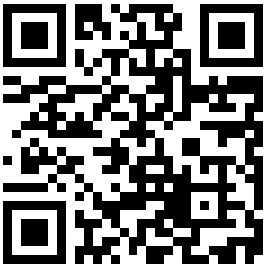

# SEASONAL WORK PATTERNS of the HIRED FARM WORKING FORCE OF 1964

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Contents




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## SUMMARY

Because of the highly seasonal nature of agriculture, the total number of persons doing hired farmwork during a year differs considerably from the number employed in any one month. A small segment of the total number of people who do farm wage work in a year (about one-fourth) work on farms rather regularly. But, during seasons of peak demand, when crops must be cultivated or harvested within brief time periods, large numbers of additional short-term workers are needed. With the harvest season ended, the need for labor subsides and the farm labor force contracts. Farmworkers employed on a seasonal basis seek jobs outside of agriculture or leave the labor force altogether.

About 3.4 million persons worked on farms for cash wages or salaries in 1964, but no more than 2 million of these persons were employed in any one month. The number of hired farmworkers ranged from a low of about 800,000 workers in the early part of the year to a peak of 1.9 million during the summer months. The highest number employed in a month was 1½ times the average monthly employment for the entire year.

Seasonal employment patterns of particular groups of hired farmworkers varied sharply from the pattern for all hired workers. Fluctuations in the year's employment were generally related in part to the characteristics of the workers, and in part to the regional demand for hired labor.

Farm wage workers who were out of the labor force most of the year, such as students and housewives, and persons who were employed at nonfarm occupations most of the year, had a sharp rise and fall in their farm employment, because almost all their work was compressed in the short summer and early fall season when demand for labor was high. With the reopening of school or the ending of the harvest season, most of these persons left the labor force or turned to other activities. The number of students and homemakers employed in a peak month was more than double their average monthly employment for the year.

On the other hand, there are other farm wage workers with a stronger attachment to agriculture. These include persons who work on farms most of the year, either as farm operators or as hired workers, or who live on farms. Employment of these persons showed a less than average seasonal fluctuation. Their work was spread more evenly throughout the year and did not in a peak month reach as high as 1½ times the year's average monthly employment.

Another factor shaping seasonal patterns was the availability of farmwork beyond the 3 summer months. This occurred in the South, where the fall work on cotton and tobacco provided employment, mainly to nonwhites, beyond the summer season and well into the fall. The seasonal pattern of nonwhite male farm wage workers was among the least fluctuating of all hired farmworker groups. And for nonwhite women, seasonality of employment, because of the additional months during which farm wage work was available in the spring and in the late fall, was not as sharp as it was for white women.

In the Northern and Western Regions, employment of hired farmworkers, principally for the fruit and vegetable harvest, was heavily concentrated in 3 summer months. This was reflected in the relatively high employment peaks for farm wage workers living in those regions.

# SEASONAL WORK PATTERNS OF THE HIRED FARM WORKING FORCE OF 1964

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## INTRODUCTION

### Seasonality in Agriculture

Of all major American industries, agriculture, because of the highly seasonal nature of its product, provides the least stable employment for its hired workers during the year. Employment fluctuates sharply from the winter lull to the peak demands for labor that occur in the summer and fall when most crops are ready for harvest. Total agricultural wage and salary employment during the peak month in 1964 was 33 percent higher than the average monthly employment for the year. 1/ In contrast, the year's high for wage and salary workers in nonagricultural industries was only 2 percent above the annual average. Even in the construction industry, where weather cuts heavily into winter employment, the seasonal high in 1964 was only about 10 percent above the year's average. 2/

This report discusses the seasonal work patterns of persons who were hired to work on farms for cash wages in 1964. Farm operators, family workers doing unpaid work on farms, workers engaged as typists or domestic servants on farms, and persons employed in off-farm agricultural jobs, such as in food processing and in food distribution, which are not directly related to farm production, are excluded.

The estimates in this report are based on the annual survey of the hired farm work force which was conducted for the Economic Research Service by the Bureau of the Census as a supplement to the regular monthly survey of the population in December 1964. Basic data from that survey--on employment, days worked, and earnings from farm wage work for the year as a whole, and related information on nonfarm wage work--were published in the Department's Agricultural Economic Report 82, entitled "The Hired Farm Working Force of 1964: A Statistical Report."

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1/ Data on total agricultural and nonagricultural wage and salary employment were obtained through the monthly Current Population Survey of the Bureau of the Census and published in Labor Force and Employment in 1964. U.S. Dept. Labor, Spec. Labor Force Rpt. 52, table C-4, April 1965.

2/ Employment and Earnings Statistics for the United States 1909-65. U.S. Dept. Labor, Bul. 1312-3, Dec. 1965.

## Causes of the Seasonal Swings in Paid Farm Employment

Seasonal changes in the number of hired farmworkers are determined to a large extent, by the timing of the growing and harvesting seasons, by the amounts of labor required for various commodities, and by the degree to which farming operations have been mechanized.

Certain agricultural products, such as grain crops, are planted, cultivated, and harvested by machine. Only a small proportion of the Nation's farm wage force is employed on these crops, as most of the labor is performed by members of the farm family. Cattle, poultry, hog, sheep, and dairy farming also use comparatively little seasonal labor above the year-round needs for the care of livestock.

On the other hand, many fruit, vegetable, cotton, and tobacco operations are not as highly mechanized as grains and require large numbers of seasonal hired workers. The harvest season, in particular, when many of these crops must be handpicked during a short period, produces an especially acute need for seasonal labor. For some crops, certain preharvest activities, such as thinning and weeding, also require large numbers of workers.

## SEASONAL PATTERNS OF EMPLOYMENT, DAYS WORKED, AND WAGES

### Seasonal Pattern for the Year

Total employment of wage and salary farmworkers in 1964 swelled from a low of 800,000 persons employed in an average month at the beginning of the year to an average of 1.9 million during the height of the summer season in June, July, and August. 3/ The low period for the year was in the first 4 months of 1964, but employment rose rapidly thereafter. 4/ In April and May, with the increase in farm activity, almost half a million persons were added to farm payrolls. The largest monthly employment increase of the year took place between May and June, when half a million students entered the hired farm labor force. Employment remained relatively stable in June, July, and August. With the end of the summer harvest and the reopening of school, the number of farmworkers began dropping gradually. Because many crops are harvested in the fall, sizable amounts of labor were required in October; employment

3/ Data relate to the increase in employment between the monthly average for the first 4 months and the monthly average for June, July, and August of 1964.

4/ Data for the early months of 1964 should be interpreted with caution because of apparent underreporting of employment for those months. The Census Bureau's monthly series on wage and salary employment of farm laborers and of wage and salary workers in agriculture show that approximately equal numbers of persons were employed in January and in December of 1964. These series indicate that the hired farm working force survey may have undercounted about one-fourth of a million persons for January. Certain groups of workers, in particular, failed to recall the beginning of the year's employment. These included nonwhites and persons who did less than 25 days of farm wage work during the year.

for that month totaled about 1½ million. By the year's end, employment had dropped to about 1 million (table 1)

## Groups Providing the Bulk of the Seasonal Increase

Many groups participated in the increase of about 1 million persons working on farms between the winter and summer months, but the extent of their participation differed.

Of the seasonal increase in farm wage workers, the largest number (about 800,000) came from persons who were out of the labor force most of the year. Students comprised the bulk of this group, followed by housewives. The remainder (about 300,000) was made up of persons who were employed most of the year. Half of this group did farm wage work as their principal type of job; the other half had nonfarm jobs or worked on their own farms either as farm operators or as unpaid members of the farm family (table 2).

## Relative Changes in Employment

Perhaps the most important pattern shown by the data is the relative change in farm wage employment at different seasons of the year. While the section above describes seasonal changes in actual employment, it does not indicate the relative fluctuation in this employment. Differences in absolute compared with relative seasonal patterns are particularly striking among the various categories of workers. For example, the number of farm wage workers in the central age group, 18 to 54, increased by half a million between winter and summer. Their summer average monthly employment was double their number at the beginning of the year. In contrast, young teenagers also increased by half a million from winter to summer, but the summer work force of youth was 9 times the number employed in the winter.

## Proportion of Workers Employed at Different Seasons of the Year

A total of 3.4 million persons did farmwork for cash wages at some time during the year, but not all of these persons worked in any one month. At the height of the season, only 60 percent actually worked on farms, and by December this proportion had dropped to 30 percent (table 3).

Among the various groups of farmworkers, from 50 to 65 percent of those who did any farm wage work were employed on farms in the summer. A few groups showed marked differences from this pattern. For example, among persons who did farm wage work most of the year, 9 out of 10 worked in the summer and as many as 7 out of 10 worked in the winter. On the other hand, the peak season found no more than 40 percent of some groups at work. In this category were white women and persons who were employed in occupations other than farm wage work most of the year. Although these groups represented a substantial

Table 1.--Number of persons employed monthly at farm wage work, by selected characteristics of farm wage workers, 1964

| Selected characteristics | Jan. | Feb. | Mar. | Apr. | May. | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thou. | Thou. | Thou. | Thou. | Thou. | Thou. | Thou. | Thou. | Thou. | Thou. | Thou. | Thou. |
| All workers | 716 | 748 | 840 | 1,003 | 1,275 | 1,850 | 1,996 | 1,927 | 1,656 | 1,447 | 1,197 | 998 |
| Color and sex: | | | | | | | | | | | | |
| White males | 491 | 500 | 530 | 611 | 734 | 1,053 | 1,127 | 1,117 | 841 | 720 | 629 | 571 |
| Nonwhite males | 180 | 192 | 223 | 246 | 280 | 369 | 382 | 355 | 340 | 316 | 301 | 293 |
| White females | 23 | 25 | 35 | 55 | 94 | 189 | 204 | 212 | 217 | 170 | 98 | 50 |
| Nonwhite females | 22 | 31 | 51 | 90 | 167 | 240 | 283 | 243 | 258 | 241 | 169 | 84 |
| Age: | | | | | | | | | | | | |
| 14-17 years | 40 | 49 | 63 | 90 | 151 | 495 | 594 | 570 | 280 | 179 | 107 | 80 |
| 18-54 | 539 | 555 | 630 | 720 | 881 | 1,104 | 1,136 | 1,100 | 1,073 | 981 | 846 | 726 |
| 55 and over | 136 | 143 | 147 | 193 | 244 | 251 | 266 | 258 | 303 | 287 | 244 | 192 |
| Residence: | | | | | | | | | | | | |
| Farm | 321 | 323 | 350 | 419 | 526 | 698 | 719 | 717 | 704 | 614 | 534 | 456 |
| Nonfarm | 394 | 425 | 490 | 584 | 749 | 1,152 | 1,277 | 1,210 | 952 | 833 | 664 | 542 |
| Migratory status: | | | | | | | | | | | | |
| Migratory | 92 | 102 | 112 | 139 | 166 | 226 | 239 | 246 | 207 | 192 | 143 | 117 |
| Nonmigratory | 623 | 646 | 728 | 864 | 1,110 | 1,624 | 1,757 | 1,681 | 1,449 | 1,255 | 1,055 | 881 |
| Region: | | | | | | | | | | | | |
| North | 193 | 193 | 211 | 284 | 347 | 518 | 584 | 519 | 439 | 389 | 274 | 211 |
| South | 383 | 405 | 477 | 559 | 729 | 964 | 1,006 | 988 | 952 | 871 | 755 | 632 |
| West | 140 | 149 | 151 | 160 | 199 | 369 | 406 | 420 | 265 | 187 | 168 | 154 |
| Chief activity in year: | | | | | | | | | | | | |
| Farm wage work | 549 | 577 | 636 | 712 | 765 | 777 | 764 | 767 | 766 | 758 | 685 | 627 |
| Other farmwork | 43 | 38 | 40 | 48 | 60 | 68 | 90 | 76 | 84 | 73 | 71 | 80 |
| Nonfarmwork | 39 | 39 | 39 | 63 | 88 | 125 | 137 | 146 | 112 | 98 | 75 | 69 |
| Keeping house | 12 | 15 | 29 | 58 | 152 | 209 | 206 | 194 | 297 | 252 | 169 | 75 |
| Attending school | 54 | 58 | 74 | 86 | 146 | 599 | 707 | 653 | 304 | 181 | 126 | 93 |
| Other | 19 | 21 | 21 | 34 | 64 | 73 | 91 | 90 | 93 | 85 | 73 | 54 |

Table 2.--Seasonal increase in average monthly employment of farm wage workers, between high and low seasons, by selected characteristics of farm wage workers, 1964

| Selected characteristics | Average monthly employment 1/ | | Seasonal increase | Ratio: June-Aug. to Jan.-Apr. |
|---|---|---|---|---|
| | Jan.-Apr. | June-Aug. | | |
| | Thou. | Thou. | Thou. | Ratio |
| All workers | 827 | 1,924 | 1,097 | 2.3 |
| Color and sex: | | | | |
| White males | 533 | 1,099 | 566 | 2.1 |
| Nonwhite males | 210 | 369 | 159 | 1.8 |
| White females | 34 | 202 | 168 | 5.9 |
| Nonwhite females | 48 | 255 | 207 | 5.3 |
| Age: | | | | |
| 14-17 years | 60 | 553 | 493 | 9.2 |
| 18-54 | 611 | 1,113 | 502 | 1.8 |
| 55 and over | 155 | 258 | 103 | 1.7 |
| Residence: | | | | |
| Farm | 353 | 711 | 358 | 2.0 |
| Nonfarm | 473 | 1,213 | 740 | 2.6 |
| Migratory status: | | | | |
| Migratory | 111 | 237 | 126 | 2.1 |
| Nonmigratory | 715 | 1,687 | 972 | 2.4 |
| Region: | | | | |
| North | 220 | 540 | 320 | 2.5 |
| South | 456 | 986 | 530 | 2.2 |
| West | 150 | 398 | 248 | 2.7 |
| Chief activity in year: | | | | |
| Farm wage work | 618 | 769 | 151 | 1.2 |
| Other farmwork | 42 | 78 | 36 | 1.9 |
| Nonfarmwork | 45 | 136 | 91 | 3.0 |
| Keeping house | 28 | 203 | 175 | 7.2 |
| Attending school | 68 | 653 | 585 | 9.6 |
| Other | 24 | 85 | 61 | 3.5 |

1/ Monthly data for January to April and June to August were averaged separately to obtain one figure for each season represented by thsse months.

Table 3.--Farm wage workers employed each month as a percentage of all persons who did farm wage work, by selected characteristics of farm wage workers, 1964

| Selected characteristics | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. |
| All workers | 20 | 20 | 25 | 30 | 40 | 55 | 60 | 55 | 50 | 45 | 35 | 30 |
| Color and sex: | | | | | | | | | | | | |
| White males | 25 | 30 | 30 | 35 | 40 | 60 | 65 | 60 | 45 | 40 | 35 | 30 |
| Nonwhite males | 30 | 30 | 35 | 40 | 45 | 60 | 65 | 60 | 55 | 50 | 50 | 50 |
| White females | 5 | 5 | 5 | 10 | 20 | 35 | 40 | 40 | 40 | 30 | 20 | 10 |
| Nonwhite females | 5 | 5 | 10 | 20 | 40 | 55 | 65 | 55 | 60 | 55 | 40 | 20 |
| Age: | | | | | | | | | | | | |
| 14-17 years | 5 | 5 | 5 | 10 | 15 | 50 | 65 | 60 | 30 | 20 | 10 | 10 |
| 18-54 | 30 | 30 | 30 | 35 | 45 | 55 | 60 | 55 | 55 | 50 | 45 | 35 |
| 55 and over | 30 | 30 | 30 | 40 | 55 | 55 | 60 | 55 | 65 | 60 | 55 | 40 |
| Residence: | | | | | | | | | | | | |
| Farm residents | 30 | 30 | 30 | 35 | 45 | 60 | 65 | 65 | 60 | 55 | 45 | 40 |
| Nonfarm residents | 20 | 20 | 20 | 25 | 35 | 50 | 55 | 55 | 40 | 35 | 30 | 25 |
| Migratory status: | | | | | | | | | | | | |
| Migratory | 25 | 25 | 30 | 35 | 40 | 55 | 60 | 60 | 50 | 45 | 35 | 30 |
| Nonmigratory | 20 | 20 | 25 | 30 | 35 | 55 | 60 | 55 | 50 | 40 | 35 | 30 |
| Region: | | | | | | | | | | | | |
| North | 20 | 20 | 25 | 30 | 40 | 55 | 65 | 55 | 50 | 40 | 30 | 25 |
| South | 20 | 25 | 25 | 30 | 40 | 55 | 55 | 55 | 55 | 50 | 40 | 35 |
| West | 20 | 25 | 25 | 25 | 30 | 55 | 65 | 65 | 40 | 30 | 25 | 25 |
| Chief activity in year: | | | | | | | | | | | | |
| Farm wage work | 65 | 70 | 75 | 85 | 90 | 90 | 90 | 90 | 90 | 90 | 80 | 75 |
| Other farmwork | 20 | 20 | 20 | 20 | 30 | 30 | 40 | 35 | 40 | 35 | 35 | 35 |
| Nonfarmwork | 10 | 10 | 10 | 15 | 20 | 30 | 35 | 35 | 30 | 25 | 20 | 20 |
| Keeping house | 1/ | 5 | 5 | 10 | 30 | 40 | 35 | 35 | 55 | 45 | 30 | 15 |
| Attending school | 5 | 5 | 5 | 10 | 15 | 55 | 65 | 60 | 25 | 15 | 10 | 10 |
| Other | 10 | 10 | 10 | 15 | 25 | 30 | 35 | 35 | 40 | 35 | 30 | 20 |

Heavy line encloses months in which half or more of each component of the farm wage force was employed.
Numbers were rounded to nearest 5 percent.
1/ Less than 2.5 percent.

number (one-third) of all persons who did any farmwork for wages during the year, their work, even during the summer, accounted for no more than one-fifth of that season's total days of farmwork.

## Length and Timing of the Season of Peak Employment

The proportion of the total farm wage force actually employed in any given month reveals interesting patterns concerning the timing and length of the season during which substantial proportions of workers were employed at paid farmwork. Half or more of the total farm wage force was working, on the average, each month from June through September, making a peak season of 4 months. The length of the season when such high proportions of the work force were at work increased with the age of the participant groups. Half or more of the young teenagers were employed for 3 months; at least half the farmworkers in the central age group for 5 months; and half or more of the workers in the oldest age group for 7 months, beginning in May. Of the half million homemakers who did paid farmwork, only half were working in September, their peak month. Farm wage work provided employment to large proportions of nonwhites not only in the summer but also for most of the fall, because most of these workers lived in the South and could participate in the fall harvesting of cotton and tobacco.

## Seasonal Distribution of the Year's Aggregate Days of Farm Wage Work

About one-third of the 271 million days of farm wage work reported for hired farmworkers in 1964 was done in the 3 summer months of June, July, and August; one-half of all farmwork occurred in the 5 months from June through October (table 4).

Compression of the year's farmwork during the summer was greatest for students and women. Students worked a total of nearly 40 million days on farms; about 70 percent of these workdays occurred during the 3-month summer recess from school. Female farmworkers, more than half of whom were engaged chiefly in keeping house most of the year, also totaled about 40 million days of farm wage work in 1964, but 70 percent of this work was done during a 5-month period.

Workers who were more or less permanent hired farmhands totaled close to 200 million days of farmwork during 1964; about half these days fell in the 5 months from June through October. Although these workers did the bulk of the Nation's farm wage work, and they were more steadily employed than any other group studied, they, too, experienced considerable underemployment during agriculture's slack season. During the winter, the total number of days they worked was only about 70 percent of the total days recorded during a peak summer month.

White males who did farm wage work included many teenagers, most of whom worked only in the summer. Thus, their winter work was only about half their

Table 4.--Days of farm wage work and wages earned from farmwork at peak seasons, as percentages of totals for year, by selected characteristics of farm wage workers, 1964

| Selected characteristics | Total days of farmwork in year | Percentage of days of farmwork in-- | | Total farm wages in year | Percentage of farm wages earned in-- | |
|---|---|---|---|---|---|---|
| | | June-Aug. | June-Oct. | | June-Aug. | June-Oct. |
| | Mil. | Pct. | Pct. | Mil. Dol. | Pct. | Pct. |
| All workers | 271 | 35 | 54 | 1/ 1,946 | 34 | 53 |
| Color and sex: | | | | | | |
| White males | 171 | 34 | 51 | 1,402 | 34 | 51 |
| Nonwhite males | 58 | 32 | 52 | 321 | 31 | 51 |
| White females | 18 | 44 | 71 | 122 | 41 | 67 |
| Nonwhite females | 25 | 42 | 70 | 100 | 41 | 69 |
| Age: | | | | | | |
| 14-17 years | 33 | 65 | 79 | 164 | 70 | 82 |
| 18-54 | 190 | 32 | 51 | 1,486 | 31 | 50 |
| 55 and over | 48 | 29 | 50 | 295 | 29 | 50 |
| Residence: | | | | | | |
| Farm | 117 | 32 | 52 | 704 | 32 | 52 |
| Nonfarm | 154 | 38 | 56 | 1,242 | 35 | 54 |
| Migratory status: | | | | | | |
| Migratory | 34 | 37 | 56 | 290 | 36 | 56 |
| Nonmigratory | 237 | 35 | 54 | 1,656 | 34 | 52 |
| Geographic region: | | | | | | |
| North | 77 | 36 | 54 | 564 | 34 | 54 |
| South | 142 | 33 | 54 | 820 | 32 | 52 |
| West | 52 | 39 | 55 | 561 | 37 | 53 |
| Chief activity in year: | | | | | | |
| Farm wage work | 181 | 29 | 47 | 1,422 | 28 | 46 |
| Other farmwork | 9 | 28 | 48 | 57 | 28 | 55 |
| Nonfarmwork | 13 | 36 | 54 | 98 | 40 | 57 |
| Keeping house | 21 | 37 | 71 | 111 | 37 | 71 |
| Attending school | 38 | 67 | 79 | 196 | 74 | 85 |
| Other | 9 | 36 | 59 | 62 | 35 | 59 |

1/ The wage figure from the "Hired Farm Working Force Survey" differs from the $2.4 billion cash wage bill for 1964 reported in USDA's "Farm Income Situation," July 1965, because of differences in the groups of hired farm workers included in each report. For groups excluded in this survey, see explantory note.

summer total. Nonwhite males who did this type of work, however, consisted mostly of adults and young persons who had left school and had a strong dependence on farmwork for year-round employment. Yet, this group also worked only about half as many days in the winter as in the summer (table 5).

## Distribution of the Year's Cash Farm Wages

The seasonal distribution of the $2 billion in aggregate wages earned by persons surveyed in the 1964 hired farm working force survey closely parallels the distribution of days of work on farms. (See footnote to table 4). One-third of the total wage was earned in June, July, and August; about one-half was earned between June and October.

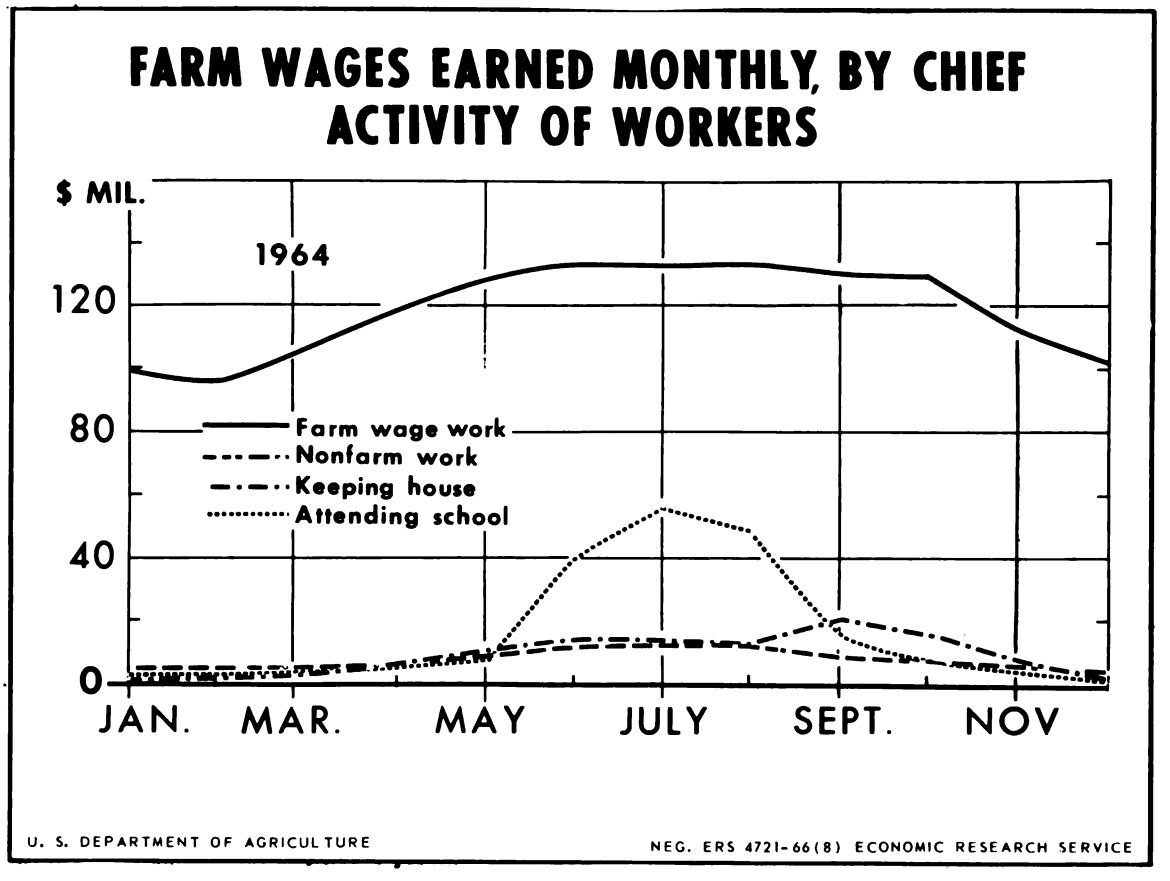


Figure 1

Figure 1 represents the seasonality of farm wage earnings in a slightly different way. From the actual data plotted by month, the sharp fluctuations in the amount of wages received during the year are clearly evident. Even for workers whose principal occupation most of the year is hired farmwork, earnings drop considerably in agriculture's off-season, to about three-quarters on their summer level. The extreme rise in student earnings during the summer is explained as follows: Far more students are employed during the summer than in

Table 5.--Days of farm wage work performed each month as a percentage of days worked in peak month, by selected characteristics of farm wage workers, 1964

| Selected characteristics | Days of farm wage work in peak month 1/ | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thou. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. |
| Color and sex: | | | | | | | | | | | | | |
| White males | 20,620 | 54 | 51 | 57 | 62 | 72 | 92 | 100 | 96 | 72 | 68 | 60 | 55 |
| Nonwhite males | 6,542 | 45 | 45 | 56 | 69 | 79 | 98 | 100 | 90 | 88 | 83 | 72 | 63 |
| White females | 2,780 | 17 | 19 | 22 | 32 | 44 | 87 | 96 | 100 | 97 | 78 | 38 | 20 |
| Nonwhite females | 3,789 | 6 | 7 | 17 | 34 | 64 | 91 | 100 | 87 | 98 | 86 | 50 | 21 |
| Chief activity in year: | | | | | | | | | | | | | |
| Farm wage work | 17,697 | 69 | 66 | 77 | 88 | 98 | 100 | 99 | 98 | 96 | 94 | 79 | 72 |
| Other farmwork | 894 | 68 | 55 | 56 | 61 | 73 | 88 | 89 | 90 | 93 | 95 | 100 | 88 |
| Nonfarmwork | 1,608 | 48 | 46 | 46 | 57 | 76 | 97 | 97 | 100 | 75 | 71 | 58 | 49 |
| Keeping house | 3,917 | 6 | 7 | 11 | 22 | 48 | 67 | 68 | 63 | 100 | 85 | 48 | 15 |
| Attending school | 9,970 | 7 | 8 | 10 | 12 | 18 | 76 | 100 | 85 | 31 | 19 | 14 | 11 |
| Other | 1,093 | 29 | 32 | 31 | 34 | 62 | 82 | 100 | 99 | 88 | 93 | 78 | 62 |

1/ Peak month for each group of farm wage workers is represented by that month in which 100 percent is entered.

any other season; students earn more per day in the summer; and students work more days each month at this time. For the homemaker, earnings drop quickly after the fall season.

## Average Number of Days of Hired Farmwork Per Month

Because jobs are more abundant during June, July, and August, the work month is longer during the summer for many groups of workers than during the winter months. In the study, young teenagers averaged 13 days of hired farmwork per month in the summer of 1964 compared with only 9 days in the winter. School attendance, as well as less demand for farm labor, cuts down the number of days that young persons can spend at paid employment during the school year.

Workers who did paid farmwork most of the year followed the general pattern of a longer work month (23 days) in the summer season of 1964, when farm activity was at a peak, but their average fell to 20 days a month at the end of the year.

Similarly, women, both white and nonwhite, had a longer average work month in the summer and fall. At this time they averaged about 13 days of paid farmwork per month, which dropped to 10 days by December. Nonwhite men also found employment opportunities better during summer and early fall. Their work month averaged 17 days per month in those seasons and declined to 14 days by December.

The pattern was reversed for white men because of the heterogeneous composition of this group. During the winter, the large proportion of regular and year-round workers in the farm wage force pulled up the average number of days for all white males working in that season to 20 days per month. With the summer influx of students and other casual workers ( many of whom worked for short periods), the average for employed white males declined to 18 days.

Seasonal patterns in the length of the work month differed for geographic regions, reflecting the color, sex, and age composition of the labor force as well as the type of farmwork. In the Northern and Western Regions, a longer work month in the winter is associated with heavy concentrations of white adult male workers in activities such as dairying and other livestock operations, which are the principal users of hired labor during the winter. In addition, these regions have large proportions of teenage farmworkers in the summer whose relatively short work day depresses the overall summer average. In the South, however, a longer work month in the summer is associated with large proportions of nonwhites and females working in field crop activities which do not continue throughout the winter.

## Seasonal Variations in Daily Earnings

According to data obtained in the survey, most groups of farmworkers earned about the same throughout the year. Daily earnings of migratory workers and

persons who were employed at hired farmwork most of the year were about $8 per day regardless of the season.

Some groups earned more per day during the summer. This was attributed primarily to : Increased demand for labor in the summer which tended to increase wages; longer work days; and more piece-rate work, where performance generally contributed to higher daily earnings. Young teenagers were paid $5 per day in June, July, and August, and $3 per day in December. Persons who worked most of the year at off-farm jobs were relatively well paid in the summer for farmwork as they earned about $8 per day, but averaged only $6 per day in December.

The reverse situation occurred for nonwhite workers who earned about $6 per day, or $1 per day more, in December than the $5 they earned in the summer. Nonwhites who worked in the winter included a large proportion of experienced male farmhands who earned more per day than female nonwhite workers. The latter made up a large proportion of the summer work force and lowered that season's daily average earnings for nonwhites.

## SEASONAL EMPLOYMENT PATTERNS OF SELECTED GROUPS OF HIRED FARMWORKERS

### Farm Wage Workers Who Were in the Labor Force Most of the Year

Agriculture's wage workers include many persons without a strong attachment to the labor force. Only about 1.5 million, or less than half of all persons who did some farmwork for cash wages in 1964, were either working or looking for work most of the year. The rest were out of the labor force. About half of those in the labor force more than half the year were usually employed as hired farmhands; a small percentage operated their own farms or worked without pay on the family farm most of the time; another small group were usually employed at off-farm jobs; and about 100,000 were unemployed the better part of the year.

The backbone of the agricultural wage force consisted of 800,000 workers who did farmwork for cash wages on a regular basis throughout the year. This group represented only one-fourth of all hired farmworkers, but it was responsible for two-thirds of the year's total days of farm wage work in 1964. The regular workers consisted almost exclusively of men. In 1964, this group averaged 219 days, or about 10 months, of paid farmwork. Their daily earnings from farmwork were about $8 a day. In contrast, persons who were out of the labor force most of the year averaged only 36 days of farmwork a year and earned $5 a day.

Persons whose chief activity during the year was hired farmwork had the most stable and least fluctuating employment pattern of all groups of farm wage

workers studied. From a monthly average of approximately 600,000 in the first third of the year, their numbers increased to about 750,000 in midsummer (fig.2).

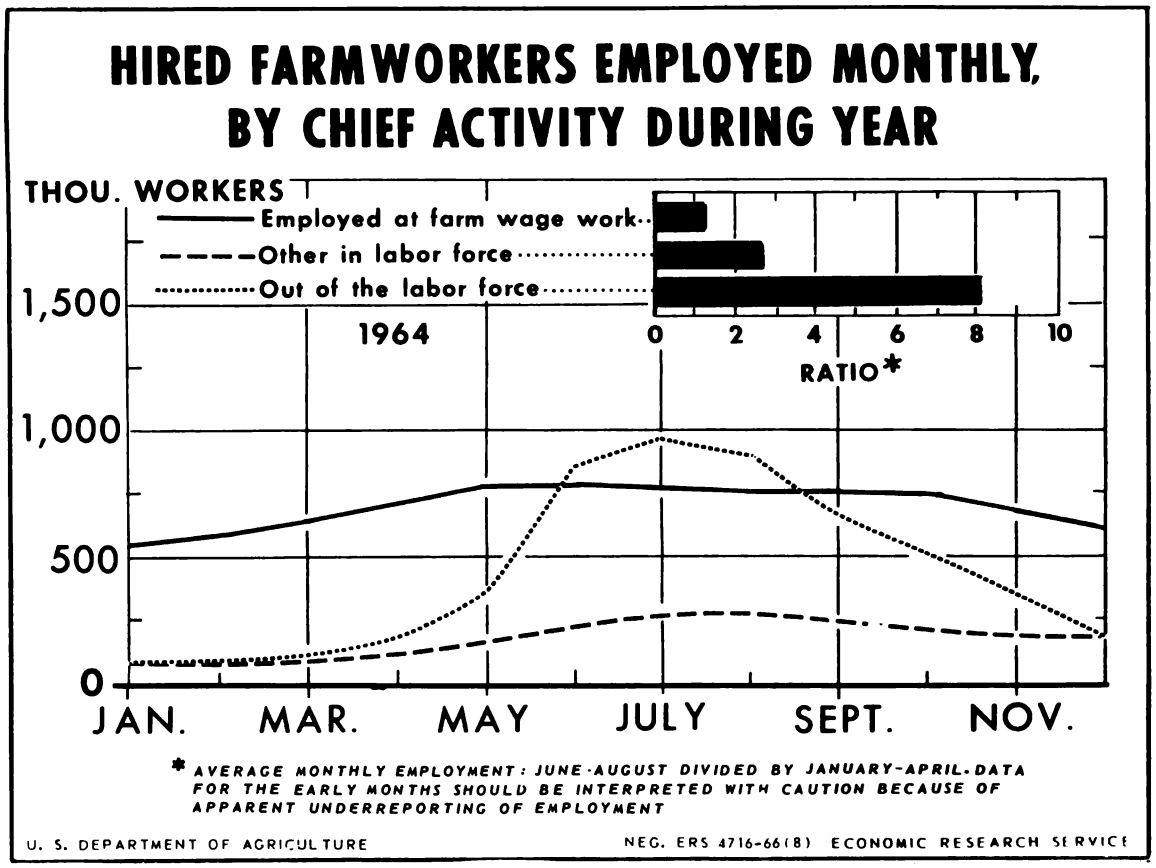


Figure 2

The relative importance of these farmworkers declined somewhat in the summer as almost a million persons who were generally not in the labor force were drawn to farmwork. During the summer months, workers employed regularly on farms made up about two-fifths of all hired farmworkers employed each month; they worked three-fifths of the total days of farmwork recorded each month and earned three-fifths of the monthly wages. In December, this same group comprised three-fifths of the farm wage force, did four-fifths of the work, and earned four-fifths of all wages paid for farmwork (fig. 3)

About 200,000 persons (9 out of 10 of them were men) worked mainly as farm operators or as unpaid workers on a family farm during the year. Generally they did farm wage labor during the summer and fall. Their work accounted for a very minor share of the Nation's total days of farm wage work--3 percent in 1964. This proportion was so low not only because the number in the group was small, but also because relatively small proportions of these persons worked at farm wage work each month. During the summer and fall, no more than 40 percent of them were working at hired farmwork in any one month, and they averaged only 11 days of such work per month during this time.

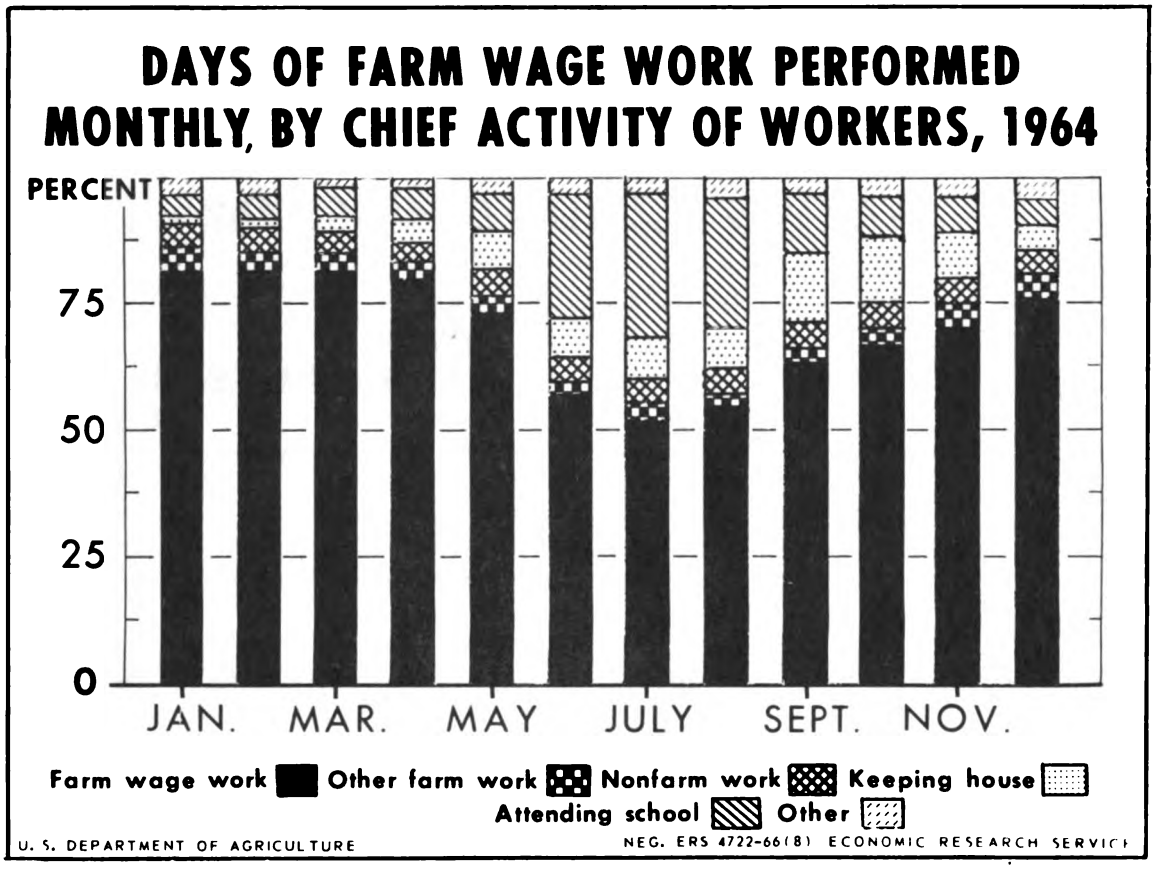


Figure 3

Seasonal fluctuations in the employment of this group were relatively mild. From an average monthly employment of about 40,000 in the early part of the year, their number doubled by midsummer. Then it remained at its seasonally high summer level well into fall and through December.

Another group of workers, about 400,000, were employed primarily in nonfarm occupations in the year, but they did some farm wage work between or in addition to nonfarm jobs. Persons in this group worked about 9 months in the year at nonfarm work. Their annual wage income from all sources was considerably higher than that of any other group of farm wage workers studied. The small amount of farmwork they did helped to extend their year's average wage employment for another 1½ months, and it contributed 5 percent of the aggregate days of farm wage work performed throughout the Nation during the year. Relatively small proportions of the nonfarm workers were employed at any time in farm wage work; the largest number was employed in July and August and represented less than two-fifths of the total in the group.

More than any other group of workers who were employed most of the year, persons whose chief activity was nonfarm work were seasonal agricultural workers. They turned to farmwork primarily in the summer when jobs were plentiful, and returned to nonfarm jobs in the fall when the season of peak farm labor demand ended. Between the first third of the year and the summer, the number of these workers employed on farms tripled, but then dropped rapidly again with

the end of the summer season. There was less seasonal fluctuation, however, in the number of days they worked. The average person did about 11 or 12 days of farm wage work a month from the beginning of the summer through the end of the year.

## Women in the Farm Wage Force

Female farm wage workers totaled about 1 million in 1964. They comprised 30 percent of all persons who worked on farms for wages in 1964, but during the year as a whole they did only about 15 percent of the total farm wage work. Nevertheless, they were an important source of labor for summer and fall farmwork.

The patterns of farmwork for women were determined primarily by the demand for labor in the summer and fall months, and by the fact that four-fifths of the women who did hired farmwork were out of the labor force most of the year. When the demand for farm labor became intense, it pulled the women into the labor force. Because of their low participation, women averaged only 44 days of paid farm employment during 1964, compared with 95 days for men.

The seasonal pattern for women was generally one of a massive entry into the farm labor force, for brief periods of work on the summer and fall crops, and then a quick withdrawal to return to homemaking. From an average monthly employment of about 80,000 at the beginning of the year, the number of female farmworkers in 1964 increased to a monthly average of about 500,000 in the summer and early fall, supplying one-third of the total seasonal increase in the national farm wage force. The seasonal employment increase of women represented the sharpest relative rise of all groups of farm wage workers except students (fig. 4).

During the summer and early fall, women comprised about one-fourth of all farmworkers employed in those months. But, because they worked relatively few days per month, they were responsible for a smaller proportion, about one-fifth, of the total days of hired farmwork performed in each of those months (fig. 5).

Among female farmworkers, a rather large proportion (about half) were nonwhite. A disproportionately large number (70 percent) lived in the South. The major distinction in the seasonal work patterns of white and nonwhite females was in the proportion of each group employed in any given month. Although about the same number of white and nonwhite women did some farmwork for wages during 1964, no more than two-fifths of the white women were working in any one month. Much larger proportions of nonwhite women than of white women were working in the summer and large proportions remained employed during the fall. Of all nonwhite women who did farmwork during the year, 55 to 65 percent were working in each of the summer and early fall months. During this season, white and nonwhite women averaged about the same number of days of farm wage work per month (13 and 14 days respectively).

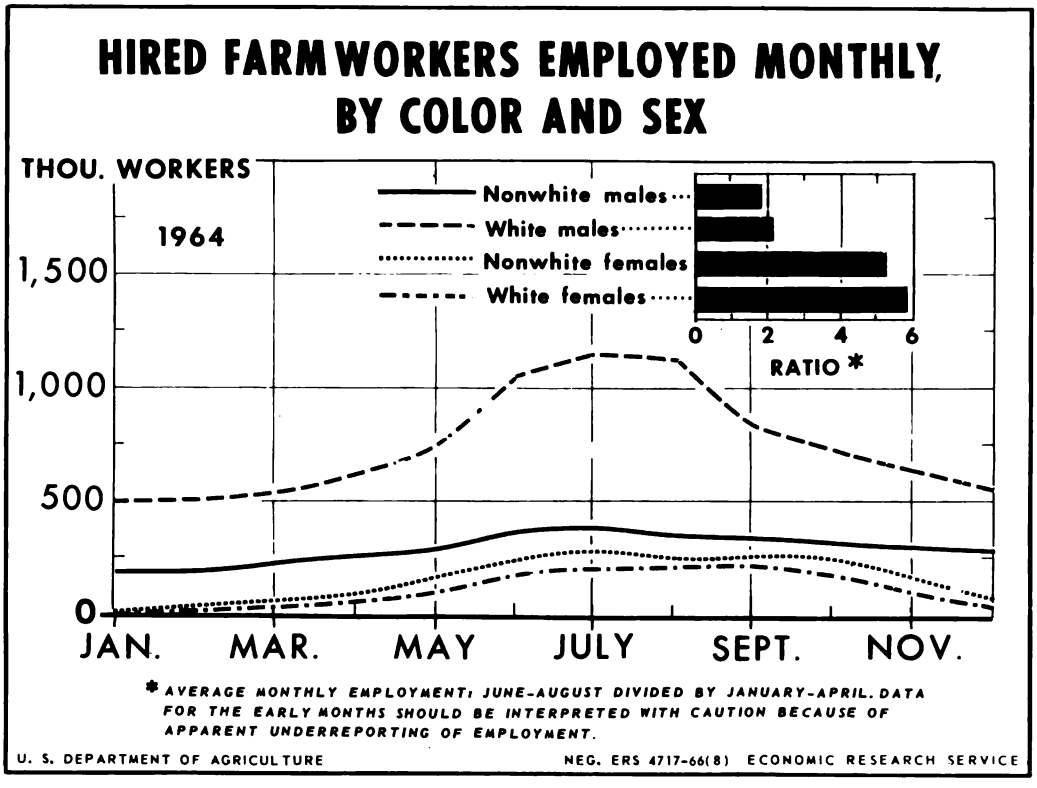


Figure 4

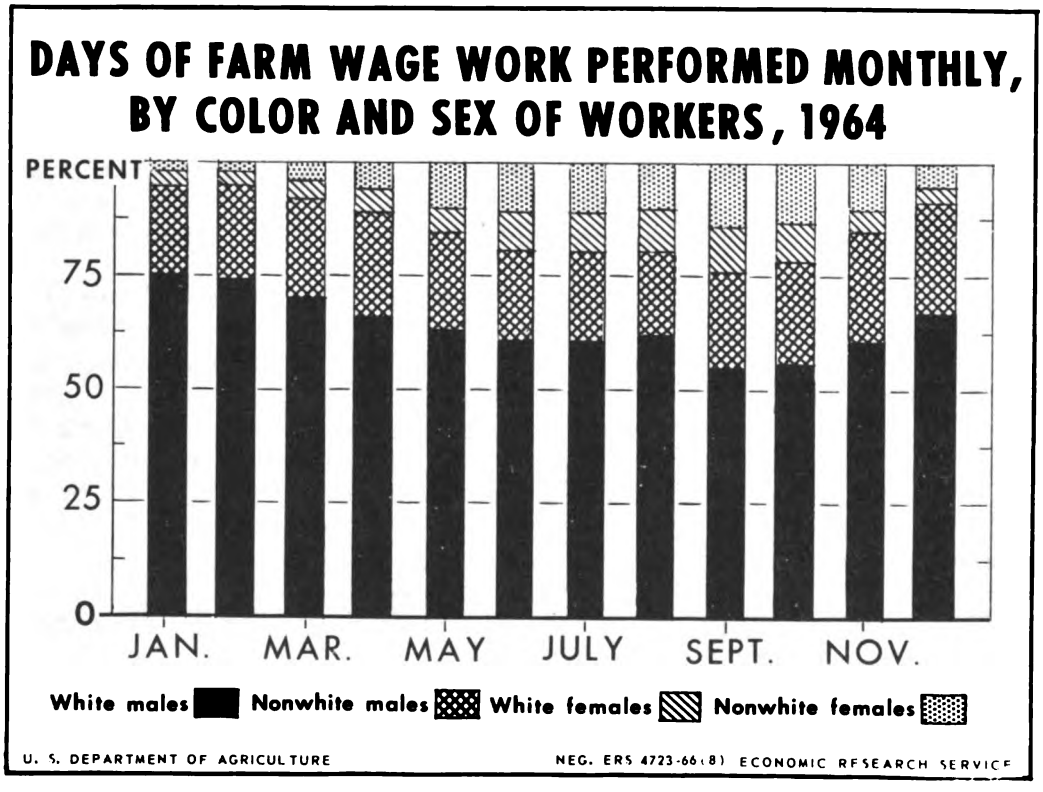


Figure 5

The major difference in seasonal patterns of employment among the color groups is that nonwhite farm wage workers, both male and female, worked late into the year. About half or more of the nonwhite women were employed from June through October while the season for nonwhite males was even longer, extending through the end of the year. Part of the reason for the longer season of nonwhite farmworkers is that 9 out of 10 live in the South where cotton, tobacco, and some vegetable and fruit production lasts late into the year and requires large numbers of hired workers. A relative lack of nonfarm employment opportunities for nonwhites in the South may be another cause of their long work season in agriculture.

Among the half million women (white and nonwhite) who reported homemaking as their chief activity during the year, the seasonal entry and exit from the farm labor force was even more concentrated than that of all women. From a mere 30,000 in the winter, monthly employment of homemakers grew slowly during the spring and summer until in September and October, their peak season, at least a quarter of a million were working on farms.

## Students and Older Workers

Altogether, about 1 million students worked on farms for wages in 1964. This group included most of the 14- to 17-year-old workers, plus some older youth. It consisted primarily of boys (53 percent) living in nonfarm homes.

Persons attending school most of the year were the single most important source of summer seasonal hired farm labor. Between the early part of the year and the summer months, 600,000 students entered the work force to supply one-half of the seasonal increase in hired workers (fig. 6).

Although they averaged relatively few days of farm wage work during the year as a whole, at their seasonal high in June, July, and August, students comprised one-third of the hired farmwork force and performed one-fourth of the total summer days of paid farmwork.

The relative fluctuation in the year's employment of students was sharper than that of any other group of hired workers. From a winter monthly average of 70,000, student employment reached nearly 10 times that amount in the summer months. Between May and June alone, as school closed for the summer, 450,000 boys and girls found paid employment on the Nation's farms. Employment remained at high levels until September, when school attendance cut sharply into the number of students working on farms. Further declines in the ensuing months brought the number employed down to 90,000 in December.

In 1964, there were 2 million persons aged 18 to 54 in the hired farmwork force and another half a million aged 55 and over; together they did nine-tenths of the year's paid farmwork. These groups had much smoother seasonal patterns than the young teenagers. Altogether, their average monthly employment doubled between the early part of the year and the summer, although the absolute net increase was little more than that for teenagers.

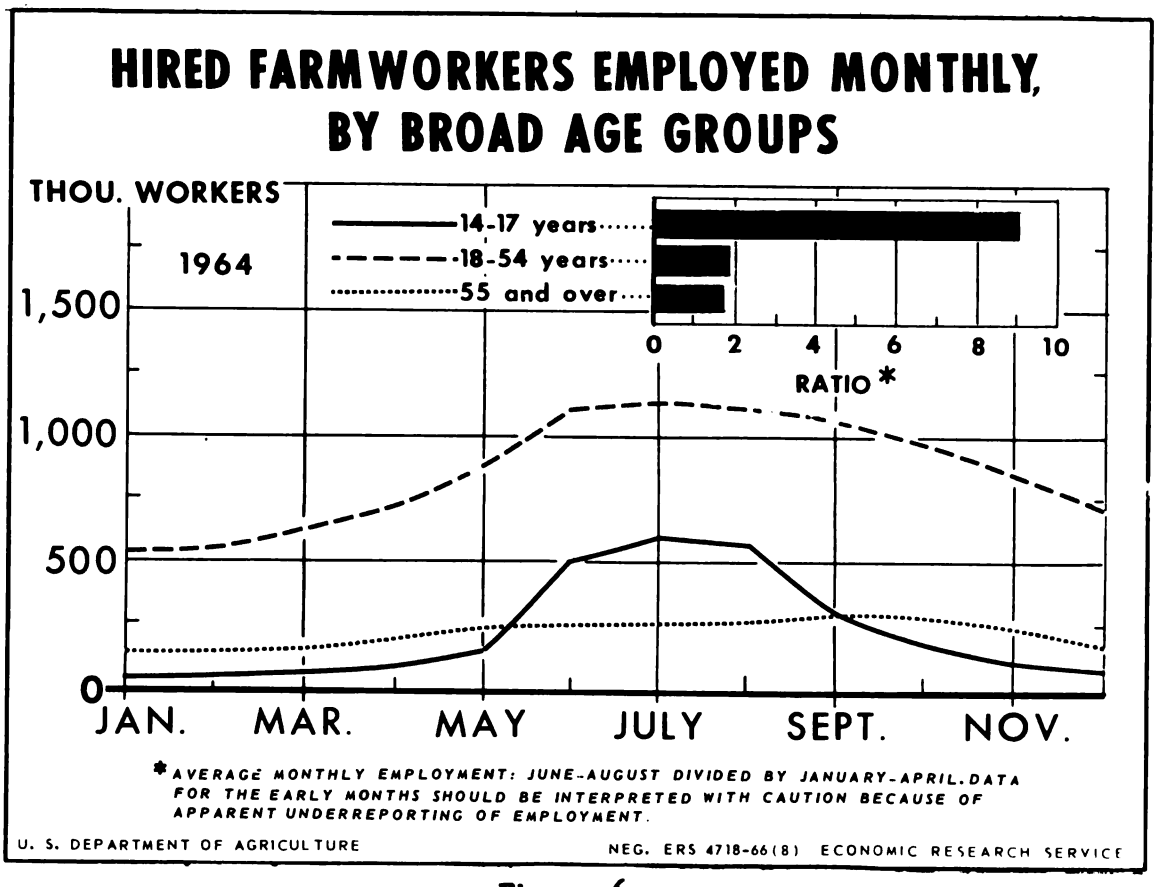


Figure 6

Persons aged 55 and over began farm wage work earlier and worked later in the farm season than those in the younger age groups, probably because many of the older workers were also small farm operators or farm residents. As such, they found opportunities to supplement their income by doing hired farmwork on nearby farms when hired labor was needed during the farming season.

## Farm Residents

Of all persons who worked on farms for wages in 1964, one-third lived on farms at the time the survey was taken; the others lived either in cities and towns or in homes in open country which were not on farmland. With opportunities close at hand, the farm resident engaged in farm wage work to a greater extent than the nonfarm resident did, averaging 104 days of farm wage work compared to 69 days for the nonfarm resident. At the same time, the farm resident farmhand participated in nonfarmwork less often than the nonfarm resident. Only one-fourth of the hired workers who lived on farms did any nonfarm wage work in 1964 compared to almost half the nonfarm residents. The farm resident, although comprising only one-third of the Nation's hired farmworkers, did two-fifths of the total days of farm wage work.

Related to these characteristics of the farm resident was the greater year-round stability of his employment on farms. During the slow months of the year, one-third of a million farm residents were working on farms as hired laborers; by the summer months their number had doubled. During the summer, they averaged 18 days of work per month (fig. 7).

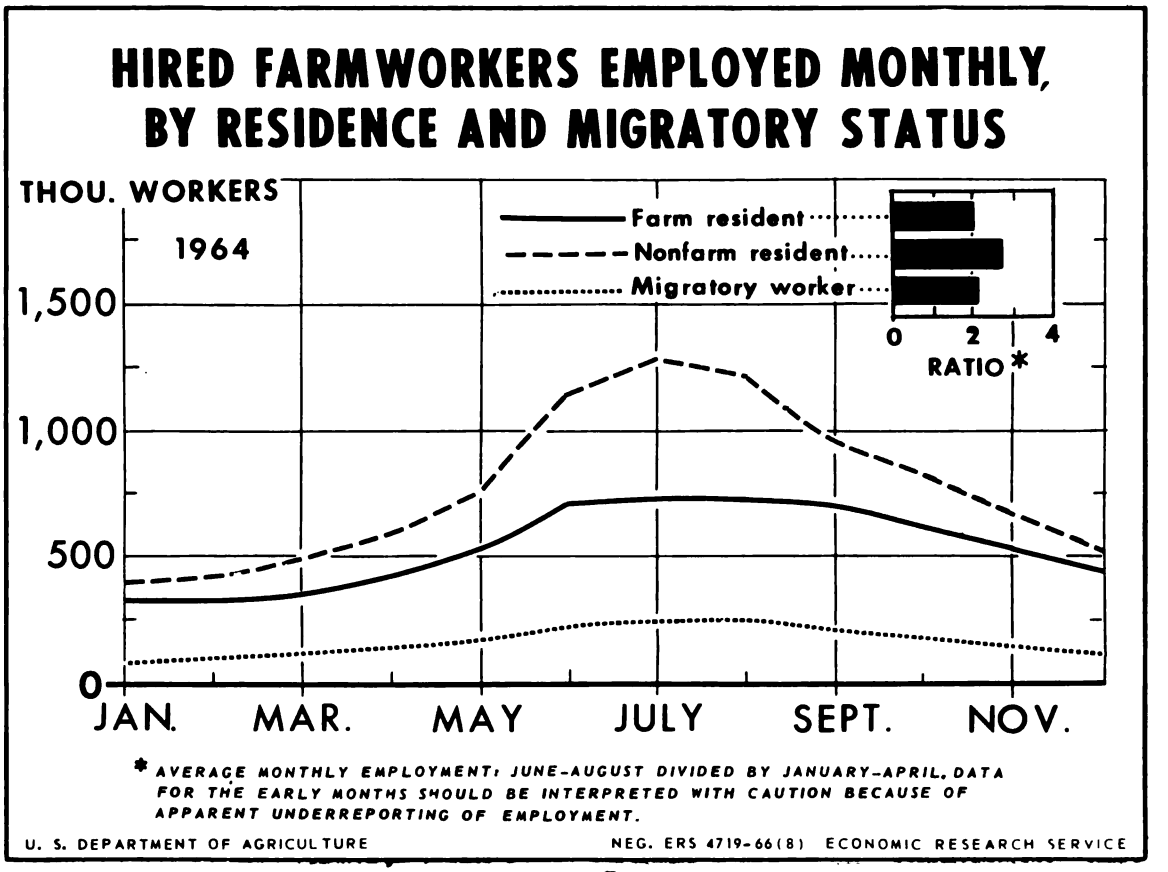


Figure 7

Three-fourths of a million nonfarm residents found farm employment after the winter and early spring, to reach a summer monthly figure which was 2½ times their winter employment. This group, representing a heterogeneous combination of students, housewives, and other seasonal workers, as well as some persons who worked most of the year at farm or nonfarm jobs, averaged 16 days of farmwork a month in the summer.

## Migratory Workers

Farmworkers who travel from one area of the country to another for employment constitute only a small percentage of the total number of hired farmworkers. In 1964, they totaled 386,000, represented one-ninth of all hired farmworkers, and did about one-eighth of the year's total aggregate days of farm wage work.

The seasonal work pattern of the migratory farmworker was very similar to the average for all farm wage workers. From about 110,000 migrants employed per month at the beginning of the year, the number doubled to about 240,000 in midsummer. Seasonal patterns in the increase in employment, the proportion of migrants employed at any time, and the distribution of the year's total number of days of farm wage work were about the same for migrants as they were for all workers.

## Seasonal Work Patterns by Geographic Region

The nature of the agricultural product dominating an area's economy determines the seasonal patterns of hired farmwork in the various geographic regions. Regions producing labor-intensive crops which require labor at several stages of production, and crops which mature late in the season, need hired labor for a longer season than other regions. For example, the labor season for cotton, a major product of the Southern Region, occurs in two periods, in the late spring and early summer, when cultivation of young plants requires sizable amounts of hired labor, and during the fall months of September, October, and November, when the bulk of the cotton is harvested. According to data of the Bureau of Employment Security, cotton in 1964 utilized one-fifth of all seasonal labor hired to do farmwork, most of it in the South. 5/ Tobacco, another important product of the South, and harvested from midsummer to early fall, used one-tenth of the country's farm wage workers.

Fruit and vegetable farms, located in significant numbers in all three geographic regions of the United States, also require much hand labor at harvesttime. The need for labor occurs at different times during the year, depending on the kind of crop and its geographic location. Altogether, fruit and vegetable production utilized two-fifths of the seasonal hired farm labor of 1964. The remaining three-tenths of the seasonal hired workers of 1964 worked on sugar crops, oil crops, hay, grain, livestock, and other agricultural products.

As a result of the crop characteristics peculiar to each region, the three major geographic areas of the United States varied in the opportunities they offered to farm wage workers for year-round employment. The Southern Region afforded employment opportunities over a longer period of time for its farm wage workers. In this region, half or more of the hired labor force was employed from June through October, tending not only to the spring and fall needs of cotton, but also to the midsummer demand for harvest labor on fruits and vebetables, and to the late summer harvest of tobacco (fig. 8).

In contrast to the long employment season of the South, agriculture in the Northern and Western Regions provided employment for substantial proportions of hired farmworkers for fewer months, principally for fruits and vegetables.

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5/ All estimates of seasonal hired labor by crop are from: Farm Labor Developments. U.S. Dept. Labor. Jan. 1965.

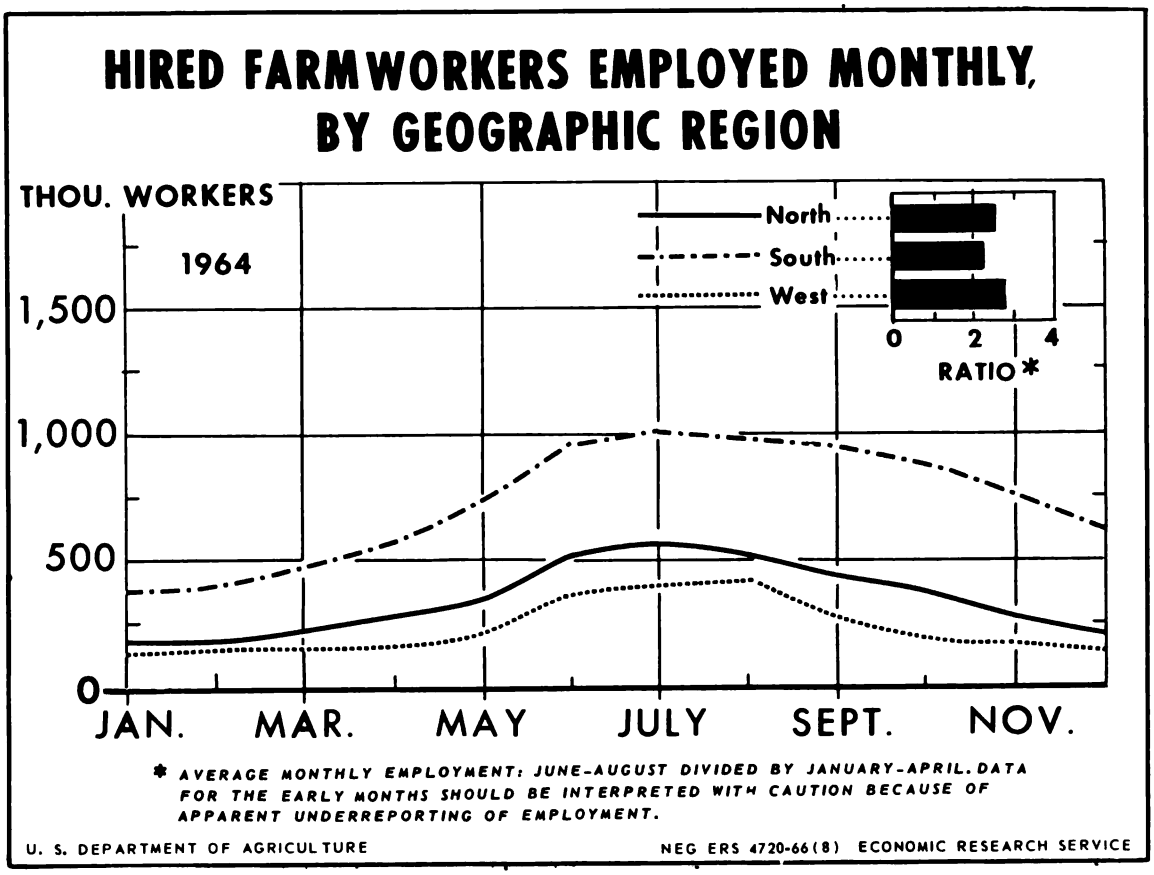


Figure 8

## EXPLANATORY NOTE

### Survey of the Hired Farm Working Force

Estimates in this report concerning the hired farm working force are based on a survey conducted annually for the Economic Research Service by the Bureau of the Census through supplementary questions included in its regular monthly survey of the population known as the Current Population Survey (CPS). Respondents in the regular survey who reported doing farmwork for wages at any time during the year were asked additional questions on number of days of farm wage work, amount of cash wages received for farmwork, number of days of nonfarm wage work, if any, and earnings for that work, migratory status, chief activity during the year, and other matters.

For the first time since 1957, the survey for December 1964 obtained information on number of days worked and amount of wages earned at farm wage work on a month-by-month basis instead of for the year as a whole. The study reported here analyzes the seasonal work patterns shown by the monthly data. It is a companion report to "The Hired Farm Working Force of 1964, A Statistical Report," Agricultural Economic Report 82, which presents the basic findings on employment and earnings based on aggregates for the year (table 6).

Table 6.--Number of persons, days worked, and wages earned at farm and nonfarm wage work, for all farm wage workers and for workers who also did some nonfarm wage work, by selected characteristics of farm wage workers, 1964

| Selected characteristics | Persons who did farm wage work | | | | | | | Persons who did both farm and nonfarm wage work | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total workers | | Total days of farmwork | | Average days of farmwork | Average wages from farmwork per | | Total workers | Average days of | | Average wages per day from-- | | Average wages per year from-- | |
| | | | | | | Day | Year | | Farmwork | Nonfarmwork | Farmwork | Nonfarmwork | Farmwork | Nonfarmwork |
| | Thou. | Pct. | Mil. | Pct. | No. | Dol. | Dol. | Thou. | No. | No. | Dol. | Dol. | Dol. | Dol. |
| All workers | 3,370 | 100 | 271 | 100 | 80 | 7.15 | 578 | 1,276 | 49 | 98 | 7.70 | 10.10 | 380 | 999 |
| Color and sex: | | | | | | | | | | | | | | |
| White males | 1,796 | 53 | 171 | 63 | 95 | 8.20 | 782 | 770 | 56 | 114 | 8.70 | 11.40 | 488 | 1,301 |
| Nonwhite males | 603 | 18 | 58 | 21 | 96 | 5.50 | 529 | 190 | 46 | 91 | 6.20 | 9.00 | 292 | 828 |
| White females | 527 | 16 | 18 | 7 | 34 | 6.70 | 230 | 168 | 24 | 66 | 6.20 | 7.15 | 152 | 474 |
| Nonwhite females | 445 | 13 | 25 | 9 | 56 | 4.00 | 228 | 149 | 43 | 66 | 4.35 | 3.70 | 192 | 247 |
| Age: | | | | | | | | | | | | | | |
| 14-17 years | 950 | 28 | 33 | 12 | 34 | 5.05 | 173 | 277 | 24 | 53 | 6.00 | 3.80 | 146 | 198 |
| 18-54 | 1,957 | 58 | 190 | 70 | 98 | 7.70 | 760 | 854 | 56 | 117 | 8.40 | 11.35 | 467 | 1,328 |
| 55 and over | 464 | 14 | 48 | 18 | 105 | 6.05 | 637 | 146 | 55 | 80 | 5.65 | 7.45 | 310 | 600 |
| Residence: | | | | | | | | | | | | | | |
| Farm | 1,130 | 34 | 117 | 43 | 104 | 5.95 | 622 | 261 | 63 | 74 | 6.70 | 8.45 | 422 | 632 |
| Nonfarm | 2,240 | 66 | 154 | 57 | 69 | 8.05 | 555 | 1,016 | 45 | 105 | 8.10 | 10.40 | 369 | 1,093 |
| Migratory status: | | | | | | | | | | | | | | |
| Migratory | 386 | 11 | 34 | 13 | 87 | 8.95 | 782 | 168 | 60 | 99 | 9.75 | 10.50 | 585 | 1,049 |
| Nonmigratory | 2,984 | 89 | 237 | 87 | 80 | 6.90 | 551 | 1,108 | 47 | 98 | 7.35 | 10.05 | 349 | 991 |
| Region: | | | | | | | | | | | | | | |
| North | 924 | 28 | 77 | 29 | 84 | 7.30 | 609 | 426 | 57 | 113 | 7.65 | 10.70 | 439 | 1,208 |
| South | 1,797 | 53 | 142 | 52 | 79 | 5.70 | 454 | 572 | 44 | 89 | 6.60 | 8.20 | 295 | 739 |
| West | 649 | 19 | 52 | 19 | 80 | 10.90 | 874 | 279 | 45 | 95 | 10.15 | 12.75 | 464 | 1,213 |
| Chief activity in year: | | | | | | | | | | | | | | |
| Farm wage work | 818 | 24 | 181 | 67 | 219 | 7.75 | 1,707 | 190 | 158 | 51 | 8.45 | 10.30 | 1,341 | 525 |
| Other farmwork | 218 | 7 | 9 | 3 | 43 | 6.70 | 288 | 56 | 39 | 54 | 8.75 | 6.25 | 350 | 342 |
| Nonfarmwork | 412 | 12 | 13 | 5 | 34 | 7.95 | 271 | 402 | 33 | 194 | 7.95 | 12.20 | 266 | 2,347 |
| Keeping house | 548 | 16 | 21 | 8 | 38 | 5.15 | 196 | 145 | 26 | 53 | 5.80 | 5.10 | 152 | 271 |
| Attending school | 1,122 | 33 | 38 | 14 | 35 | 5.10 | 179 | 366 | 25 | 60 | 5.70 | 5.25 | 146 | 317 |
| Other | 251 | 8 | 9 | 3 | 36 | 7.35 | 265 | 119 | 32 | 48 | 7.60 | 8.30 | 244 | 397 |

1/ This group contains 155,000 persons, other than homemakers and students, who were out of the labor force most of the year and 96,000 persons who were looking for work most of the year.

## Population Coverage

The CPS sample includes about 40,000 housing units selected at random from 357 sample areas comprising 701 counties and independent cities with coverage in every State and the District of Columbia. 6/ Some 35,000 housing units are occupied by households eligible for interview; the remaining units are vacant, converted to nonresidential use, or for some other reason cannot be included.

The data in this report relate to persons 14 years of age and over who did farm wage work in 1964 and who were in the civilian noninstitutional population at the time of the survey. Excluded were persons who did farm wage work in 1964 but died, entered the Armed Forces, or were otherwise removed from the civilian noninstitutional population before the survey. Omitted also were foreign nationals who did farm wage work in this country at some time in 1964 but returned to their homes before the survey. The number of farm wage workers excluded probably does not exceed 500,000.

## Definitions

Farm wage worker. Any person in the population covered by the sample who did farmwork for cash wages or salary at any time of the year, even if only for 1 day.

Farm work for cash wages or salary. Types of farm activity included are: (1) Work done on any farm for cash wages in connection with the production, harvesting, threshing, preparation for market, or delivery to market of agricultural products; (2) work done off the farm for a farmer by his hired farmworker, such as trips to town to buy feed, seeds, and fertilizer, or to handle other matters involved in running the farm business; (3) such work as repairs of farm buildings or machinery performed by a farm wage worker when done along with the type of work specified in (1) and (2); and (4) managing a farm or enterprise for cash salary.

Not included as farmwork for cash wages or salary are: (1) Work performed by farm operators on their own farms or "exchange" work between farmers when no money is paid for this work; (2) work done exclusively for "pay in kind" such as room or board; (3) work done without pay on a family farm by a member of the farm operator's family (a small regular cash allowance is not considered farm wages); (4) nonfarmwork performed on a farm, such as the building of a farm structure by a carpenter, the drilling of a well by a well driller, the hauling of agricultural products to market by a commercial trucker, or domestic

6/ For a thorough explanation of the CPS, see: The Current Population Survey, A Report on Methodology. U.S. Bur. Census Tech. Paper 7, 1963; or the more recent and briefer account in: Concepts and Methods Used in Household Statistics on Employment and Unemployment From the Current Population Survey. U.S. Dept. Labor, BLS Rpt. 279, and U.S. Bur. Census, Current Population Rpts., Ser. P-23 (13), June 1964.

service in the home of a farmer; and (5) custom work such as spraying, threshing, and combining, when a person is paid a combined rate for the use of his equipment and labor.

Age. The age classification is based on the age of the person at his last birthday.

Color. This term refers to the white and nonwhite groups in the population. The nonwhite group includes Negroes, Indians, Japanese, Chinese, and other nonwhite races.

Chief activity. Information on the chief activity of farm wage workers during the year was derived from the question, "What was. . . doing most of 1964, working, keeping house, going to school, or something else?" If working was reported as the chief activity, the kind of work the person did most of the year was determined. Farm wage work was recorded if the person spent most of his working time doing farm wage work. Other farmwork was recorded if the person spent most of his working time operating his own farm (as a tenant, owner, or sharecropper), doing work for pay in kind, or doing unpaid work on a family farm. Nonfarmwork was recorded if a person spent most of his working time in a nonfarm field, such as manufacturing, trade, construction, or domestic service.

If the person did not report working as his chief activity, information was obtained on what he was doing most of the year. Looking for work (unemployed) was recorded for a person who spent most of his time without employment, but actively looking for a job. Keeping house was recorded for persons who spent most of their time doing their own housework. Going to school was recorded for persons who spent most of their time attending school. The category other was recorded for persons who spent most of their time at some activity other than those named above.

Residence. This refers to the place on which the worker lived at the time of the survey. Persons were classified as living on farms (farm resident) if they lived on rural places of 10 acres or more, from which agricultural products worth $50 or more were sold in the reporting year. Also included as farm residents were those living on rural places of less than 10 acres with sales of at least $250 worth of agricultural products in the reporting year. Nonfarm resident workers lived in urban places, rural towns, villages, or in the open country on places that did not meet the criteria for farm classification.

Migratory status. Farm wage workers were classified as migratory if they left their homes temporarily (at least overnight) to do farmwork for wages in another county within the same State or in another State, with the expectation of returning home at the conclusion of their period of farm wage work. Persons who had no usual place of residence and did farm wage work during the year in two or more counties, either in the same or in different States, were also classified as migratory farm wage workers.

Classified as nonmigratory workers were persons who commuted daily from their homes across the county or State line to do farm wage work in the other county and returned home each night. Also classified as nonmigratory were persons who did farm wage work in their own county for part of a year and then made a permanent move to another county, even though they might also have done farm wage work in the second county.

Region. States included in each of the three geographic regions referred to in this report are as follows: North: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Ohio, Indiana, Illinois, Wisconsin, Michigan, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas. South: Maryland, Delaware, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas. West: Montana, Wyoming, Idaho, Colorado, New Mexico, Utah, Arizona, Nevada, Washington, Oregon, California, Hawaii, Alaska.

Days of farm or nonfarm wage work. Days on which any farm or nonfarm wage work was reported. The work may have been for all or only part of a day.

Earnings from farmwork or nonfarmwork. Cash wages or salary received for farmwork or for nonfarmwork. Earnings do not include the value of perquisites received in connection with farmwork or the value of fringe benefits received for nonfarmwork.

Aggregate days of farm wage work and aggregate wages. The figure for aggregate days represents the sum of all days of farm wage work performed during the year by workers covered in the survey. "Aggregate wages" refers to the additive total of cash wages received by persons doing hired farmwork.

Average daily wage per month. This was derived by dividing aggregate wages from farm wage work for each month by the aggregate days of farm wage work performed in that month.

Average number of days per month. This was obtained by dividing the aggregate days of farm wage work for each month by the number of persons employed at farm wage work in that month.

Seasonal. Any event or series of events which occurs within a period of a year and is repeated annually in a similar pattern. Seasonal patterns may be caused by weather, crop cycles, social and commercial customs, holidays, vacation schedules, and other conditions.

Annual average. As used in this report, the annual average is the arithmetic average of data for each of the 12 months in the calendar year.

## Reliability of the Estimates

Estimating procedure. The estimating procedure used in these surveys

involved inflating weighted sample results for persons in the 35,000 sample households to independent estimates of the civilian noninstitutional population of the United States by age, color, and sex. These independent estimates were based on statistics from the 1960 Census of Population; statistics on births, deaths, immigration, and emigration; and statistics on strength of the Armed Forces. The inflated records for the approximately 2,000 hired farmworkers in the sample were selected and tabulated for this report.

Variability. Since the estimates are based on sample data, they are subject to sampling variability. They may differ somewhat from the results that would have been obtained from another sample, or from a complete census using the same schedules, instructions, and interviewers. The results are also subject to errors of response and reporting.

The standard error of an estimate is primarily a measure of sampling variability, that is, of the variations that occur by chance because a sample rather than a whole population is surveyed.The standard error, as calculated for this report, also partially measures the effect of response and enumeration errors, but does not measure any systematic biases in the data. The chances are 68 out of 100 that an estimate from the sample would differ from a complete census by less than the standard error. The chances are about 95 out of 100 that the difference would be less than twice the standard error.

The estimates of standard errors shown in this report are approximations for the 357 areas sampled. To derive standard errors which would be applicable to a wide variety of items and which could be prepared at moderate cost, a number of approximations were required. As a result, the tables of standard errors provide an indication of the order of magnitude of the standard errors rather than the precise standard error for any specified item.

Tables 7 and 8 show the standard errors of the estimated number and percentages of persons who did farm wage work. The reliability of an estimated percentage, computed by using sample data for both numerator and denominator, depends on the size of the percentage and the size of the total on which the percentage is based. Generally, estimated percentages are relatively more reliable than the corresponding absolute estimates of the numerator of the percentage, particularly if the percentage is high (50 percent or more).

Tables 9 and 10 show the standard errors of average annual number of days of farm wage work and of the average annual earnings from this work. Standard errors of average number of days and annual earnings from nonfarm wage work would probably be somewhat higher than the standard errors of number of days and annual earnings from farm wage work.

Table 7.--Standard errors of estimated numbers of persons who did farm wage work, CPS Supplement, December 1964

(68 chances out of 100)

| Size of estimate | Standard error |
|---|---|
| 25,000 | 11,000 |
| 50,000 | 15,000 |
| 100,000 | 22,000 |
| 250,000 | 35,000 |
| 500,000 | 52,000 |
| 1,000,000 | 80,000 |
| 2,500,000 | 150,000 |

Table 8.--Standard errors of percentages of persons who did farm wage work, CPS Supplement, December 1964

(68 chances out of 100)

| Percentage | Base of percentage in thousands | | | | | | |
|---|---|---|---|---|---|---|---|
| | 50 | 100 | 250 | 500 | 1,000 | 2,500 | 5,000 |
| | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. |
| 2 or 98 | 4.2 | 3.0 | 1.9 | 1.3 | 0.9 | 0.6 | 0.4 |
| 5 or 95 | 6.6 | 4.7 | 2.9 | 2.1 | 1.5 | .9 | .7 |
| 10 or 90 | 9.1 | 6.4 | 4.1 | 2.9 | 2.0 | 1.3 | .9 |
| 15 or 85 | 10.8 | 7.6 | 4.8 | 3.4 | 2.4 | 1.5 | 1.1 |
| 20 or 80 | 12.1 | 8.5 | 5.4 | 3.8 | 2.7 | 1.7 | 1.2 |
| 25 or 75 | 13.1 | 9.3 | 5.9 | 4.1 | 2.9 | 1.9 | 1.3 |
| 35 or 65 | 14.4 | 10.2 | 6.4 | 4.6 | 3.2 | 2.0 | 1.4 |
| 50 | 15.1 | 10.7 | 6.8 | 4.8 | 3.4 | 2.1 | 1.5 |

Table 9.--Standard errors of estimated average annual number of days of farm wage work, CPS Supplement, December 1964

(68 chances out of 100)

| Average days worked per year per person | Standard error |
|---|---|
| Days | |
| 5 | 1 |
| 10 | 1 |
| 25 | 2 |
| 50 | 3 |
| 100 | 4 |
| 200 | 5 |

Table 10.--Standard error of estimated average annual earnings from farm wage work, CPS Supplement, December 1964

(68 chances out of 100)

| Average annual earnings per person | Standard error |
|---|---|
| Dol. | |
| 250 | 20 |
| 500 | 31 |
| 750 | 40 |
| 1,000 | 49 |
| 1,500 | 66 |
| 2,000 | 82 |

The standard error of a difference between two estimates of a given characteristic obtained from the same survey but referring to different months may be approximated by using the formula:

$$\sigma(x - y) = \sqrt{\sigma_x^2 + \sigma_y^2 - 2\rho\sigma_x\sigma_y}, \text{ where}$$

$\sigma(x - y)$ is the standard error of the difference between the two estimates, x and y;

$\sigma_x^2$ is the variance (square of the standard error) of estimate x;

$\sigma_y^2$ is the variance of estimate y;

$\rho$ is the correlation between estimates x and y.

Values of $\rho$ are indicated below for comparisons involving estimates various months apart. These values represent average correlations and may be used to evaluate the standard error of an "average" difference between estimates for two given months. For some items, however, it should be noted that there is a high degree of seasonal variation in the estimates. Thus, for example, the correlation between estimates of agricultural workers 3 months apart may differ substantially if the 3-month period is, say, February-May as against June-September.

As an example of the use of the above formula, suppose in the December 1964 Hired Farm Working Force Survey, 230,000 white females were reported in a certain classification for September, whereas 170,000 were reported in this same classification for October. Table 7 shows the approximate standard error of 230,000 is about 32,000 and similarly the standard error of 170,000 is about 28,000. If the correlation between such estimates for September-October is reasonably represented by a value of $\rho = 0.9$, we can evaluate $\sigma(x - y)$ by the above formula. Our result is $\sigma(230{,}000 - 170{,}000) = 14{,}000$. By this process we have estimated the standard error of the 60,000 difference at approximately 14,000. Differences greater than the standard error of the difference would be expected to occur because of sampling error about 1 time in 3; differences greater than twice the standard error of the difference would be expected to occur due to sampling variability only about 5 times in 100, if the survey were repeated many times.

The following approximate values of the correlation between characteristics repeated in months separated by the indicated number of months may be used in the above formula to obtain the approximate standard errors of the differences in the levels of the 2 months:

| Months apart | Value of-- |
|---|---|
| 1 | 0.90 |
| 2 | .85 |
| 3 | .80 |
| 9 | .60 |
| 12 | .70 |