation, and unemployment insurance. But most farms with seasonal workers provided few benefits. Those that did provided meals (18.6%), transportation or gas (7.8%), and in a few cases health insurance (2 cases), paid vacation days (1 case), housing (1 case), and a bonus plan (1 case). Part-time workers received meals in some instances (20.9%), and occasionally health insurance (2 cases), paid vacation (1 case), a bonus plan (1 case), payment of taxes (1 case), housing (2 cases), and transportation (2 cases).

Figure 4. Frequency Distribution of Hourly Wages for Full-time, Year-round Hired Farmworkers, Pennsylvania, 1991.

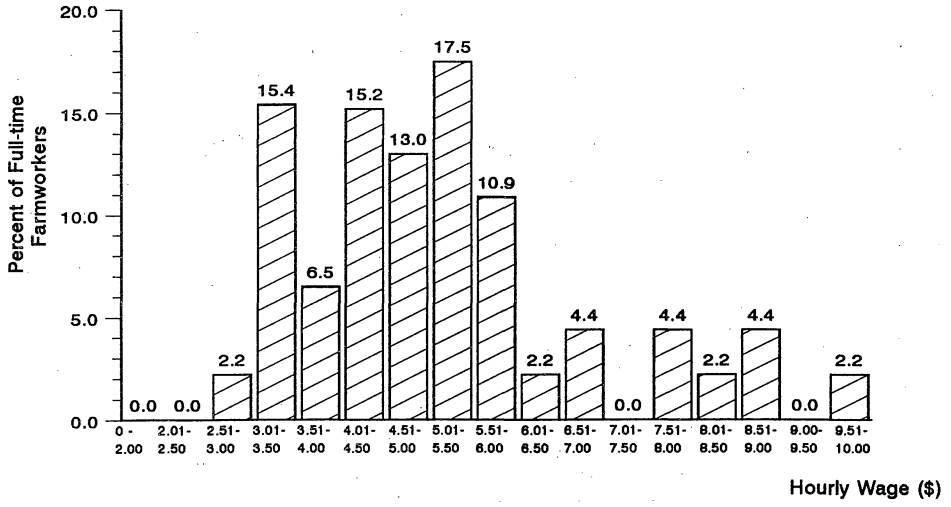


Figure 5. Frequency Distribution of Hourly Wages for Part-time Hired Farmworkers, Pennsylvania, 1991.

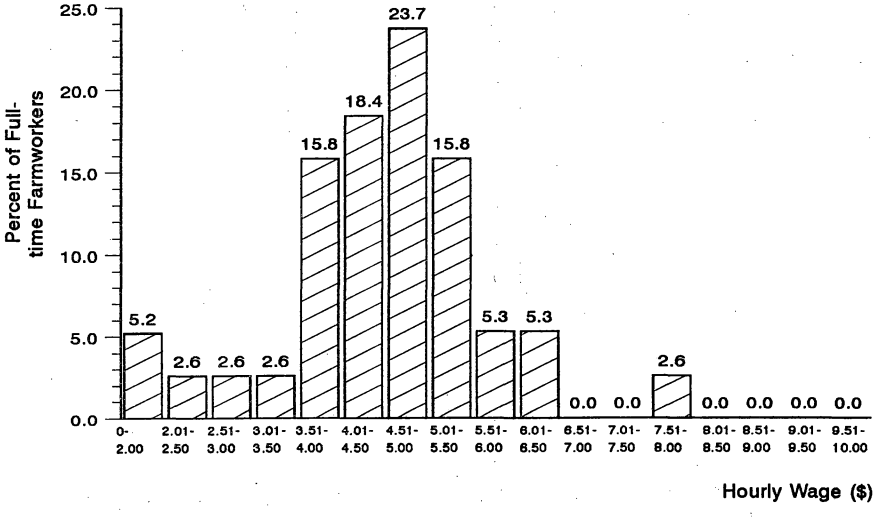
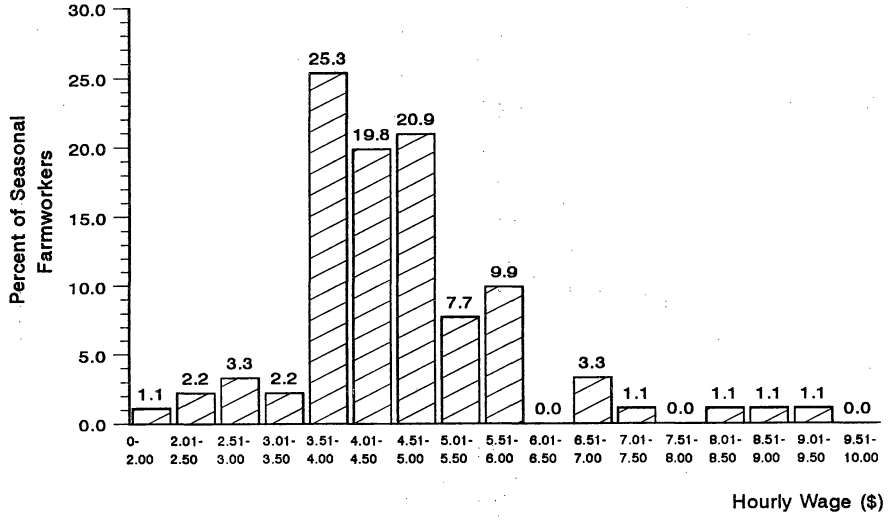


Figure 6. Frequency Distribution of Hourly Wages for Seasonal Hired Farmworkers, Pennsylvania, 1991.



Difficulties in Hiring Labor

Although some farms use higher wages to attract farmworkers and others provide the types of perquisites discussed above, many farm operators argue that labor is still difficult to hire. Many Pennsylvania farms, and particularly dairy farms, hire full-time, year-round farm labor. As shown previously, the number of full-time, year-round farmworkers has actually increased in recent years. These workers are typically paid higher wages (true for Pennsylvania) and are more likely to receive perquisites (also true for Pennsylvania). However, when survey respondents were asked to consider how difficult it is to hire farmworkers year-round versus part-time (either year-round or as seasonal labor), a greater proportion (51%) of the respondents expressed difficulty hiring full-time, year-round labor (Table 13). But, at the same time, many survey respondents reported difficulty hiring seasonal labor (46% with difficulty) and part-time, year-round labor (difficult for 41%).

But is it becoming *more* difficult over time to hire labor for work on Pennsylvania farms? Clearly farm labor is an important input for Pennsylvania farms, and especially for large farms that provide a high proportion of the agricultural output produced in the state. Proponents of a labor shortage might well argue that farm labor should now be *more* difficult to hire, but others (e.g., Teixeira and Mishel 1992) argue that for rural areas the projected labor shortage is a "myth," and would be so even without the effects of the current recession.

To determine if Pennsylvania farmers now encounter more difficulty hiring labor, survey respondents were asked their perceptions of hiring difficulty *compared to five years ago*. However, because some farm publications have argued that farms are currently facing or will soon experience labor shortages, farmers' perceptions of hiring difficulty may be biased. Therefore, the survey responses were compared to *actual* changes in labor use for the farms in the sample.

The farmers' *perceptions of changes in labor availability* and *actual changes in labor use* over the 1985-91 period are compared in Table 13. The results are interesting. Roughly half of the respondents perceived farm labor to be as available now as five years ago, while forty percent of the survey respondents argued that farm labor is now *more difficult* to hire. This perception is supported by the actual changes in hired labor use -- significantly more farms hired less labor in 1991 (compared to 1985) than the number of farms that increased their

Table 13. Availability of Hired Farm Labor in Pennsylvania, 1991.

	Type of Hired Farm Labor[a]		
	Full-time, Year-round	Seasonal	Part-time, Year-round
	----------(%)----------		
Degree of Hiring Difficulty			
Difficult to Hire	51	46	41
Not Difficult	49	54	59
Availability of Hired Labor[b] Compared to 5 Years Ago			
No Change	48	51	56
Easier to Hire	7	7	3
Harder to Hire	45	42	41
Number of Farms:[c]			
No Change in Number of Farmworkers, 1985-91	86	55	82
Hiring More Farmworkers in 1991	5	13	7
Hiring Fewer Farmworkers in 1991	9	32	11
Need for Additional Hired Farm Labor			
Would Hire if Available	6	18	14
Not Needed	94	82	86
Skills of Hired Labor[d]			
Sufficient	79	77	78
Not Sufficient	21	23	22

[a]Percentages are calculated relative to the number of respondents answering a question.

[b]When asked about the general availability of all types of farm labor in their area compared to 5 years ago, 27 farmers (7%) responded that there is now more labor, 242 (62%) answered that labor was less available in 1991, and 120 (31%) noted no change in availability in their area.

[c]Includes farms that hired no labor in 1985 and no labor again in 1991. In some cases, farms that hired labor in 1985 no longer hired labor in 1991.

[d]Asked of respondents hiring particular type of labor.

labor use from 1985 to 1991. This was particularly true for seasonal labor; more farms reduced the number of seasonal workers (some to zero) than increased the size of their seasonal labor force.

Finally, some survey respondents argued that they would hire labor if it was available -- 26 farms (6%) wanted to hire full-time labor, 85 farms (18%) wanted additional seasonal labor, and 65 farms (14%) expressed a willingness to hire more part-time, year-round labor. Interestingly, while farmers perceived that most difficulties lie in finding full-time hired labor, more farmers expressed a willingness to hire additional seasonal and part-time labor. The perceived need for more seasonal and part-time labor coupled with declines in the actual use of seasonal and part-time labor over the 1985-91 period on Pennsylvania farms are findings consistent with national trends showing declines in these types of labor.

Further, survey respondents were asked why they perceived farmworkers were more difficult to hire, if this was their response. Respondents citing difficulty hiring full-time, year-round farmworkers overwhelmingly cited "low pay" as a significant problem. Other problems included difficulties attracting workers to (farm) jobs characterized by "long hours and hard work," problems with the "quality" of workers,[5] lack of interest among potential workers in "farming," and the location of the farm in an area where there are better nonfarm job opportunities. Low pay was also cited as a problem for attracting seasonal and part-time, year-round workers, but this response was given less frequently than for full-time workers, where pay is clearly a significant constraint. Potential part-time workers were perceived as lacking experience (and particularly experience with farm equipment), as wanting easier work with fewer hours, and of going elsewhere for jobs (McDonalds) and money (parents). Farmers unable to hire full-time workers complain they can't pay enough and farmers needing part-time workers, especially seasonal workers, argue that the work itself is a deterrent -- "They don't want to do farm work when other jobs are available with more pay, less hours, and easier work."

Regional Differences in Labor Availability

Given that significant differences likely exist among Pennsylvania's labor markets and that agriculture itself differs across the state, regional differences in hired farm labor supply and demand are probable. Farm size

[5]As shown in Table 13, approximately one in five workers was considered to have insufficient skills. Among job applicants this rate is likely higher.

and enterprise mix determine the need for labor, and family size influences the amount of labor supplied to farming by the farm family. Alternatives to farming (e.g., off-farm employment, schooling, child care) affect the quantity of farm family time allocated to farming, and thus the need for hired farm labor.

On the other hand, the supply of hired farm labor is likely affected by alternative employment opportunities which are a function of local economic structure and local economic conditions. Hired farm labor can be "lured away" by better nonfarm employment opportunities, when they exist. Such alternative opportunities may be "better" because the jobs pay higher wages, have better working hours, or provide perquisites (or more or better perquisites). "Location" in part determines the types of labor opportunities that exist -- farm and nonfarm.

To examine location-related differences in hired farm labor use and availability, Pennsylvania was divided into four regions:

Region	Pennsylvania Counties Included[a]
Central	Bedford, Blair, Cambria, Centre, Clearfield, Columbia, Huntingdon, Jefferson, Juniata, Luzerne, Mifflin, Montour, Northumberland, Snyder, Somerset, Union
North	Bradford, Cameron, Clinton, Elk, Lackawanna, Lycoming, McKean, Potter, Sullivan, Susquehanna, Tioga, Wayne, Wyoming
Southeast	Adams, Berks, Bucks, Carbon, Chester, Cumberland, Dauphin, Delaware, Franklin, Fulton, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Perry, Schuylkill, York
West	Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Green, Indiana, Lawrence, Mercer, Venango, Warren, Washington, Westmoreland

[a]Counties included in each region are those represented in the sample of farms used in this study.

The disaggregation was done on the basis of local labor market areas as defined in Tolbert and Killian (1987). In total, 21.7 percent of the respondents in the 1991 sample were in the Central region, 16.3 percent resided in the North, 37.3 percent of the farms were in the Southeast, and 24.7 percent were in the West. As shown in Table 14, the largest farms in terms of acres operated were in the subsample of respondents from the northern tier counties, but the largest farms in terms of tillable acres were in central Pennsylvania.

Table 14. Characteristics of Pennsylvania Farms in 1991 Pennsylvania Hired Farm Labor Survey, By Region.

Characteristics	Region			
	Central	North	Southeast	West
Number of farms	100	75	172	114
Percent of farms operated by same operator 5 years ago	99.0%	100.0%	97.7%	97.0%
Percent of farms formerly operated by operator's or spouse's family	59.0%	69.3%	54.5%	55.0%
Respondent plans to farm this farm for next 5 years	94.8%	91.4%	89.9%	92.6%
Average years respondent farmed since age 18	23.3	24.0	26.7	24.7
Average acres operated	260.84	334.59	213.88	230.08
Average tillable acres	176.63	162.41	165.72	138.36
Average acres in pasture	32.98	72.88	27.81	44.51
Average forested acres	48.91	98.51	20.67	46.26
Average rented (in) acres	79.44	69.03	89.91	56.63
Average rented (out) acres	3.91	0.40	4.39	3.23
Percent of farms hiring labor	43.9%	42.7%	35.3%	39.0%

The *perception* of a labor shortage appears widespread among Pennsylvania's farmers (Table 15), regardless of location. Farms in Southeast Pennsylvania are most likely to perceive a shortage of farm labor. At the same time it should be noted that farms that actually employed hired labor in 1990-91 were less likely to report that labor was less available, relative to the overall population (see Table 15). Some farmers that do not hire labor to help on their farms may believe reports of labor shortages, but have not had experiences that would modify this perception. Alternatively, this difference may occur because some farms that wanted to hire labor found labor to be more difficult to hire than in previous years, and therefore did not hire. As shown in Table 15, there are farms that would like to hire labor (or more labor), but are constrained by availability and cost. At least some of these farms do not presently hire labor.

Table 15 also demonstrates that there are important regional differences in both labor availability and needs for more labor. Where alternative employment opportunities exist in the nonfarm sector, workers that might have been employed in agriculture are often attracted to other (often better) employment opportunities. This observation was borne out by the responses to the 1991 survey. For example, one farmer in the Southeast region responded that "most people in our area can find better work," while another respondent in the same region argued that "Just to compete with other benefits and monies people are paying is impossible." Another farmer in the Central region reported "They'd sooner go to work at McDonalds; our area is becoming more urban." Further, farmers partially attributed their hired labor problems to the working conditions on farms -- the long hours and hard physical work.

Other farmers noted the (negative) impacts of fewer children on their own and other's farms and fewer children going into farming as adults. Respondents observed that "All the children around here have grown up and gone away" (Central region) and "More of the high school kids are taking other jobs and graduates are moving" (Central region). A significant number of farmers responded that hired farm labor was less available because there were fewer farm children, especially boys, that would do farm work -- many had moved on and did not plan to pursue farming. As a result, the network of local labor essentially provided by farm families is weakening as fewer children prepare for a future farm life. Farms provided a training ground for future farmers, and farms with children provided a labor force for other local farms that needed extra labor. Even older

Table 15. Perceptions of Labor Availability for All Farms and Farms that Hire Labor, By Region in Pennsylvania.

	Region			
	Central	North	Southeast	West
Percent of Farms Reporting		----------%----------		
More Labor Available	8.7	8.9	6.1	6.4
Less Labor Available	59.8	57.1	72.9	59.9
No Change	31.5	33.9	21.0	33.7
Percent of Farms Actually Finding Farm Labor Less Available[a]		----------%----------		
Full-time, year-round	44.4	38.5	44.8	45.0
Seasonal	45.7	47.1	35.9	44.1
Part-time, year-round	42.1	58.3	27.8	48.0
Farms Wanting More Labor		----------%----------		
Full-time, year-round	11.0	2.7	4.1	5.3
Seasonal	19.0	10.8	18.6	22.8
Part-time, year-round	11.0	9.3	18.0	13.2

[a]For farms that actually hired labor in 1991, compared to 5 years ago.

people helped out. One farmer complained that "Most people don't want to help at farming. Before, the older people helped out, but that doesn't happen anymore."

Except for farms in the northern counties, almost half of Pennsylvania farms that hired labor reported that full-time, year-round labor is less available now than 5 years ago. In the North region where rates of unemployment and underemployment are higher, fewer farms (only 38.5%) reported a tightening in full-time farm labor availability. And only a small proportion of farms in this region (only 2.7%) reported wanting to hire more farm labor for full-time, year-round work. Approximately 11% of farms in Central Pennsylvania would like to hire more full-time, year-round labor, higher than in other regions of the state.

Almost half of Pennsylvania farms that hire labor also reported that seasonal labor was less readily available now, although in the Southeast region fewer farms (35.9%) made this observation. Farmers in the Southeast that hired labor in 1990-91 were significantly less likely to report *worsening* labor conditions for seasonal and part-time labor than in other regions. However, the Southeast region had the highest proportion of farms that believed labor was less available now, and many farmers in the Southeast wanted to hire more labor if available (18.6% for seasonal labor and 18.0% for part-time, part-year labor). The differences in responses between the entire sample and those farms that hire labor in the Southeast likely reflect farms unable to hire labor at all due to difficulties in finding hired labor. Given the alternative employment opportunities available in this region, it is not surprising that some farms are very labor constrained. And farms hiring labor in the Southeast that perceive no change in labor availability over the past 5 years may have this perception because even 5 years ago labor availability was already a farm problem.

Finally, Table 16 shows that many farms report difficulty hiring labor. Overall, labor is most difficult to hire in the Southeast region. In the Southeast, seasonal labor and full-time labor are most difficult to find but even part-time labor is difficult -- over 50% of farms reported difficulty hiring any type of labor. What is apparent is that there are differences in farm labor availability across Pennsylvania. Farmers in the Southeast region are in need of additional labor, and have likely faced such a situation for a longer period of time than farmers in other regions. Farmers in the Southeast region also expressed a willingness to hire more seasonal and part-time labor, if the labor becomes affordable.

Table 16. Pennsylvania Farms Reporting Difficulty Hiring Labor, and Perceptions of Skill Levels.

	Region			
	Central	North	Southeast	West
Percent of Farms Finding Difficulty Hiring:[a]		----------%----------		
Full-time, year-round	46.2	31.3	55.6	63.6
Seasonal	48.6	30.0	56.1	39.5
Part-time, year-round	33.3	33.3	50.0	38.5
Percent with Adequate Skills		----------%----------		
Full-time, year-round	92.0	85.7	79.2	55.6
Seasonal	79.4	63.2	76.2	81.6
Part-time, year-round	78.9	92.3	75.7	73.9

[a]Responses exclude those respondents "not looking" for labor.

The situation in the Southeast is in contrast to the northern tier counties. Although farm labor is generally perceived to be less available now than in the recent past even in the North, farmers in the North perceive less difficulty hiring labor than in other regions. Workers in the North are more readily found and employed since alternative employment opportunities are fewer relative to the number of potential workers. However, in this region, seasonal workers in particular are perceived to have inadequate skills; the unemployed are willing to work on farms but often lack the necessary skills for harvesting hay, for example.

In the Central region, more farmers want additional full-time, year-round workers than in other regions, and farmers with full-time help now are generally quite satisfied with workers' skill levels. Further, in this region, one in five farmers would like to hire more seasonal workers, which farmers find most difficult to hire.

And, finally, in the West, farmers are more likely than in other regions to report difficulty finding full-time workers. In addition, farmers in this region believe that their full-time workers are inadequate in terms of skill levels; in some cases farmers reported having to hire full-time workers that had little or no farm experience. In contrast to the Central and Southeast regions, farmers in the West appear to have less difficulty finding seasonal labor, and are willing to hire even more seasonal labor to work on their farms.

Strategies to Find or Keep Farm Labor

Given the difficulties many farms face in finding and retaining a qualified work force, farms must try new strategies to attract and retain labor. Clearly, paying competitive wages is a prime strategy that often works. But many farms find it difficult to pay wages comparable to local industries and find it necessary to use other strategies to attract and retain farm labor.

Although many Pennsylvania farms do not provide perquisites to their farm labor, many that do believe that their provision of benefits is an important strategy. Benefits cited as special strategies to attract and retain workers included provision of health insurance, a bonus plan (to serve as a work incentive), housing and utilities, gas, meals, vacation, paid rainy days, use of the family's swimming pool, an annual trip to a recreation park, and provision of a calf (for a part-time worker). Some farmers reported providing limited benefits, but several farmers (particularly farmers needing seasonal labor) provided essentially a well-conceived package of benefits that simulated the benefits given in the nonfarm sector. Farmers requiring seasonal labor sometimes attempt to

provide perquisites to ensure work loyalty -- with the goal of keeping the same seasonal work crews from year to year.

Another important strategy that farmers can use is to limit the hours that a worker works per day. Many survey respondents complained that the shorter work day in the nonfarm sector was more attractive than the long hours needed on the farm. Some farmers have adapted to this by reducing the number of work hours to be "the same hours as private industry." Or, as one farmer that hired seasonal workers responded, a useful strategy is to have "pickers only work in the morning up to noon." The same respondent also provided workers with good training in addition to perquisites.

A significant number of respondents to the survey also believed that maintaining a good employee-employer relationship was key. Some farmers involved their workers in all phases of the farm operation -- treating them "like family." And in addition to treating workers well on-farm, some farmers reported helping workers to coordinate their farm work. For example, one farmer that hired seasonal labor helped laborers procure visas - a strategy common in California.

Summary and Conclusions

Predictions of a labor shortage in the U.S., coupled with potential impacts from the Immigration Reform and Control Act (IRCA), have raised concerns among farmers that farmworkers will become more difficult to hire. Pennsylvania farmers were found to share the perception that labor had, in fact, become less available in their areas over the past 5 years. Those farms in the state least likely to share this perception tended to be located in the more rural areas with higher unemployment rates (e.g., the northern tier counties). In areas where there has been economic growth and development, many farmers found farm labor difficult to hire.

At the national level there has been an upward trend in the proportion of farmworkers employed on essentially a full-time basis. The Northeast has typically depended more heavily on full-time labor than the U.S. overall. Further, large farms in the Northeast and in Pennsylvania that produce a large proportion of the agricultural output, are most reliant on full-time labor. However, full-time labor is becoming more difficult to hire in the region because other nonfarm industries are competing against agriculture for the best workers willing to work at a relatively low wage. The proximity of the farm and nonfarm sectors within local labor markets in

Pennsylvania increases the competition between sectors. Farmers in Pennsylvania that reported less difficulty finding full-time labor often attracted workers that had been laid off from (nonfarm) industry. But many of these farmers complained that their new workforce was not adequately trained -- the workers had no experience in farming.

Farmers in the state also voiced the concern that seasonal and part-time, year-round labor was becoming increasingly difficult to hire. This concern is not surprising given the decline in part-time farmworkers in the U.S. Many respondents to the 1991 Hired Farm Labor Survey conducted in Pennsylvania observed that fewer children in their community (i.e., potential part-time farmworkers) were farm-oriented. Demographic trends toward smaller families, the aging of the farm population, and the greater integration of farm and nonfarm families in rural areas in Pennsylvania have contributed to fewer children that have farm skills, are willing to work on farms, and intend to become farm operators themselves. The pool of local farm children that was often tapped for seasonal or part-time, year-round work is becoming smaller, leaving local farm families with fewer alternatives.

Further, the survey results show that seasonal migrant farmworkers can be particularly difficult to hire. Migrant farmworkers move with the crops to be harvested, and are attracted to those areas (e.g., California, Texas) where there is a steady demand for work. The smaller number of farms in Pennsylvania that need migrant labor coupled with the shorter growing season in the Northeast create a special challenge. In addition, Special Agricultural Workers (SAW) under IRCA may be more difficult to retain in agriculture in this region, especially when opportunities for employment in the nonfarm sector exist. The recent rapid growth of service industry employment may be providing the types of alternative employment opportunities that recently legalized Special Agricultural Workers seek. Thus, while there may not be a shortage of seasonal labor at the national level, there may be regional shortages that create significant concern. Given current trends, this is likely to be the case in Pennsylvania.

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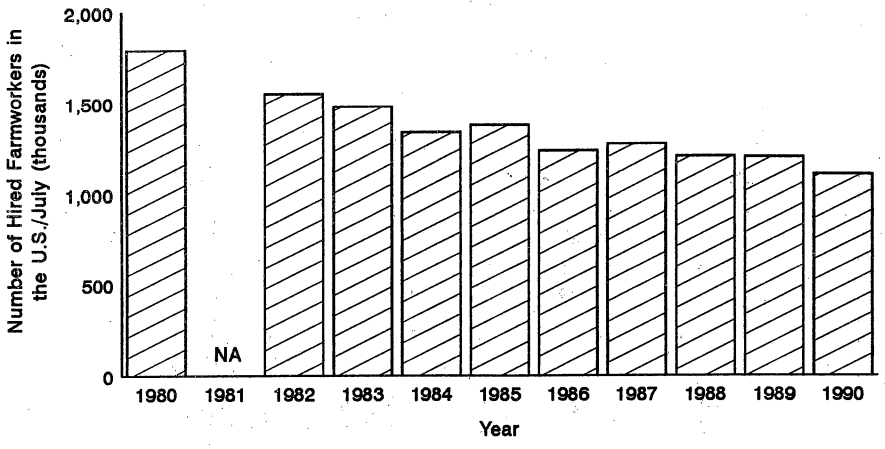
Appendixes

Appendix A. Number of Hired Farmworkers Reported by NASS, 1980-90.

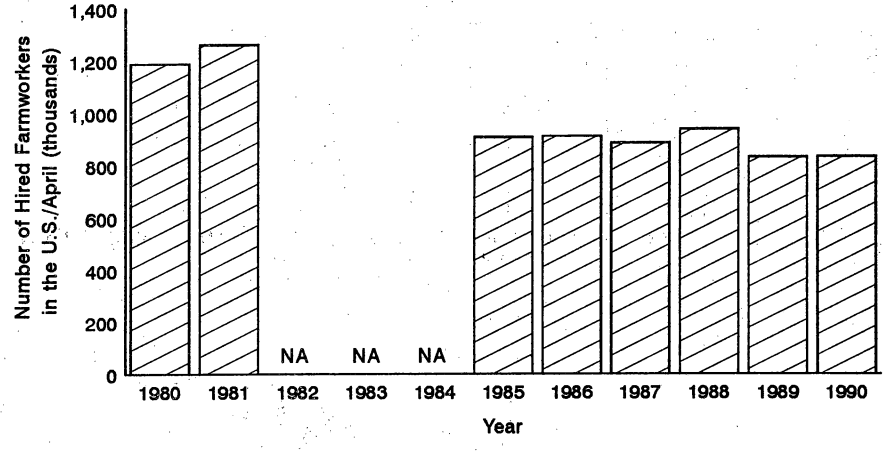
Figure A1. Numbers of Hired Farmworkers Employed in U.S., July Reporting Period, 1980-90.



Source: Statistical Bulletin 822 and Farm Labor (1991; quarterly reports), NASS, USDA.

Note: Comparable data for the year 1981 are not available (NA).

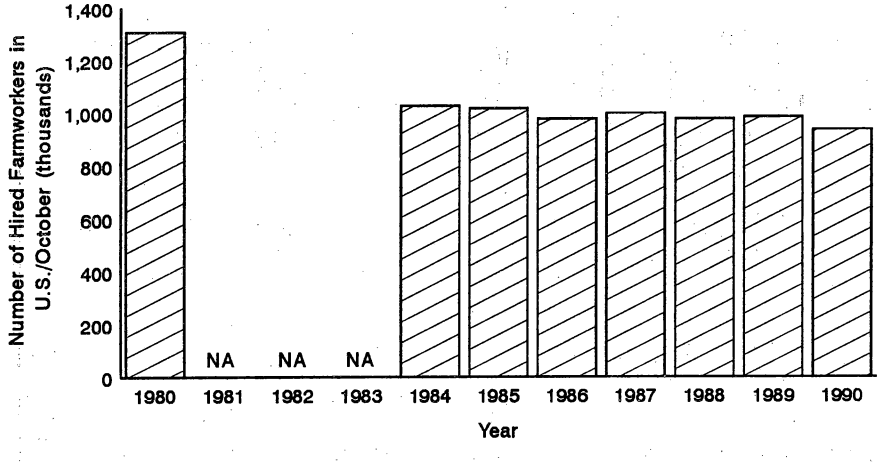
Figure A2. Numbers of Hired Farmworkers Employed in U.S., April Reporting Period, 1980-90.



Sources: Statistical Bulletin 822 and Farm Labor (1991; quarterly reports), NASS, USDA.

Note: Comparable data for the years 1982-1984 are not available (NA).

Figure A3. Numbers of Hired Farmworkers Employed in U.S., October Reporting Period, 1980-90.

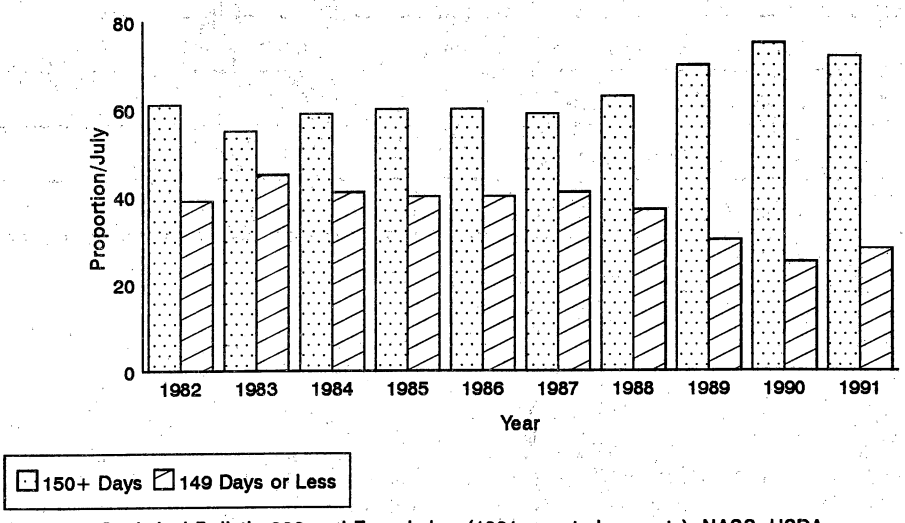


Sources: Statistical Bulletin 822 and Farm Labor (1991; quarterly reports), NASS, USDA.

Note: Comparable data for the years 1981-1983 are not available (NA),

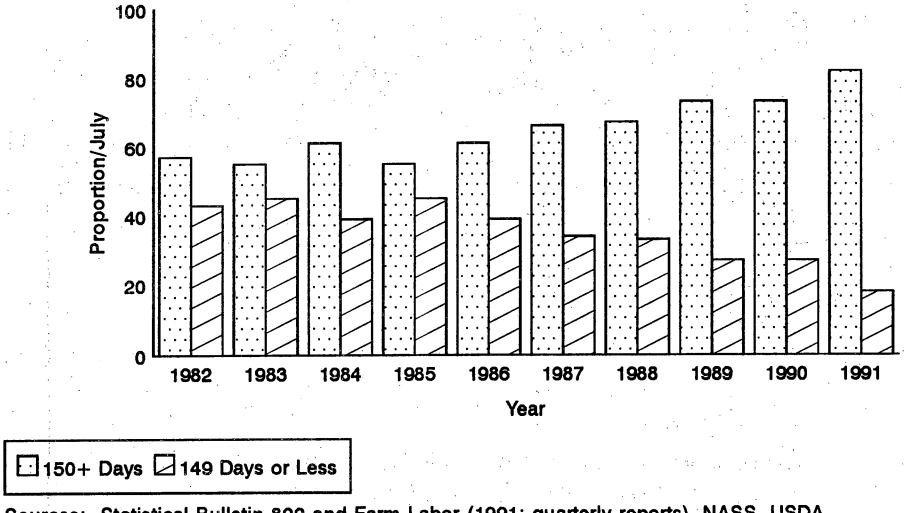
Appendix B. Changes in Composition of Hired Workforce, Northeast I and II Regions.

Figure B1. Proportions of Hired Farmworkers in Northeast I (NASS) Region by Days Worked, 1982-91.



Sources: Statistical Bulletin 822 and Farm Labor (1991; quarterly reports), NASS, USDA.

Figure B2. Proportions of Hired Farmworkers in Northeast II (NASS) Region by Days Worked, 1982-91.



Sources: Statistical Bulletin 822 and Farm Labor (1991; quarterly reports), NASS, USDA.

Appendix C. Definition of Regions Used by NASS, USDA.

Region	States
Northeast I	New York, Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Northeast II	Pennsylvania, Delaware, Maryland, New Jersey
Cornbelt I	Ohio, Indiana, Illinois
Appalachian I	Virginia, North Carolina
Appalachian II	West Virginia, Kentucky, Tennessee

Source: *Farm Labor*, NASS/USDA, August 1991.

Appendix D. Numbers of Hired Farmworkers on Pennsylvania Farms.

	Reporting Period (thousands of workers)			
Year	January	April	July	October
1974	22.0	34.0	42.0	34.0
1975	23.0	23.0	46.0	37.0
1976	32.0	40.0	45.0	30.0
1977	31.0	28.0	39.0	37.0
1978	22.0	36.0	33.0	30.0
1979	16.0	28.0	36.0	29.0
1980	23.0	37.0	43.0	35.0
1981	18.0	34.0	NA	NA
1982	NA	NA	36.0	NA
1983	NA	NA	40.0	NA
1984	NA	NA	34.0	21
1985	NA	NA	NA	NA
1986	NA	NA	NA	NA
1987	NA	NA	NA	NA
1988	NA	NA	NA	NA
1989	NA	NA	NA	NA
1990	NA	NA	NA	NA
1991	NA	23	35	38

Sources:

(a) Data for 1974-84: *Farm Employment and Wage Rates 1910-90*, NASS/USDA, 1991.

(b) Data for 1991: *Farm Labor* (series), NASS/USDA, 1991.

NA indicates data not available for these sources.

Appendix E

1991 Pennsylvania Hired Farm Labor Questionnaire

HIRED FARM LABOR QUESTIONNAIRE

_____ Interviewer

_____ ID

_____ Male or female respondent?

Hello, I'm _____ calling from Penn State University. We're doing a study of employment on farms in Pennsylvania, and this is a follow-up to a farm survey conducted five years ago by Penn State. We'd like a few minutes of your time to ask some questions about your farm business and about the employment of family members and hired farm labor on your farm. All information you give will be held in strict confidence and will be anonymous. Is this a good time for us to visit with you?

YES 1
NO 2

If not, when is a good time to call you back? _____

1. (a) To begin, are you the principal farm operator/manager or the operator/manager's spouse?

Farm operator/manager 1

Spouse of farm operator/manager 2

Other (when is a convenient time to call back to speak to the farm operator or spouse):

_____ 3

No longer farming 4

(b) When did you quit farming? _____

Thank you for your help. (Terminate Interview)

Now, we'd like to ask you some questions about the farm or farms you operate.

2. How many tillable acres do you operate? . . . . . _____ acres

3. How many total acres do you operate? . . . . . _____ acres

4. How many acres of pasture do you have? . . . . . _____ acres

5. How many forested acres are on your farm? . . . . . _____ acres

6. How many rented acres do you farm? ..... _____ acres

7. How many acres of your farm do you rent out to others? ..... _____ acres

8. Did you farm this farm 5 years ago?

..... YES . . . 1
..... NO . . . 2

9. Did your family or your spouse's family operate this farm previously?

..... YES . . . 1
..... NO . . . 2

10. Do you plan to continue to farm this farm for the next five years?

..... YES . . . 1
..... NO . . . 2

11. Which of the following agricultural activities occurred on this farm in the past year?

(a) Any dairy or livestock? If yes,
(1) Dairy? 1
(2) Poultry? 1
(3) Hogs? 1
(4) Beef? 1

(b) Grain crops? 1

(c) Forage? 1

(d) Any horticulture?
(1) Vegetable crops? 1
(2) Mushrooms? 1
(3) Nursery crops? 1
(4) Tree fruits? 1
(5) Grapes? 1
(6) Small fruit? 1

(e) Forest products 1

(f) Other
Specify (_____) 1

12. What is main enterprise on your farm?

Specify_____

Now we'd like to ask you some questions about the work you do on your farm.

13. How many years have you farmed since you were 18? ..... _____ years

14. On average, how many hours per week do you work <u>on your farm</u>?

(a) . . . . . Winter ___ hours
(b) . . . . . Spring ___ hours
(c) . . . . . Summer ___ hours
(d) . . . . . Fall ___ hours

15. (a) In the past year, have you worked at a non-farm job?

. . . . . YES . . . 1
. . . . . NO . . . 2

<u>IF YES</u>:

(b) How many hours per week did you typically work off-farm last year?

(1) . . . . . Winter ___ hours
(2) . . . . . Spring ___ hours
(3) . . . . . Summer ___ hours
(4) . . . . . Fall ___ hours

(c) Are there times during the year when you cannot work off-farm at all because you need to work on your farm?

(1) . . . . . YES 1
. . . . . NO 2

If NO, skip to 15d.

(2) . . . . . Winter 1
(3) . . . . . Spring 1
(4) . . . . . Summer 1
(5) . . . . . Fall 1

(d) Are there times during the year when you cannot work as many hours off-farm as you would like because you need to work on your farm?

(1) . . . . . Winter 1
(2) . . . . . Spring 1
(3) . . . . . Summer 1
(4) . . . . . Fall 1

(e) How many years have you worked off-farm since you were 18? . . . . . _____ years

(f) What is your off-farm occupation? _____

(g) What is your off-farm wage? . . . . . $ _____/hour

Now we'd like to ask you some questions about the work your spouse does on your farm.

(15.1: <u>Interviewer:</u> If <u>no</u> spouse, check here _____; go to 19(a).)

16. How many years has your spouse farmed since he/she was 18?

. . . . . ___ years

17. On average, how many hours per week does your spouse work on-farm?

(a)	Winter	___ hours
(b)	Spring	___ hours
(c)	Summer	___ hours
(d)	Fall	___ hours

18. (a) In the past year, did your spouse ever work at a non-farm job?

YES	1
NO	2

IF YES:

(b) How many hours per week did your spouse typically work off-farm last year?

(1)	Winter	___ hours
(2)	Spring	___ hours
(3)	Summer	___ hours
(4)	Fall	___ hours

(c) Are there times during the year when your spouse cannot work off-farm at all because your spouse needs to work on the farm?

(1)	YES	1
	NO	2

If NO, skip to 18(d).

(2)	Winter	1
(3)	Spring	1
(4)	Summer	1
(5)	Fall	1

(d) Are there times during the year when your spouse cannot work as many hours off-farm as he/she would like because of farm work?

(1)	Winter	1
(2)	Spring	1
(3)	Summer	1
(4)	Fall	1

(e) How many years has your spouse worked off-farm since he/she was 18? ____ years

(f) What is your spouse's off-farm occupation? _____

(g) What is your spouse's off-farm wage? $ ____/hour

We'd also like to know some more about the labor you need to run your farm.

19. (a) Do you have children 18 or under that help out with your farmwork?

. . . . . YES 1
. . . . . NO 2

If YES:

(b) How many of your children 18 or under help with work on your farm?

Number of children . . . . . _____

(c) When do your children 18 or under do farmwork?

(1) Before school 1
(2) After school 1
(3) Summer time 1
(4) Weekends 1

(d) How many hours per week (approximately) do your children work on your farm during the school year?

. . . . . ___ total hours

(e) How many hours per week do your children work on your farm in the summer?

. . . . . ___ total hours

20. (a) Do other relatives or your grown children work on your farm?

. . . . . YES 1
. . . . . NO 2

If YES:

(b) How many other relatives or grown children work on your farm?

. . . . . _____

(c) How many hours per week in total do other relatives or grown children work on your farm?

(1) . . . . . Winter ___ hours
(2) . . . . . Spring ___ hours
(3) . . . . . Summer ___ hours
(4) . . . . . Fall ___ hours

21. Did you hire other farmworkers last year?

. . . . . YES 1
. . . . . NO 2
If NO, go to 27.

22. How many workers do you employ <u>in total</u>? . . . . . ___

23. (a) Are you currently employing any <u>full-time</u> year-round farmworkers?

. . . . . YES 1
. . . . . NO 2

<u>IF YES</u>:

(b) How many? _____

(c) What is the average wage you pay (elicit one answer)?

(1) . . . . . $_____/hour
(2) . . . . . $_____/week
(3) . . . . . $_____/month

(d) What perquisites or benefits, if any, do you provide to your full-time workers (e.g., free or low cost housing, meals, transportation, insurance)?

Specify (including "None") _____

_____

_____

(e) How many hours <u>per week</u> does your full-time help work? . . . . . ___ hours

24. (a) In the past year did you employ any seasonal (part-year) farmworkers?

. . . . . YES 1
. . . . . NO 2

<u>IF YES</u>:

(b) How many? _____

(c) What is the average wage you pay?

(1) . . . . . $_____/hour
(2) . . . . . $_____/week
(3) . . . . . $_____/month

(d) Do you provide your seasonal (part-year) workers with any perquisites or benefits (e.g., free or low cost housing, meals, transportation, insurance)?

Specify (including "None") _____

_____

(e) How many hours on average does your seasonal help work per week? ..... ___ hours

(f) During what months of the year do you employ ..... seasonal workers?

(1)	January	1
(2)	February	1
(3)	March	1
(4)	April	1
(5)	May	1
(6)	June	1
(7)	July	1
(8)	August	1
(9)	September	1
(10)	October	1
(11)	November	1
(12)	December	1

(g) If you hired seasonal farmworkers last year, were they hired for a specific job?

If yes, what did they do (e.g., harvest apples, plant strawberries, prune Christmas trees, bale hay)?

_____

_____

25. (a) Are you currently employing any part-time year-round farmworkers?

.....	YES	1
.....	NO	2

IF YES:

(b) How many? ..... _____

(c) What is the average wage you pay?

(1)	$_____/hour
(2)	$_____/week
(3)	$_____/month

(d) Do you provide these workers with any perquisites or benefits (e.g., free or low cost housing, meals, transportation, insurance)?

.....	YES	1
.....	NO	2

Specify (including "None") _____

_____

_____

(e) How many hours on average per week does your part-time help work?

(1)	Winter	___ hours
(2)	Spring	___ hours
(3)	Summer	___ hours
(4)	Fall	___ hours

26. (a) Do you employ any other farmworkers we haven't discussed?

YES	1
NO	2

(b) If YES, please specify _____

_____

_____

Now we'd like to ask you some questions regarding availability of farm labor in your area.

27. (a) Do you ever hire farmworkers?

YES	1
NO	2

If NO, skip to 31.

(b) Do you find it is difficult to hire farmworkers when you need them?

(1) Full-time, year-round farmworkers?	YES	1
	NO	2
	Not looking/NA	3

(2) IF YES, why? _____

_____

_____

_____

(3) Seasonal farmworkers?	YES	1
	NO	2
	Not looking/NA	3

(4) IF YES, why? _____

_____

_____

(5) Part-time, year-round farmworkers? . . . . . YES . . 1
. . . . . NO . . . 2
. . . . . Not looking/NA 3

(6) IF YES, why? _____

_____

_____

_____

28. (a) Compared to 5 years ago, is it easier or harder for you to hire full-time, year-round farmworkers?

. . . . . Easier 1
. . . . . Harder 2
. . . . . No change 3
. . . . . Not looking/NA 4
. . . . . Don't know 5

(b) If easier or harder, why? _____

_____

_____

(c) Seasonal farmworkers?

. . . . . Easier 1
. . . . . Harder 2
. . . . . No change 3
. . . . . Not looking/NA 4
. . . . . Don't know 5

(d) If easier or harder, why? _____

_____

_____

(e) Part-time, year-round farmworkers?

. . . . . Easier 1
. . . . . Harder 2
. . . . . No change 3
. . . . . Not looking/NA 4
. . . . . Don't know 5

(f) If easier or harder, why? _____

_____

_____

29. (a) Do you use any special strategies to either find or keep the farmworkers you need?

. . . . . YES 1
. . . . . NO 2
. . . . . NA 3

(b) If yes, please specify: _____

_____

_____

_____

30. Do the farmworkers you hire have the skills needed for the work they are hired to perform?

(a) Full-time, year-round farmworkers? . . . . . YES 1
. . . . . NO 2
. . . . . NA 3

(b) If not, in what ways are they deficient?

_____

_____

_____

_____

(c) Seasonal farmworkers? . . . . . YES 1
. . . . . NO 2
. . . . . NA 3

(d) If not, why not? _____

_____

_____

_____

_____

(e) Part-time, year-round farmworkers? . . . . . YES 1
. . . . . NO 2
. . . . . NA 3

(f) If not, why not? _____

_____

_____

_____

31. (a) Compared to 5 years ago, do you think there is more or less farm labor available in your area?

. . . . . More available 1
. . . . . Less available 2
. . . . . No change 3
. . . . . Don't know/NA 4

(b) If either more or less available, why? _____

_____

_____

32. Would you hire farmworkers or more farmworkers if you could find them?

(a) Full-time, year-round farmworkers? . . . . . YES 1
. . . . . NO 2

(b) Seasonal farmworkers? . . . . . YES 1
. . . . . NO 2

(c) Part-time, year-round farmworkers? . . . . . YES 1
. . . . . NO 2

33. (a) Do any members of your family work or help out on other farms?
. . . . . YES 1
. . . . . NO 2

If YES:

Person (Circle if YES)	Months Working on Other Farms (Circle months) J F M A M J J A S O N D	Average Hours per Week for Individual or Group
(b) Self?	1 1 1 1 1 1 1 1 1 1 1 1	
(c) Spouse?	1 1 1 1 1 1 1 1 1 1 1 1	
(d) Children 18 or under?	1 1 1 1 1 1 1 1 1 1 1 1	
(e) Children over 18?	1 1 1 1 1 1 1 1 1 1 1 1	

Finally, we would like to ask you some basic demographic questions.

34. In what year were you born? ..... ___

35. In what year was your spouse born? ..... ___

36 (a). How many children are still living at home? ..... ___ children

(b) If children at home, what are their ages? _____

37. What was the approximate value of your farm sales in 1990? ..... $ _____

38. What percentage of your household income is from off-farm work? ..... _____ %

39. What percentage of your household income is from rent, dividends, pensions, etc?. ..... ____ ____ %

Thank you for your time - it was very much appreciated. Would you like a copy of our summary report on farm labor availability to the Pennsylvania Department of Agriculture when it is completed?

..... YES 1
..... NO 2

If yes, current address?

_____

_____

_____

Thank you again.

Interviewer: Separate this page (with address) from other pages. Individuals are being identified only for mailing (if they wish). Individual names and addresses should not appear on questionnaire pp. 1-12.

Individual subjects should contact if they have concerns regarding treatment of data:

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