

**Findings from the  
National Agricultural  
Workers Survey  
(NAWS) 2000-2009**

Profiles of Youth,  
Parents, and Children  
of Farm Workers  
in the United States



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U.S. Department of Labor  
Employment and Training Administration  
Office of Policy Development and Research

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## ***Executive Summary***

This report is the tenth in a series of Department of Labor publications on the demographic and employment characteristics of hired crop workers in the United States (U.S.). It was written with support from and collaboration with the Environmental Protection Agency, Office of Pesticide Programs. Unlike previous reports, which summarized the characteristics of all crop workers, this report examines the demographic and employment characteristics of three important subpopulations: 1) youth crop workers ages 14 to 18; 2) dependent children, under the age of 18, of crop workers, a very small share of whom also work in agriculture; and 3) farm worker parents who have children under the age of 18. The characteristics of each group are presented in the context of assessing the potential for pesticide exposure, either through direct handling of pesticides, or through other exposure routes. The information summarized herein was collected between October 1, 1999 and September 20, 2009 (Federal fiscal years 2000 to 2009) through face-to-face interviews with 26,347 crop workers. The primary focus of this report is the presentation of findings for the period covering fiscal years 2004 to 2009. Data that were collected in fiscal years 2000 to 2003 were analyzed as well, for comparison purposes.

### ***Youth Crop Workers***

Youth ages 14 to 18 comprised six percent of all hired crop workers in fiscal years 2004-2009. This translates to an estimated 84,000 youth ages 14 to 18 working on U.S. crop farms each year. The majority of youth farm workers were male (85%), recent arrivals to the U.S. (74%), and had incomes below the Federal poverty level (77%). Few youth farm workers lived with a parent (10%). Youth farm workers were nearly twice as likely as their adult counterparts to report earning less than \$10,000 from farm work in the previous year (34% and 17%, respectively). The median income from agricultural employment among youths was \$6,250, compared to \$13,750 among adults.

Youth and adult farm workers were quite similar with respect to types of employers and how they were paid. Almost equal proportions of both youth and adult farm workers were employed directly by growers (85% and 87%, respectively) and the vast majority of each group was paid by the hour (88% of youths and 82% of adults). At the time they were interviewed, youth farm workers were most highly concentrated in vegetable crops (30%), while adult farm workers were most highly concentrated in fruit and nut crops (32%). Youths were more likely than adults to be performing harvesting tasks (32% and 24%, respectively), and less likely than adults to be performing post-harvest tasks<sup>1</sup> (9% and 15%, respectively) or technical tasks<sup>2</sup> (18% and 21%, respectively).

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<sup>1</sup> Post-harvest tasks include: Food grading, sizing, and sorting; loading and hauling; warehouse, nursery, shed, and field packing; cotton ginning and cotton tromping; washing and brushing grapes; and tobacco hanging, drying and curing.

<sup>2</sup> Technical (i.e., semi-skilled) tasks include: Fertilizing and mulching; pest control fumigation and spraying; field machine and packing machine operation; grafting, breeding, and injecting; thinning, cropping, topping, and pruning; and water irrigation.

Almost all youth farm workers reported that their employer provided water for hand washing (99%) and virtually all indicated that they used the water provided (100%). Youth farm workers were less likely than adults to handle pesticides or receive training in the safe use of pesticides: 10 percent of youths and 15 percent of adults reported handling pesticides in the 12 months prior to being interviewed, and 75 percent of youths and 83 percent of adults said they received training from their current employer in the safe use of pesticides.

### ***Dependent Children of Crop Workers***

Children of farm workers tend to be very young because their parents are young. In fiscal years 2004-2009, more than three quarters of the children of farm workers were under the age of 14 (78%); one-third (33%) were under the age of six. More than half of the children were born in the U.S. (56%). The older the child, the more likely he/she was to have been foreign-born: 70 percent of children ages 16 and 17 were foreign-born, compared to 32 percent of children under the age of six.

In 2004-2009, the vast majority of the dependent children of farm workers who were living in the U.S. were enrolled in a U.S. school and were at a grade level appropriate for their age (85%). Children ages 16 to 17 were more likely than children ages six to 13 to be behind in grade (22% and 9%, respectively) or to not be enrolled in a U.S. school (4% and 2%, respectively). Twenty-four percent of the dependent children who worked in the fields were under the age of 14. Thus, based on information that was collected from the 12,704 farm workers who were interviewed in fiscal years 2004-2009, it is estimated that approximately 4,000 dependent children under the age of 14 do farm work each year. Most of the children who worked in the fields were 14 or older (76%), and most were boys (78%).

A small fraction of children sometimes accompanied their parents to field but did not perform farm work while there. Based on information that was collected from 11,246 farm workers who were interviewed during fiscal years 2004-2009, it is estimated that approximately 28,000 dependent children under the age of 14 (five percent of such children) accompany their parents to the field each year.<sup>3</sup>

### ***Farm Worker Parents***

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<sup>3</sup> The NAWS question on whether a child under 18 had accompanied a parent to the field was asked through the first interview cycle (cycle 62) of fiscal year 2009. Figures reported are derived from farm worker interviews conducted during fiscal years 2004-2008 and the first interview cycle of fiscal year 2009 (i.e., 16 of the 18 interview cycles included in fiscal years 2004 through 2009). 11, 246 farm workers were interviewed during this time (as compared to the previously-discussed 12,704 farm workers interviewed during all cycles included in fiscal years 2004-2009). Of these 11,246 workers, 221 reported that at least one dependent child age 17 and under in their household (for a total of 363 children) accompanied them to the field.

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The primary language of most farm worker parents in 2004-2009 was Spanish (81 percent) and a very small share reported being able to read English well (22 percent). Nearly all farm worker parents reported that their employer provided water for hand washing every day (98 percent). Almost nine in 10 farm worker parents reported that they received training in the safe use of pesticides in the last 12 months (87%), but fewer than two in 10 reported that they loaded, mixed, or applied pesticides in the last 12 months (18%).

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## Introduction

The National Agricultural Workers Survey (NAWS) is a national survey of farm workers in crop agriculture. The NAWS collects extensive data from this population concerning basic demographics, legal status, education, family size and household composition, wages and working conditions in farm jobs, and participation in the U.S. labor force. Information for this report was obtained from 26,347 interviews with workers in the U.S. during Federal fiscal years 2000 to 2009. The primary focus of this report is the presentation of findings from surveys of 12,704 farm workers that were conducted during fiscal years 2004 to 2009. Data collected from 13,643 farm workers in fiscal years 2000 to 2003 were analyzed as well, for comparison purposes.

The NAWS is a survey of workers performing crop agriculture.<sup>4</sup> The definition of crop work by the U.S. Department of Agriculture (USDA) includes field work in the vast majority of nursery products, cash grains, and field crops, as well as in all fruits and vegetables. Crop agriculture also includes the production of silage and other animal fodder. The population sampled in the NAWS consists of nearly all farm workers in crop agriculture, including field packers and supervisors, and even those who simultaneously hold non-farm jobs. However, the sample excludes secretaries and mechanics, and H-2A temporary farm workers. The NAWS does not sample unemployed agricultural workers.

### *Collecting Information From and About Youth Farm Workers*

There are two sources of information about youth farm workers in the NAWS. The first source is the subset of interviewees who are youths aged 14 to 18 who are randomly sampled at worksites along with adults. In fiscal years 2004-2009, 499 youth farm workers were interviewed; in fiscal years 2000-2003, 677 youths were interviewed. Farm worker parents with dependent children comprise the second source of information in the NAWS concerning youth crop workers. Information in this report concerning the dependent children of farm workers pertains to children under the age of 18 who were living with the farm worker respondent when the farm worker was interviewed. The findings are based on a sample of 9,807 children who were listed by their parents on the NAWS household inventory in fiscal years 2004-2009 and 9,657 children who were listed in fiscal years 2000-2003.<sup>5</sup> Information on each household member's gender, birthplace, age, relationship to the interviewee, schooling, work, and migration is collected in the NAWS.

It is important to note that minors under the age of 14 are not interviewed in the NAWS. Although basic demographic information about dependent children is elicited from farm worker parents, there is little information about the level or type of workforce participation of children under the age of 14.

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<sup>4</sup> All crops included in North American Industry Classification System (NAICS) code 111.

<sup>5</sup> Data on dependent children is weighted using a factor that adjusts for the double-counting of children that occurs when both parents are farm workers.

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This report is organized into three chapters. Chapter 1 provides data on youth farm workers ages 14 to 18; chapter 2 presents data on farm workers' dependent children; and chapter 3 presents information on farm worker parents.

### ***Methods***

An estimated 1.4 million workers are employed at least one day per year in U.S. crop agriculture<sup>6</sup>. Each year, the NAWS collects data from a nationally representative sample of crop workers using face-to-face interviews. A detailed description of the NAWS methodology can be found in the Statistical Methods of the National Agricultural Workers Survey.<sup>7</sup> To estimate the number of farm workers with certain characteristics, the percentage of workers in the NAWS sample found to have that characteristic is multiplied by the estimate of 1.4 million farm workers. For example, if 50 percent of the NAWS sample has a particular characteristic, that would correspond to 700,000 workers.

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<sup>6</sup> Martin, Philip. (2011, April 30). *California Hired Farm Labor 1960-2010: Change and Continuity*. Retrieved March 18, 2012, from <http://migrationfiles.ucdavis.edu/uploads/cf/files/2011-may/martin-california-hired-farm-labor.pdf>

<sup>7</sup> U.S. Department of Labor, Employment and Training Administration, (2010). *1205-0453: The National Agricultural Workers Survey, Part B*, [http://www.doleta.gov/agworker/pdf/1205\\_0453\\_Supporting\\_Statement\\_PartB32210.pdf](http://www.doleta.gov/agworker/pdf/1205_0453_Supporting_Statement_PartB32210.pdf)

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## Chapter 1: Youth Farm Workers Ages 14 - 18

### *Summary of Findings*

- Youth farm workers ages 14 to 18 accounted for six percent of hired crop farm workers.
- The majority (85%) were male.
- Three in four (74%) of all youth farm workers had been in the U.S. for less than two years.
- Seven in eight (88%) did not live with a parent.
- Six in 10 (60%) reported Spanish as their primary language.
- Hired youth farm workers were more likely than adults to live in households that had below-poverty-level incomes.
- Fifteen percent of all youth farm workers worked for farm labor contractors. Among foreign-born youths, 21 percent worked for farm labor contractors.
- The median income from farm work for youth farm workers was \$6,250.
- Nearly all youth farm workers (99%) said that their current farm employer provided water for hand-washing.
- All youth who were provided with water reported using it.
- Eight in 10 youth reported that their current employer provided sufficient soap and disposable towels to meet workers' needs every day.
- While five in six (83%) adults received pesticide training, three in four (75%) youth farm workers received pesticide training.
- Ten percent of youth handled pesticides, compared to 15 percent of adults.

Hired youth farm workers ages 14 to 18 accounted for a small share of farm workers employed in crop agriculture. This age group comprised six percent of all hired crop farm workers interviewed in fiscal years 2004-2009 and eight percent of hired crop farm workers interviewed in fiscal years 2000-2003<sup>8</sup>. Using the estimate of 1.4 million persons employed at least one day per year in U.S. crop agriculture, there are roughly 84,000 youth ages 14 to 18 working on U.S. crop farms each year (1.4 million x 6%). This chapter discusses the characteristics of these youth farm workers. It provides data on their resident status, family structure, migrant status, language and literacy skills, earnings and work conditions, including sanitation, and pesticide handling and training.

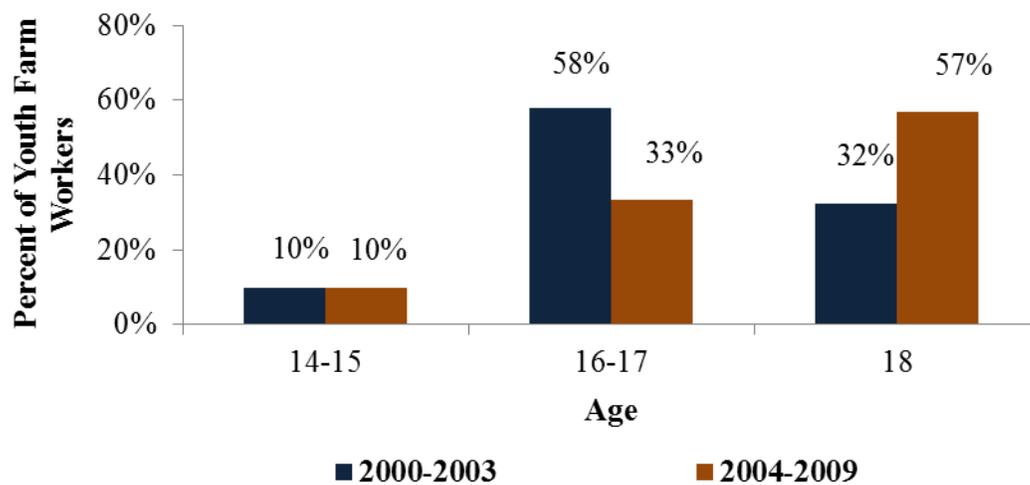
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<sup>8</sup> There were 12,704 farm workers sampled for the NAWS during fiscal years 2004-2009. Among the sampled farm workers, 499 were youth aged 14 to 18. There were 13,643 farm workers sampled for the NAWS during fiscal years 2000-2003 and 677 of these sampled farm workers were youth aged 14 to 18.

### *Demographic Portrait*

The age distribution of hired youth farm workers in crop agriculture is illustrated in Figure 1.1 for fiscal years 2000-2003 and 2004-2009. The proportion of 14-15 year olds among youth farm workers remained at 10 percent between 2000-2003 and 2004-2009, while the proportion of 16-17 year olds decreased from 58 percent to 33 percent and the proportion of 18 year olds increased from 32 percent to 57 percent.

**Figure 1.1: Age Distribution of Youth Farm Workers, Fiscal Years 2000-2003 and 2004-2009**



Demographic characteristics such as gender, poverty status, resident status, family structure, migrant status, and indigenous origin of youth farm workers are presented in Figure 1.2. The majority of youth farm workers (85%), like their adult counterparts (77%), were male.

Slightly more than six in 10 (61%) youth farm workers were foreign-born. Most foreign-born youth were born in Mexico (93%). Of the youth farm workers born in Mexico, approximately four in 10 (41%) were from the southern region, including the Yucatan peninsula.<sup>9</sup> The majority of the foreign-born youths who were interviewed in fiscal years 2004-2009 did not come to the U.S. as young children, but were recent arrivals. Almost three in four (74%) had been in the U.S. for less than two years at the time of the interview.

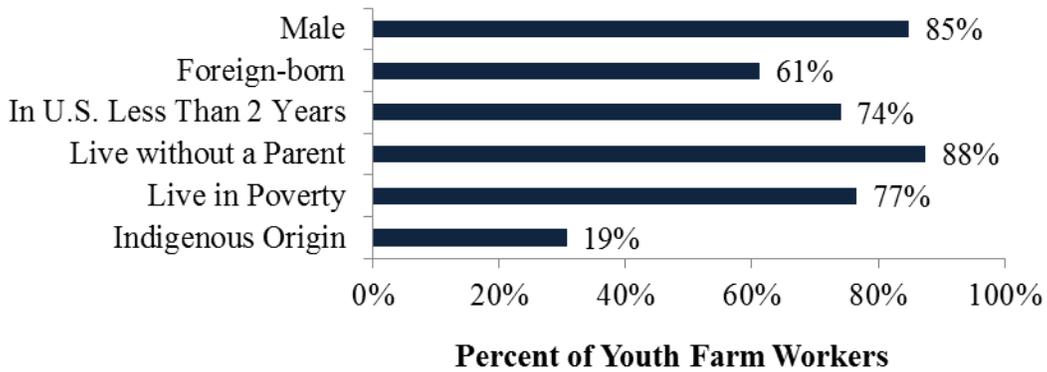
Only one in 10 (10%) of the youth farm workers interviewed in fiscal years 2004-2009 lived with his/her parent(s). Seventy-six percent resided with extended family

<sup>9</sup> Youth from southern Mexico were from the states of Campeche, Chiapas, Guerrero, Morelos, Oaxaca, Puebla, Veracruz, and Yucatan. The 59 percent of youth who were not from southern Mexico were from Aguascalientes, Baja California, Chihuahua, Colima, Mexico Distrito Federal, Estado de Mexico, Guanajuato, Hidalgo, Jalisco, Michoacan, Nayarit, Queretaro, San Luis Potosi, Sinaloa, Sonora, Tamaulipas, and Zacatecas.

members but no immediate family<sup>10</sup>, and 10 percent lived in a household with no family members, only non-relatives. Two percent of the youth workers lived with their spouse and their children and one percent lived with a spouse but no children.

Seven in nine (77%) youth were in a household with total family income below the Federal poverty level. Finally, 19 percent of youth crop workers were of indigenous origin.

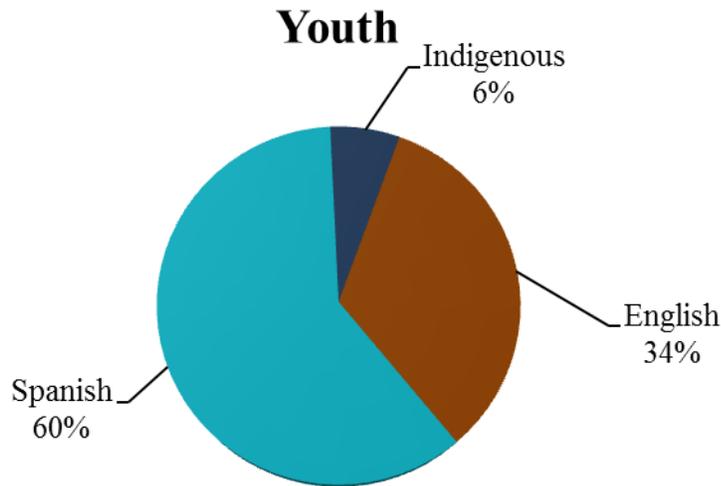
**Figure 1.2: Demographic Snapshot of Youth Farm Workers, Fiscal Years 2004-2009**



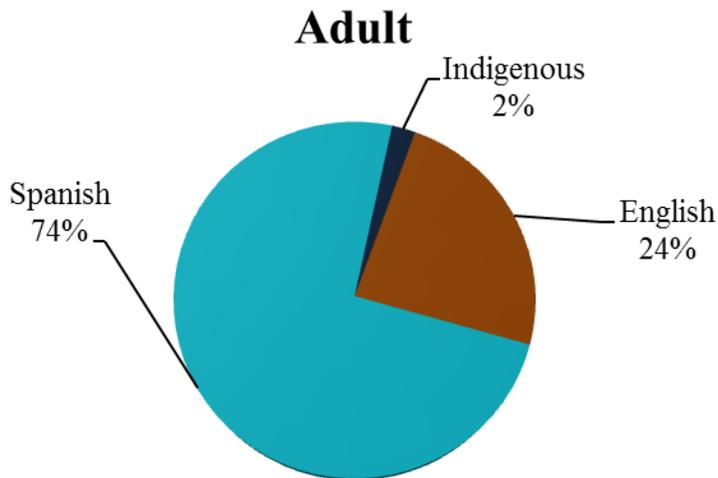
<sup>10</sup> Immediate family members include the youth farm worker's siblings, parents, spouse, or children. Extended family members include other relatives such as grandparents, cousins, aunts or uncles.

Like adult farm workers, the primary language for the majority of youth farm workers was Spanish, followed by English and indigenous languages (Figures 1.3a and 1.3b).<sup>11</sup> Youth farm workers, however, were three times more likely than adults to report that their primary language was an indigenous language, six percent versus two percent, respectively.

**Figure 1.3a: Primary Language of Youth Farm Workers, Fiscal Years 2004-2009**



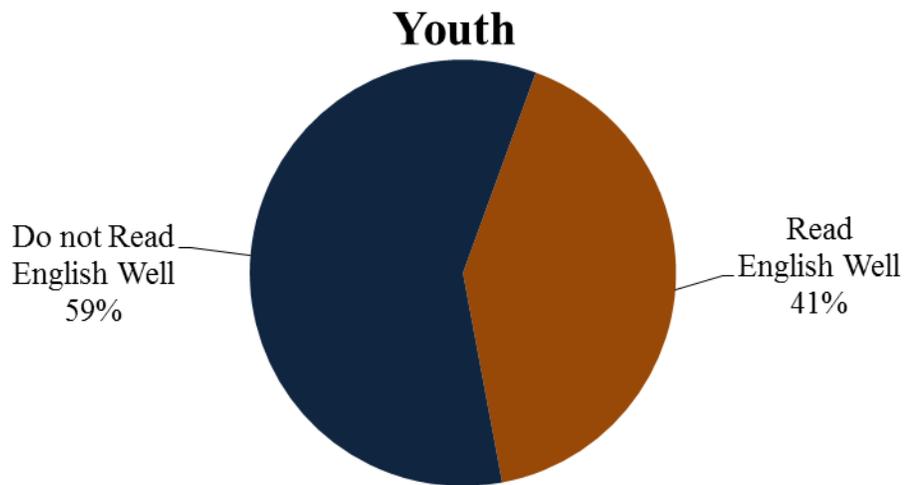
**Figure 1.3b: Primary Language of Adult Farm Workers, Fiscal Years 2004-2009**



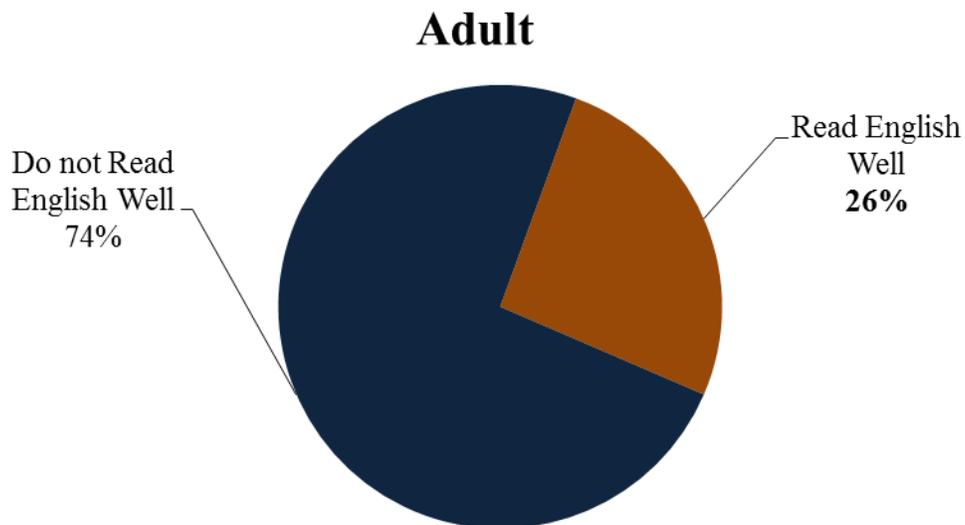
<sup>11</sup> The indigenous languages include: Mixtec, Kanjobal, Otomi, Quiche, Triqui, Tzotzil, Zapoteco, Achi, Mam, Nahuatl, Chinanteco, Aquacateco, Amuzgo, Jacalteco, and Tarasco.

In terms of English reading ability, youth farm workers were more likely than adults to report that they could read English “well” (41% and 26% respectively) (Figures 1.4a and 1.4b). Looking at English reading ability from another perspective, 74 percent of adults reported that they could not read English well compared to 59 percent of youths. Adults reported that they could read English “a little” at three times the frequency of youths (21% and 7% respectively). Strikingly, fully half of the youths and nearly half (47%) of the adults reported that they could not read English “at all.”

**Figure 1.4a: Ability to Read English, Youth Farm Workers, Fiscal Years 2004-2009**



**Figure 1.4b: Ability to Read English, Adult Farm Workers, Fiscal Years 2004-2009**

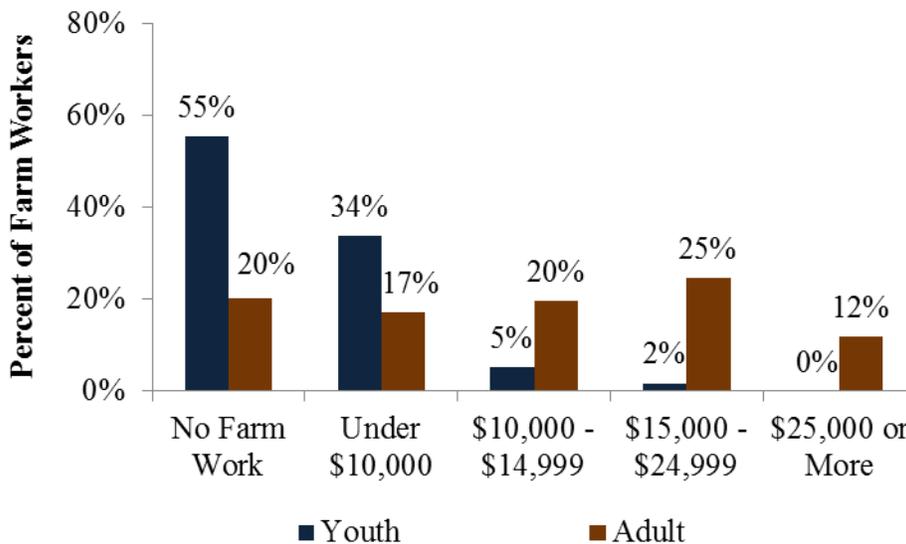


## *Earnings and Employment*

Not surprisingly, youth farm workers had lower average hourly earnings than adult farm workers, \$7.25 compared to \$8.64. The difference in hourly wages could likely be attributed to years of farm work experience. The NAWS also asked about income for the calendar year prior to the date of interview, including income from agricultural employment in the U.S., personal income from both farm work and non-farm work, and total family income from farm work and non-farm work for all family members in the household. The majority (55%) of youths did not work in agriculture in the year prior to the interview; as a result they reported no income from agricultural employment (Figure 1.5)<sup>12</sup>. Among youths who had worked the previous year, the majority earned less than \$10,000 from farm work. While adult farm workers reported a broader range of income from agricultural employment, the largest proportion of adults earned between \$15,000 and \$25,000 from their agricultural employment (Figure 1.5). The median income from agricultural employment for youths was \$6,250 compared to \$13,750 for adults.<sup>13</sup>

Farm workers in general are a poor population. Almost eight in 10 (77%) youth, and more than one in five (23%) of adult farm workers lived in a household where the total family income was below the Federal poverty level.<sup>14</sup>

**Figure 1.5: Income Distribution from Agricultural Employment of Youth and Adults, Fiscal Years 2004-2009**



When asked how they were paid for the primary task that they were performing on the day of the interview, youths and adults responded similarly. Youths were slightly more likely than adults to be paid by the hour, 88 percent and 82 percent respectively, and

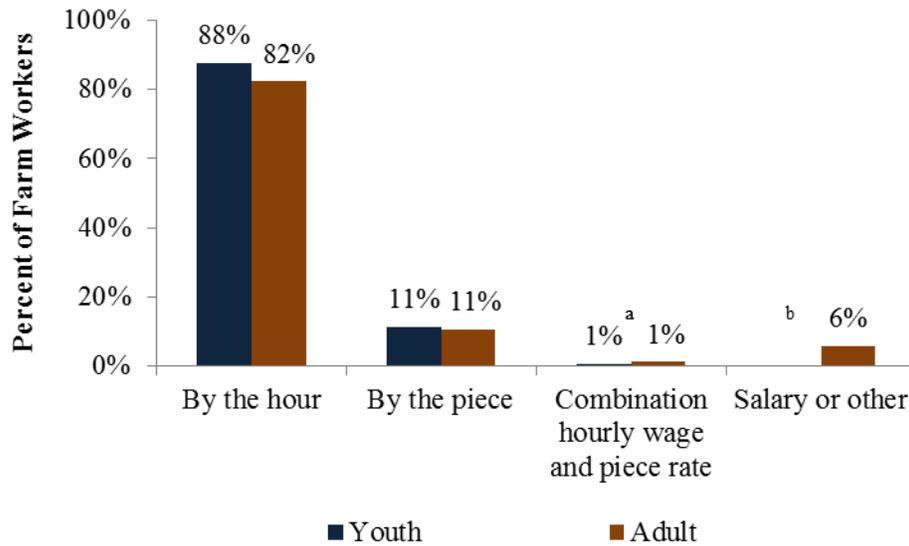
<sup>12</sup> Farm workers who reported no income from agricultural employment were either newcomers to farm work or were not involved in farm work the year prior to the interview.

<sup>13</sup> Hourly wages are reported for the job held at the time of the interview. The poverty figures are estimated based on total family income in the year prior to the interview and current household size.

<sup>14</sup> The poverty figures are estimated based on total family income in the year prior to the interview and current household size.

equally likely to be paid a piece rate (11%). Six percent of the adults reported being paid a salary (Figure 1.6).

**Figure 1.6: Method of Payment of Youth and Adult Farm Workers, Fiscal Years 2004-2009**

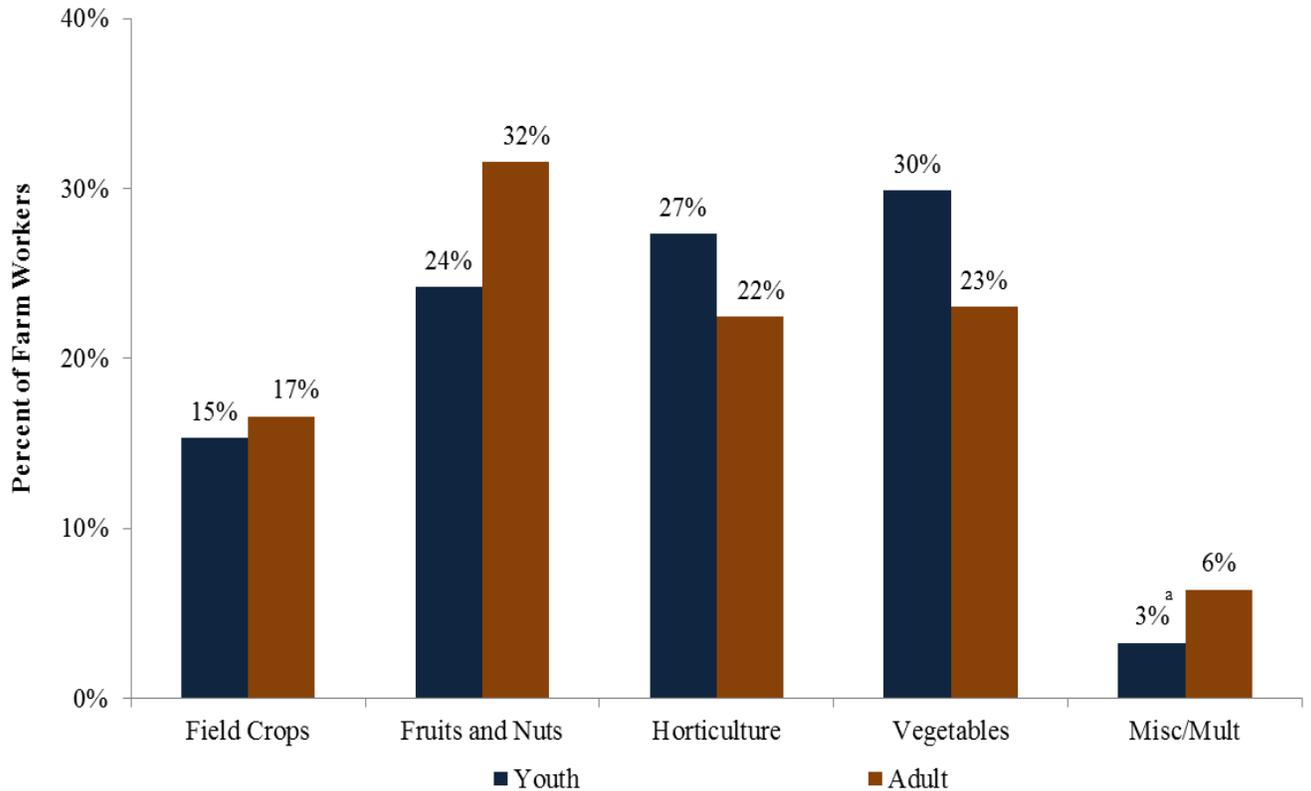


<sup>a</sup> Estimate should be interpreted with caution because it has a relative standard error between 31 and 50 percent.

<sup>b</sup> Estimate is suppressed because it has a relative standard error greater than 50 percent.

With respect to crops, significant shares of youth farm workers, like adults, were found to be working in each crop category. Youths, however, were more highly concentrated in vegetable crops (30%), while adults were more concentrated in fruit and nut crops (32%) (Figure 1.7).

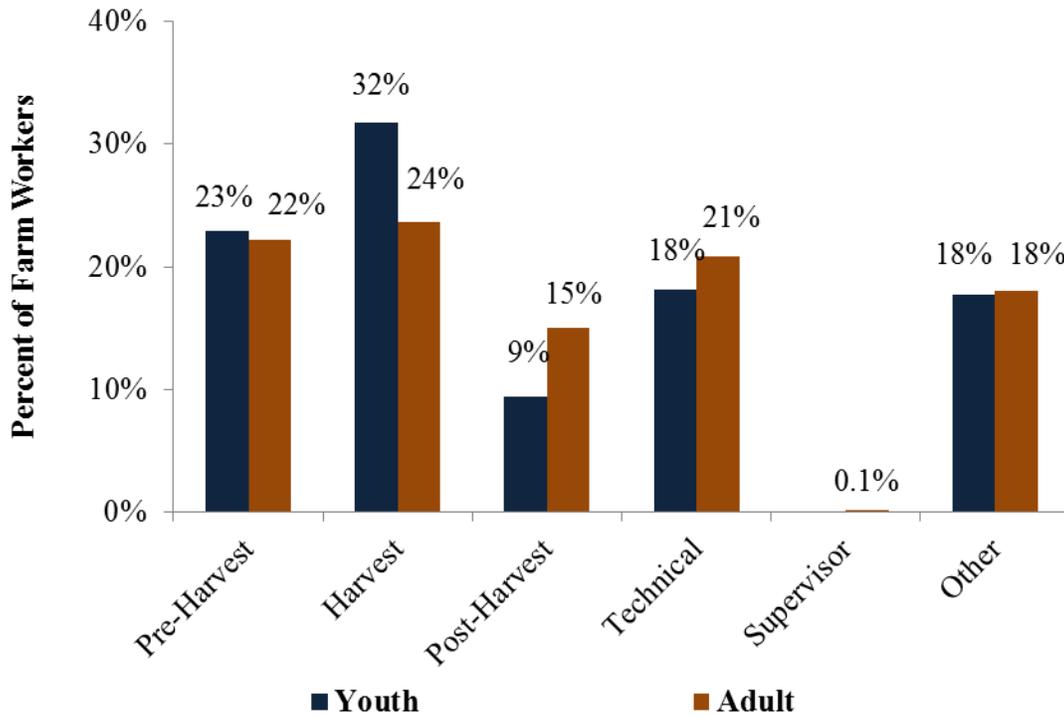
**Figure 1.7: Type of Crop Worked by Youth and Adult Farm Workers, Fiscal Years 2004-2009**



<sup>a</sup> Estimate should be interpreted with caution because it has a relative standard error between 31 and 50 percent.

Youth and adult farm workers also have very similar distributions across task categories, with a plurality of both groups performing a harvesting task at the time of the interview: 32 percent for youths and 24 percent for adults. Adults, however, were 40 percent more likely than youths to be performing a post-harvest task<sup>15</sup> (15% and 9%, respectively), and 14 percent more likely to be performing a technical task<sup>16</sup> (21% and 18%, respectively) (Figure 1.8).

**Figure 1.8: Type of Task Performed by Youth and Adult Farm Workers, Fiscal Years 2004-2009**

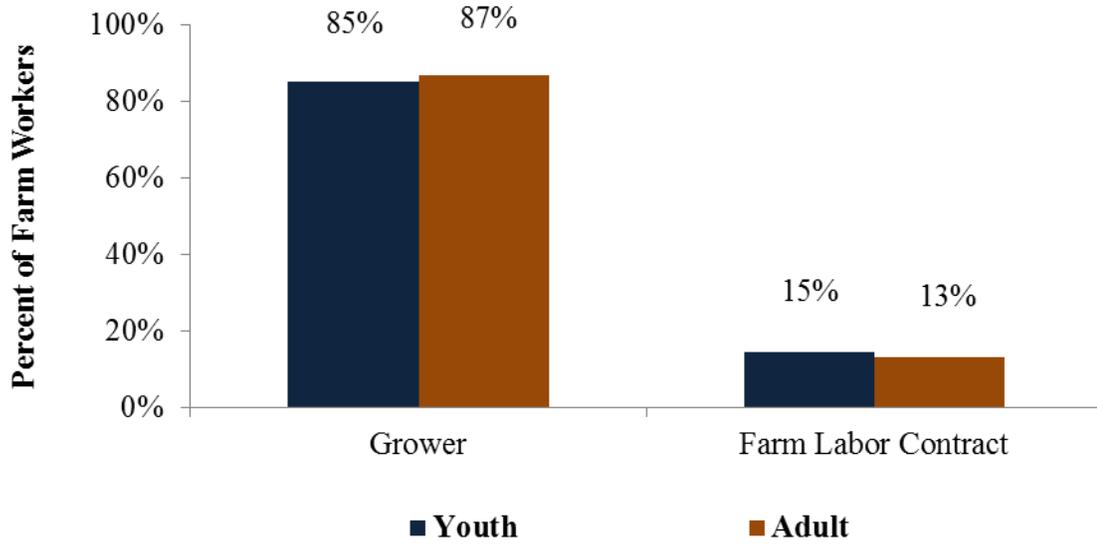


<sup>15</sup> Post-harvest tasks include: Food grading, sizing, and sorting; loading and hauling; warehouse, nursery, shed, and field packing; cotton ginning and cotton tromping; washing and brushing grapes; and tobacco hanging, drying and curing.

<sup>16</sup> Technical (i.e., semi-skilled) tasks include: Fertilizing and mulching; pest control fumigation and spraying; field machine and packing machine operation; grafting, breeding, and injecting; thinning, cropping, topping, and pruning; and water irrigation.

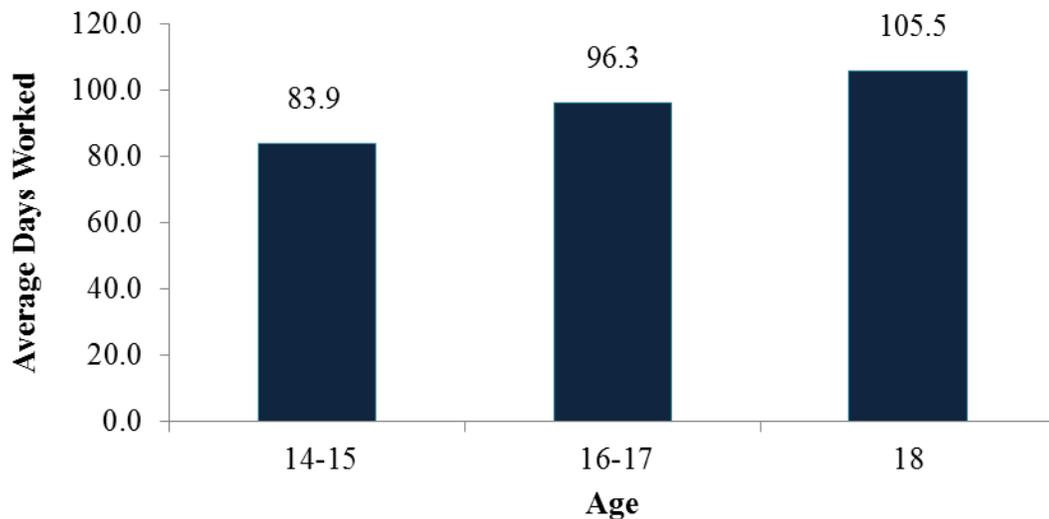
The majority of youths (85%) and adults (87%) were directly hired by the employer for whom they were working at the time of the interview. While only 15 percent of youths and 13 percent of adults worked for a farm labor contractor, the share of both groups differed greatly by place of birth (Figure 1.9). Among foreign-born farm workers, 21 percent of youths and 17 percent of adults worked for a farm labor contractor.

**Figure 1.9: Type of Employer of Youth and Adult Farm Workers, Fiscal Years 2004- 2009**



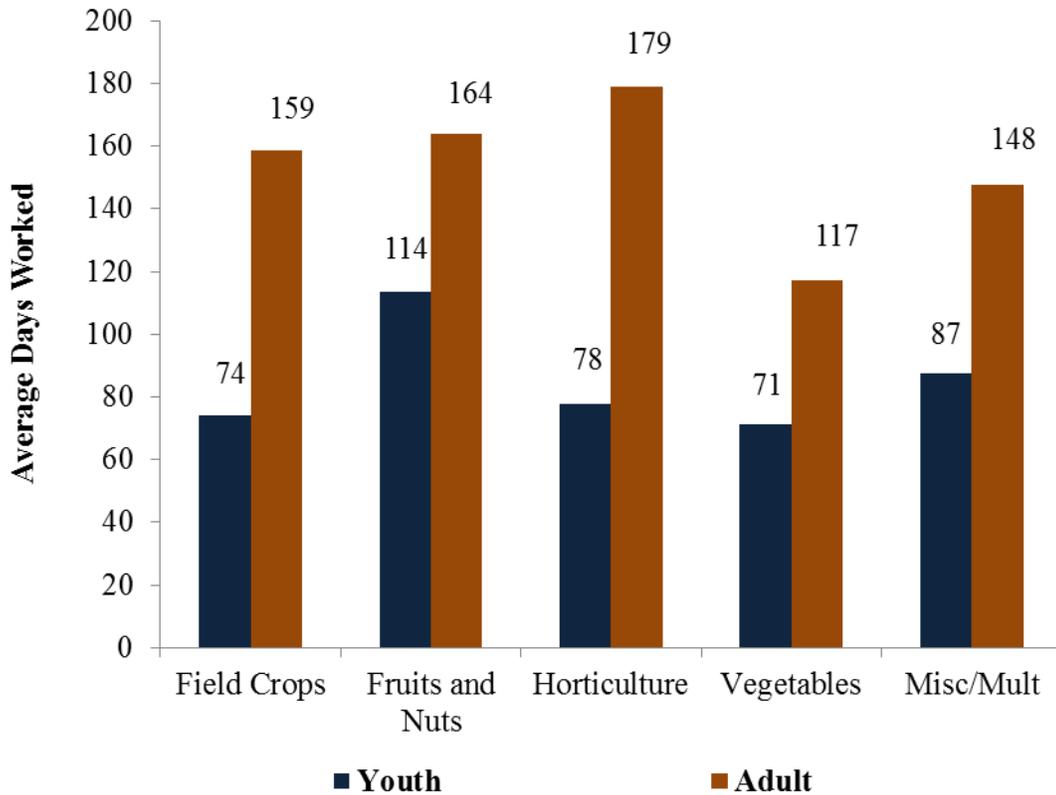
Youth farm workers accounted for three percent of the total weeks worked in crop agriculture. The percentage of total weeks worked by youth farm workers was less than the share of youth farm workers in agriculture because youths worked fewer weeks on average than adults (18 weeks among youths versus 35 weeks among adults). Drawing on information collected in the 12-month retrospective work history section of the NAWS questionnaire, it was also possible to calculate the average number of farm work days performed in the year prior to the interview. Over fiscal years 2004-2009, youths averaged 100 days of farm work per year and adults averaged 197. Older youths tended to report more days of crop work than younger ones (Figure 1.10). The oldest youth farm workers (18 year olds) worked on average 106 days per year. Youths ages 14 and 15 years old worked an average of 84 days per year, approximately three weeks less than the average of 106 days per year worked by 18 year olds. Foreign-born youth worked more days per year, averaging 111, than did the U.S.-born youth, who averaged 84.

**Figure 1.10: Average Days Worked by Youth Farm Workers, by Age Group, Fiscal Years 2004-2009**



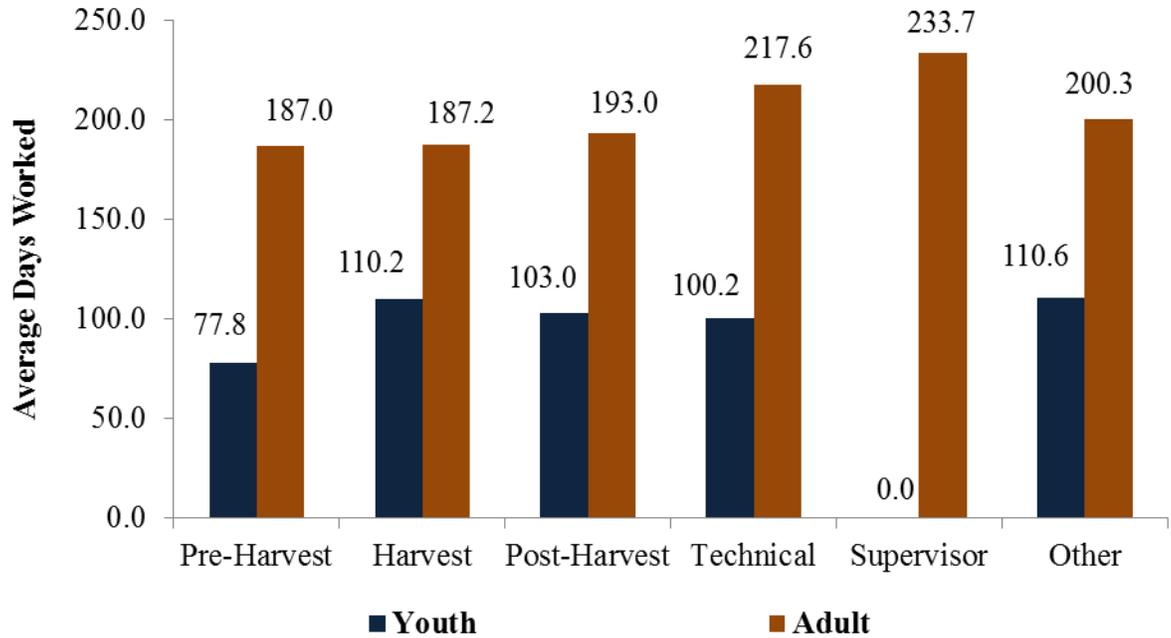
Across all crop categories, youths worked fewer days per year compared to adults (Figure 1.11). Youths worked the most days in the fruits and nuts crop category, averaging 114 days per year, and the least in vegetables, where they averaged 71 days. In contrast to youths, adult farm workers worked more days in horticulture crops, averaging 179 days, and in the fruits and nuts crops category (164 days) than in the multiple or miscellaneous crops category (Figure 1.11).

**Figure 1.11: Average Days Worked by Youth and Adult Farm Workers, by Crop, Fiscal Years 2004-2009**



By task category, youths worked an average of approximately 110 days per year in harvest tasks, 103 days in post-harvest tasks, and 100 days in technical tasks (Figure 1.12). Adults worked on average more days in supervisory and technical tasks than in other tasks (Figure 1.12).

**Figure 1.12: Average Days Worked by Youth and Adult Farm Workers, by Task, Fiscal Years 2004-2009**



### *Sanitation*

Fresh water and soap for hand washing are important to clean away germs picked up from other people, or from contaminated surfaces, animals and animal waste. It is also important to wash hands well immediately after coming into contact with pesticides. NAWS data from fiscal years 2004 to 2009 reveal that almost all (99%) youth farm workers had employers that provided water to wash hands (Figure 1.13). When NAWS respondents were asked in fiscal year 2000 if they used the water that was provided, all youths and nearly all adults reported that they did.

**Figure 1.13: Employer Provided Water for Hand Washing, Fiscal Years 2000 and 2004-2009**

<b>Employer provided water to wash hands (2004-2009)</b>	<b>Yes</b>	<b>N</b>
Youth	99%	499
Adult	98%	12,196

<b>Farm worker used the hand-washing water provided (2000)</b>	<b>Yes</b>	<b>N</b>
Youth	100%	167
Adult	99%	3,062

In fiscal year 2000, a series of questions was used to assess the instances of hand washing among farm workers. This included asking whether workers used water to wash their hands before eating, before beginning work, before using the toilet, and after using the toilet (Figure 1.14). Responses by youths and adults were similar across these questions. Nine in 10 farm workers reported washing their hands before eating (88% of youths and 90% of adults), five in seven reported that they washed their hands after using the toilet (69% of youths and 71% of adults), and just more than one in 10 said they washed their hands before using the toilet (11% of youths and 13% of adults).

**Figure 1.14: Instances of Hand Washing by Youth and Adult Farm Workers, Fiscal Year 2000**

<b>Washed hands before eating</b>	<b>Yes</b>	<b>N</b>
Youth	88%	166
Adult	90%	3,027
<b>Washed hands before beginning work</b>	<b>Yes</b>	<b>N</b>
Youth	<sup>b</sup>	166
Adult	8%	3,027
<b>Washed hands before using toilet</b>	<b>Yes</b>	<b>N</b>
Youth	11% <sup>a</sup>	166
Adult	13%	3,027
<b>Washed hands after using the toilet</b>	<b>Yes</b>	<b>N</b>
Youth	69%	166
Adult	71%	3,027
<b>Washed hands for other reasons</b>	<b>Yes</b>	<b>N</b>
Youth	<sup>b</sup>	166
Adult	4%	3,027

<sup>a</sup> Estimate should be interpreted with caution because it has a relative standard error between 31 and 50 percent.

<sup>b</sup> Estimates are suppressed because they have relative standard errors greater than 50 percent.

In fiscal year 2000, a smaller share of youths reported that their current employer provided sufficient soap and disposable towels to meet workers' needs everyday than did adults (83% and 88%, respectively) (Figure 1.15).

**Figure 1.15: Employer Provided Soap and Disposable Towels, Fiscal Year 2000**

<b>Current Employer Provided Sufficient Soap and Disposable Towels to Meet Workers' Needs Everyday</b>	<b>Yes</b>	<b>N</b>
Youth	83%	166
Adult	88%	2,999

### *Pesticide Handling and Training*

A smaller share of youths handled (mixed, loaded, or applied) pesticides in the 12 months prior to the interview than did adults. Ten percent of youths handled pesticides compared to 15 percent of adults (Figure 1.16).

**Figure 1.16: Pesticide Handling, Fiscal Years 2004-2009**

<b>Handled pesticides in the 12 months prior to the interview</b>	<b>Yes</b>	<b>N</b>
Youth	10% <sup>a</sup>	499
Adult	15%	12,184

<sup>a</sup> Estimate should be interpreted with caution because it has a relative standard error between 31 and 50 percent.

Agriculture employers may provide pesticide safety training to their workers on how to reduce exposure to pesticides. During the interview, farm workers were asked whether, in the last 12 months while working for their current employer, anyone had given them training or instructions in the safe use of pesticides via video, audio cassette, classroom lecture, written material, informal talks or by any other means. Youths were less likely than their adult counterparts to receive this type of pesticide training. While more than eight in 10 (83%) adults received training to reduce exposure to pesticides, three in four youths (75%) received such training (Figure 1.17).

**Figure 1.17: Pesticide Training, Fiscal Years 2004-2009**

<b>Received training through any method to reduce exposure to pesticides</b>	<b>Yes</b>	<b>N</b>
Youth	75%	496
Adult	83%	12,170

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## Chapter 2: Farm Workers' Dependents

### *Summary of Findings*

- Almost eight in 10 (78%) dependent children of farm workers were under age 14.
- Older dependent children were more likely to be foreign-born than younger children.
- More than eight in 10 (85%) dependents were enrolled in school, at the grade level appropriate for their age. Less than three percent were not enrolled in school. Almost one in eight (13%) was behind in grade. Older children were more likely to be behind in grade than younger children.
- One in 50 (2%) dependent children did farm work. About one in four (24%) children working in the field was age 13 or younger.
- Approximately eight in 10 (78%) dependent children of farm workers who did farm work were boys.
- One in 20 (5%) dependents age 17 and younger accompanied their parents to the field.
- Dependents under age six were most likely to be looked after by the farm workers' spouse or other relatives while their parent was doing farm work.

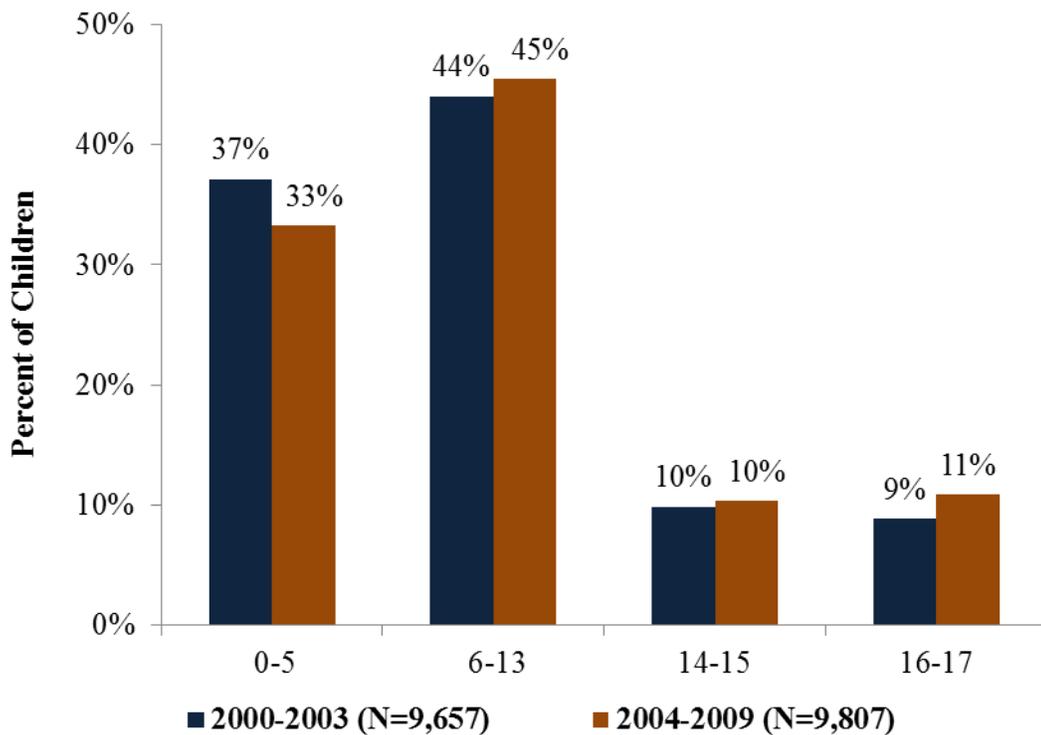
This chapter provides data on age, place of birth and school status of farm workers' dependent children age 17 and younger, as reported by their farm worker parent. This chapter also provides data on the proportion and number of dependent children age 17 and younger who did farm work, the proportion and the number of dependent children age 17 and younger that accompanied their parents to the field, and the childcare arrangements for dependent children under age 12 when the parent was doing farm work. The children being discussed in this chapter should not be confused with the subgroup of youth farm workers discussed in the Chapter 1. Chapter 1 highlighted findings regarding the workers themselves. This chapter illustrates findings about the dependent children of farm workers.

### *Characteristics of Dependents*

Children of farm workers were very young. Almost eight in 10 (78% percent) were under the age of 14; one-third (33%) were under the age of six. These age proportions are similar to those for fiscal years 2000-2003 (Figure 2.1).

Children of farm workers tended to be young because their parents were also young. Over the 2004-2009 period, the average age of farm worker parents was 36, as was the average age of all farm workers.

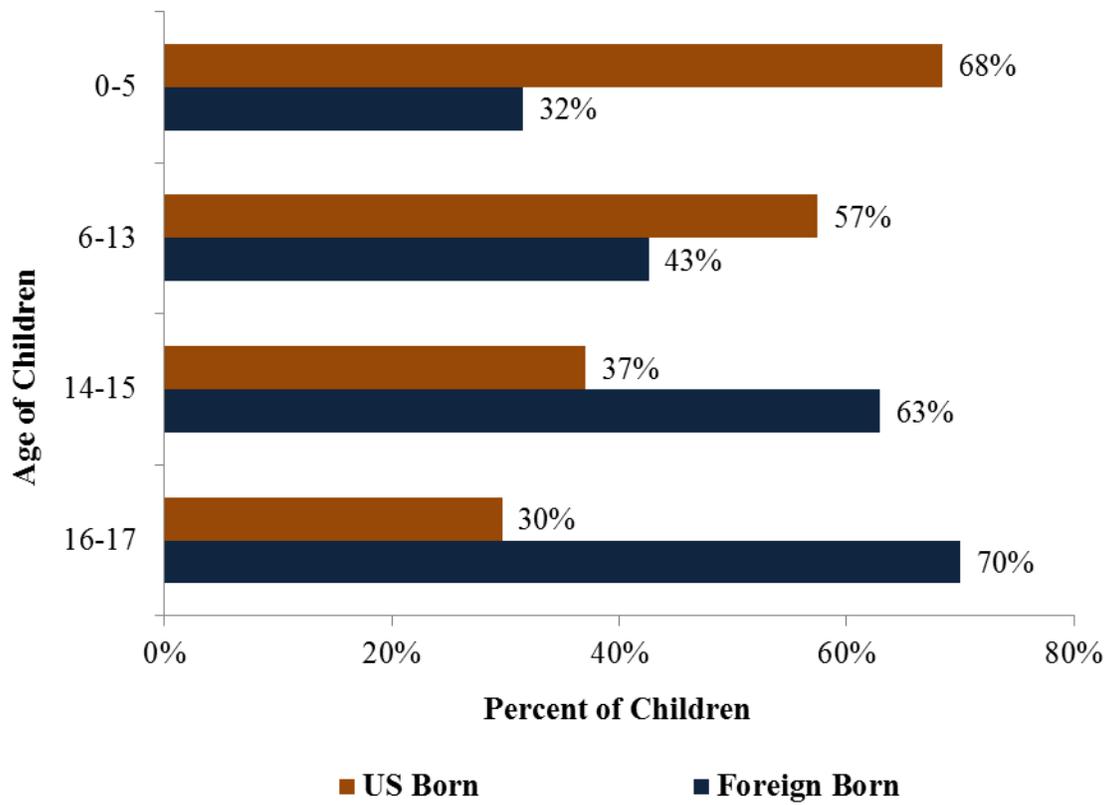
**Figure 2.1: Age Distribution of the Children of Farm Workers, Fiscal Years 2000-2003 and 2004-2009**



Half of all children of farm workers were girls. There was a modest gender gap, however, among 14 to 15 year olds; more than half (56%) of the children in this age group were boys.

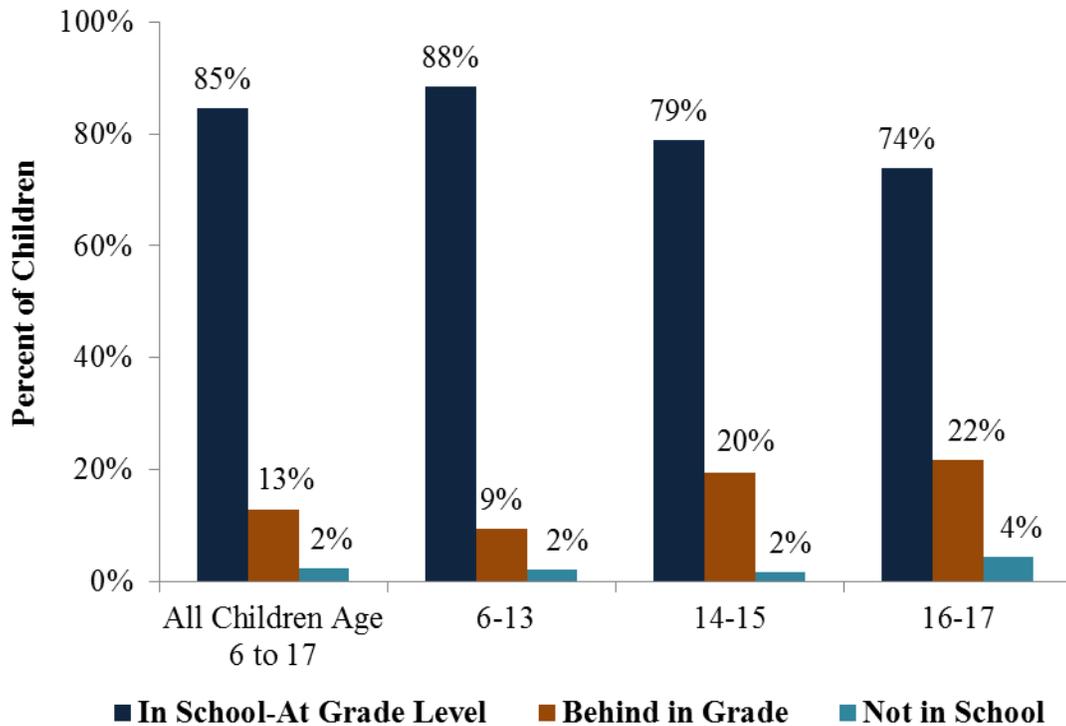
Across all age groups, more than half (56%) of children were born in the U.S.; 44 percent were born abroad. More than nine in 10 (96%) foreign-born dependents were born in Mexico; about three percent were born in Central America. Older children were more likely to be foreign-born (Figure 2.2). Seventy percent of children ages 16 and 17 were foreign-born, compared to 32 percent of the children under the age of six.

**Figure 2.2: Dependent Children of Farm Workers, Place of Birth by Age Group, Fiscal Years 2004-2009**



Parent respondents in the NAWS were asked a series of questions about each of their dependent children, including the highest grade in school each child had completed by the time of the parent's interview, and if the child had attended school in the U.S. in the last 12 months. In 2004-2009, more than eight in 10 (85%) children were enrolled in a U.S. school and were at grade level for their age (Figure 2.3). Less than three percent of children were not enrolled in school in the 12 months prior to the interview. Almost one in eight (13%) school-age children was behind in grade. Children ages 16 to 17 were more than twice as likely to be behind in grade (22% vs. 9%) and twice as likely (4% vs. 2%) not to be enrolled in a U.S. school than were children ages six to 13.

**Figure 2.3: School Status of Farm Workers' Dependents Age 6 to 17, Fiscal Years 2004-2009**



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### *Dependent Children that do Farm Work*

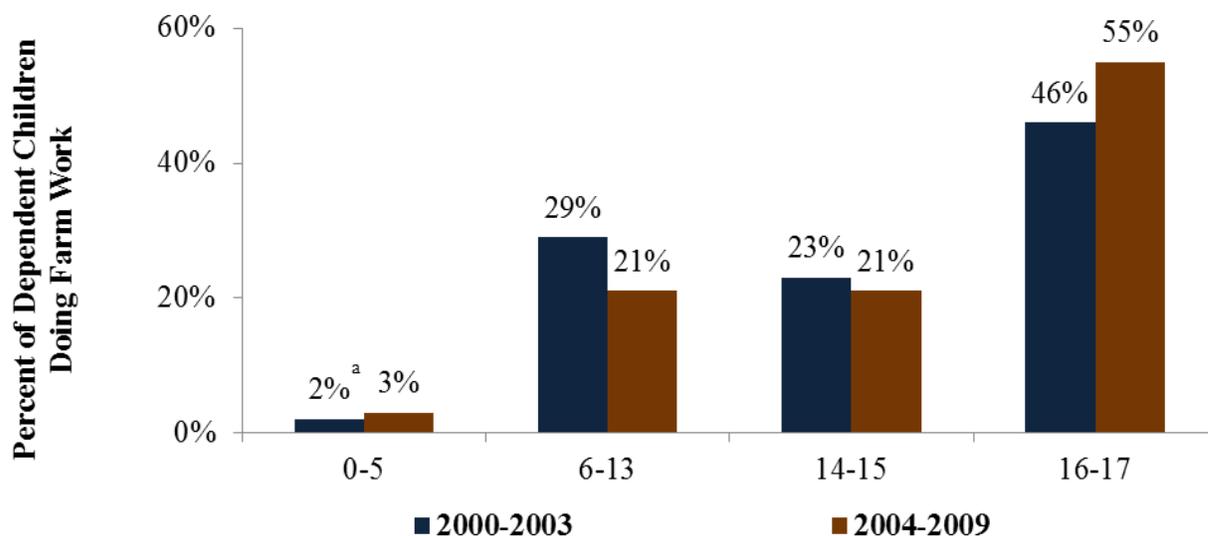
Very few dependent children of farm workers interviewed during fiscal years 2004-2009 worked in the field. Parent respondents in the NAWS were asked two questions about the farm work activities of dependent children age 17 and younger. One question asked whether the dependent child was performing any U.S. farm work at the time of the interview. The second question asked whether the dependent child did any U.S. farm work in the 12 months prior to the interview. Responses to both questions were used to determine whether a dependent child did farm work.

During fiscal years 2004-2009 less than two percent of U.S. resident dependent children did farm work compared to four percent during fiscal years 2000-2003<sup>17</sup>. Older dependent children were more likely to do farm work than younger children. Across all dependents that did farm work, the proportion of those who were age 13 and under decreased from 31 percent to 24 percent, while the proportion of those between ages 14 to 18 increased from 69 percent to 76 percent between fiscal years 2000-2003 and 2004-2009. The proportion of dependent children ages 14 and 15 that did farm work declined from 23 percent to 21 percent, while the proportion of those ages 16 to 17 increased from 46 to 55 percent (Figure 2.4). Boys were more likely to work in the fields than were girls. Approximately eight in 10 (78 percent) farm workers' dependents who did farm work were boys.

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<sup>17</sup> There were 12,704 farm workers sampled for the NAWS during fiscal years 2004-2009. Among the sampled farm workers, 149 reported that at least one child age 17 and under did U.S. farm work. This represents a total of 197 children among the sampled farm workers in the 2004-2009 fiscal years. There were 13,643 farm workers sampled for the NAWS during fiscal years 2000-2003 and 308 of these sampled farm workers reported that at least one child age 17 and under did farm work. This represents a total of 426 children among the sampled farm workers in the 2000-2003 fiscal years.

**Figure 2.4: Age Distribution of Dependent Children That Do Farm Work, Fiscal Years 2000-2003 and 2004-2009**



<sup>a</sup> Estimate should be interpreted with caution because it has a relative standard error between 31 and 50 percent.

Based on information that was collected from the 12,704 farm workers who were interviewed during fiscal years 2004-2009, the number of farm workers' dependent children age 13 and under who do farm work is estimated to be about 4,000<sup>18</sup> out of the estimated 1.4 million persons employed at least one day per year in U.S. crop agriculture.

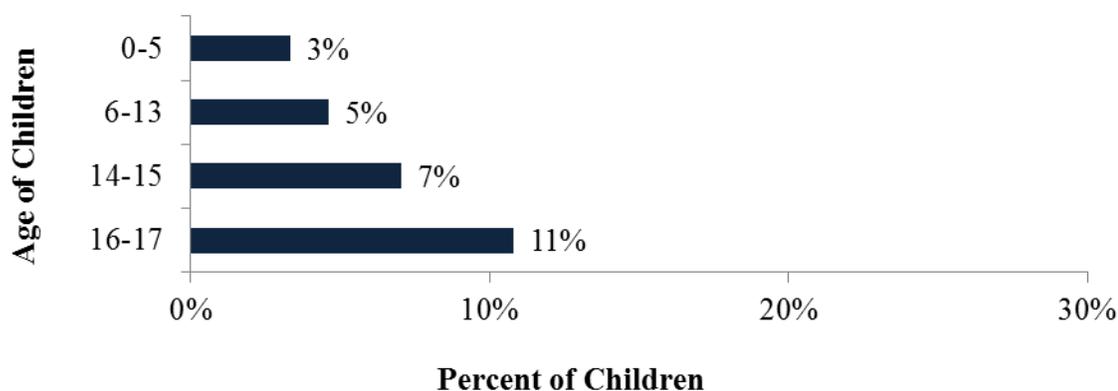
### *Children Accompanying Parents in the Field*

In addition to being asked if they have dependent children who worked in U.S. agriculture in the last 12 months, farm worker respondents in the NAWS who have dependent children in the household ages 17 and under were also asked if any of those children ever accompanied them to the field in the 12 months prior to the interview. Across all dependents ages 13 and under, one in 20 (5%) accompanied parents to the field in the 12 months prior to the interview<sup>19</sup>. About three percent of children under age six accompanied their parents to the field, compared to five percent of children ages six to 13 and eighteen percent of children ages 14 to 17 (Figure 2.5).

<sup>18</sup> This number is calculated based on the estimated 1.4 million farm workers in crop agriculture per year.

<sup>19</sup> The NAWS question on whether a child under 18 had accompanied a parent to field was asked through the first interview cycle (cycle 62) of fiscal year 2009. Figures reported are derived from farm worker interviews conducted during fiscal years 2004-2008 and the first interview cycle of fiscal year 2009 (i.e., 16 of the 18 interview cycles included in fiscal years 2004 through 2009). 11,246 farm workers were interviewed during this time (as compared to the previously-discussed 12,704 farm workers interviewed during all cycles included in fiscal years 2004-2009). Of these 11,246 workers, 221 reported that at least one dependent child age 17 and under in their household (for a total of 363 children) accompanied them to the field.

**Figure 2.5: Dependent Children Accompanying Their Parents to the Field, Fiscal Years 2004-2009**



Based on information that was collected from the 11,246 farm workers who were interviewed during fiscal years 2004-2009<sup>20</sup> it is estimated that approximately 28,000 dependent children under the age of 14 accompanied their parents to the field each year.<sup>21</sup>

### *Childcare*

Childcare is an alternative to taking children to the field. Parent respondents in the NAWS are asked: “*During the past 12 months, where have your children, 12 and under, been while you worked in U.S. farm work? (check all that apply).*” In 2004-2009, eight percent of children stayed home alone, at least sometimes. The largest proportion of children, more than six in 10 (62%), stayed with the farm worker’s spouse or other family members. More than two-fifths (44%) of the children stayed with a neighbor or were at a Migrant and Seasonal Head Start (MSHS), Head Start, Migrant Education, or daycare center. Less than one percent of children 12 and under were in the field with the parent.

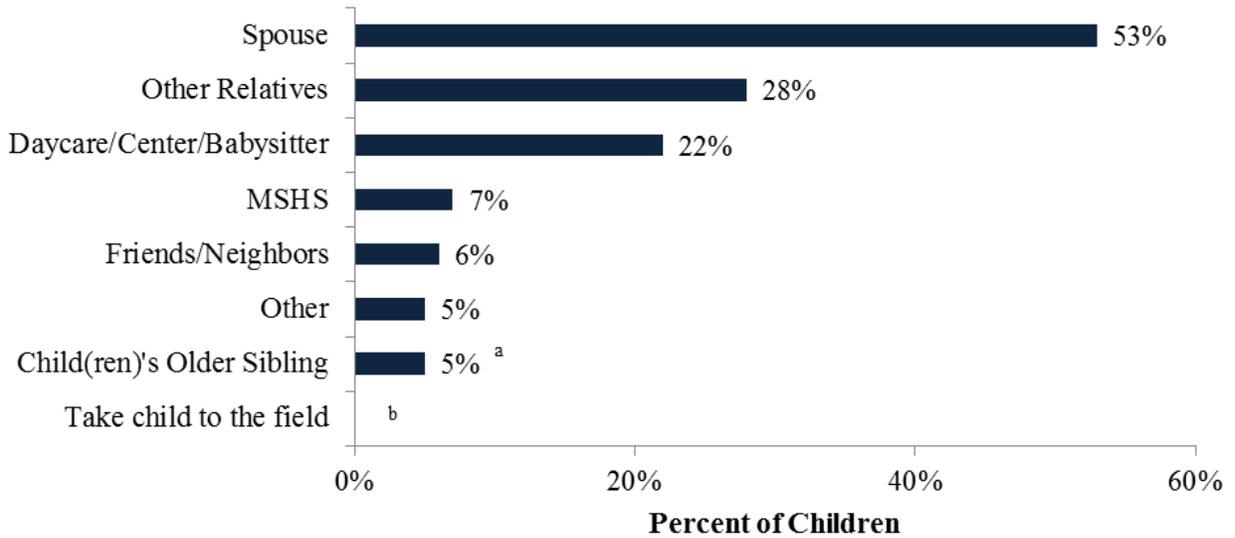
From 2008 through 2009, supplemental questions were administered to farm worker respondents who had children under the age of six. Eight hundred and forty-three of the 3,844 farm workers (22%) interviewed had children under the age of six and provided responses to the additional questions.

<sup>20</sup> The NAWS question on whether a child under 18 had accompanied a parent to field was asked through the first interview cycle (cycle 62) of fiscal year 2009.

<sup>21</sup> This estimate of 28,000 is calculated based on the estimated 1.4 million farm workers in U.S. crop agriculture per year, and weighted using a factor that adjusted for the double-counting of children that occurs when both parents are farm workers.

One of the questions asked of respondents about their children under the age of six was, “*How have you arranged for your child (-dren) to be taken care of while you work in U.S. farm work? Please tell me all the types of child care arrangements you have used.*” The vast majority of children under six were looked after by the spouse (53%) or other relatives of the farm worker (28%). Approximately one-fifth of children attended daycare or were with a babysitter, and seven percent attended MSHS (Figure 2.6).

**Figure 2.6: Type of Childcare Arrangements of Dependents Under Age 6, Fiscal Years 2008-2009**



<sup>a</sup> Estimate should be interpreted with caution because it has a relative standard error between 31 and 50 percent.

<sup>b</sup> Estimate is suppressed because it has a relative standard error greater than 50 percent.

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## Chapter 3. Farm Worker Parents

### *Summary of Findings*

- One in two (51%) farm workers were parents.
- Two in three (66%) farm worker parents had children under age 18 living with them. Of these:
  - 53 percent had one or more dependents in the household under age six
  - 62 percent had one or more dependents ages six to 13
  - 37 percent had one or more dependents ages 14 to 17.
- Eight in 10 (81%) farm worker parents reported Spanish as their primary language.
- Eight in 10 (79%) farm worker parents reported that they did not read English well.
- Almost two in 10 (18%) farm worker parents handled pesticides in the last 12 months; half of whom handled pesticides more than one week<sup>22</sup> out of the prior 30 days.
- Almost nine in 10 (87%) had received worker pesticide safety training in the last 12 months.
- Almost all (98%) farm worker parents had employer-provided water to wash hands every day.

This chapter provides data related to language skills and pesticide work among farm worker parents with dependents under age 18. Language and literacy are important with regard to the development and application of pesticide training and educational materials. Pesticide safety training informs farm worker parents that their work can expose them to pesticides, and that they can transfer these pesticides from their clothing and bodies to their children. Pesticide safety training also provides farm workers information on how they can minimize their exposure and how they can protect their families from pesticides.

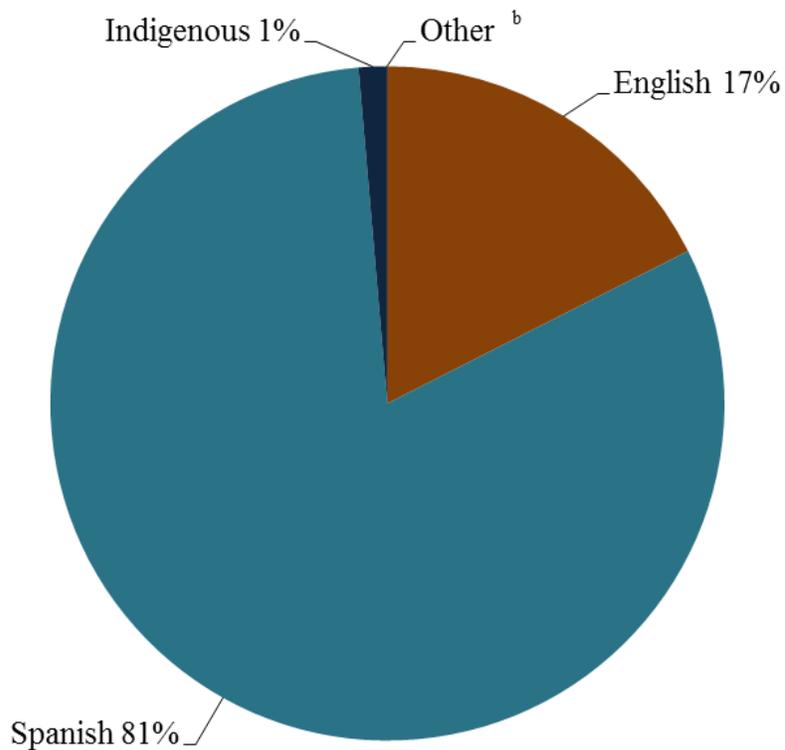
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<sup>22</sup> For the purpose of the NAWS, one week of work is equal to six days. Field reports indicate that relatively few workers are contacted on Sundays, and a review of the interviews showed that virtually no workers reported Sunday hours without Saturday hours. Therefore, the length of the workweek is six days, and any seven-day workweeks reported are truncated to six days.

### *Parents' Primary Language*

Farm worker parents predominantly spoke Spanish (81%). Almost one in five (17%) spoke English. Slightly more than one percent of farm worker parents spoke indigenous languages<sup>23</sup> (Figure 3.1). The proportion of parents who spoke indigenous languages is likely to increase as more indigenous farm workers age into parenthood.

**Figure 3.1: Parents' Primary Language, Fiscal Years 2004-2009**

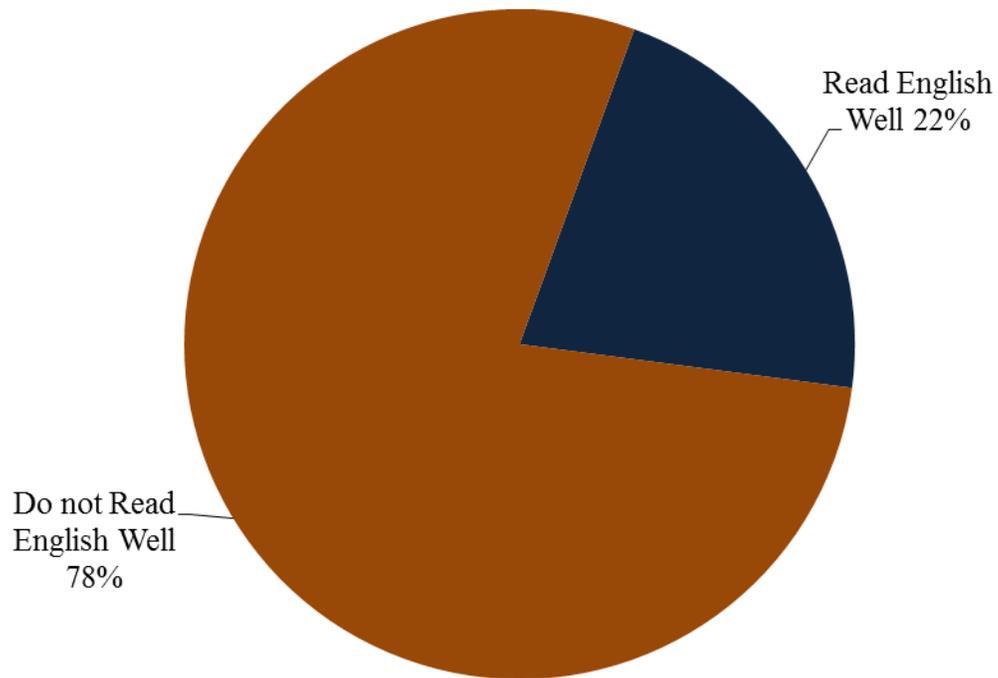


<sup>b</sup> Estimate is suppressed because it has a relative standard error greater than 50 percent.

<sup>23</sup> The indigenous languages include: Mixtec, Kanjobal, Otomi, Quiche, Triqui, Tzotzil, Zapoteco, Achi, Mam, Nahuatl, Chinanteco, Aquacateco, Amuzgo, Jacalteco, and Tarasco.

More than two in 10 (22%) farm worker parents self-reported that they could read English “well.” The majority of parents (78%) reported that they do not read English well (Figure 3.2).

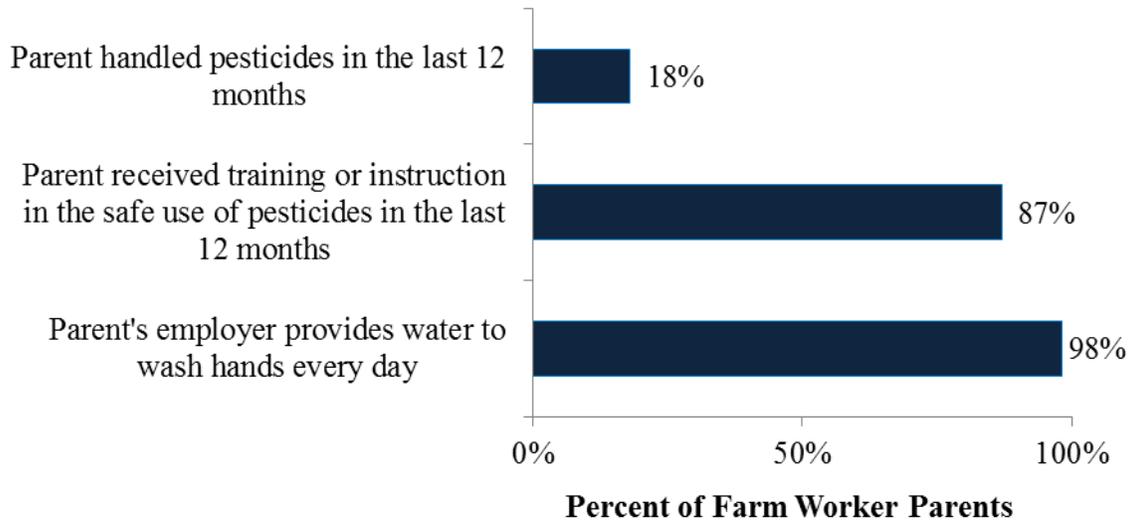
**Figure 3.2: Parents’ Ability to Read English, Fiscal Years 2004-2009**



### *Pesticide Handling and Employer-provided Wash Water*

Almost two in 10 (18%) parents reported having handled (mixed, loaded, or applied) pesticides in the last 12 months. Almost nine in 10 (87%) reported they had received pesticide safety training in the last 12 months. Almost all (98%) farm worker parents reported that their employer provided water to wash hands every day.

**Figure 3.3: Pesticides Handling and Wash Water, Fiscal Years 2004-2009**



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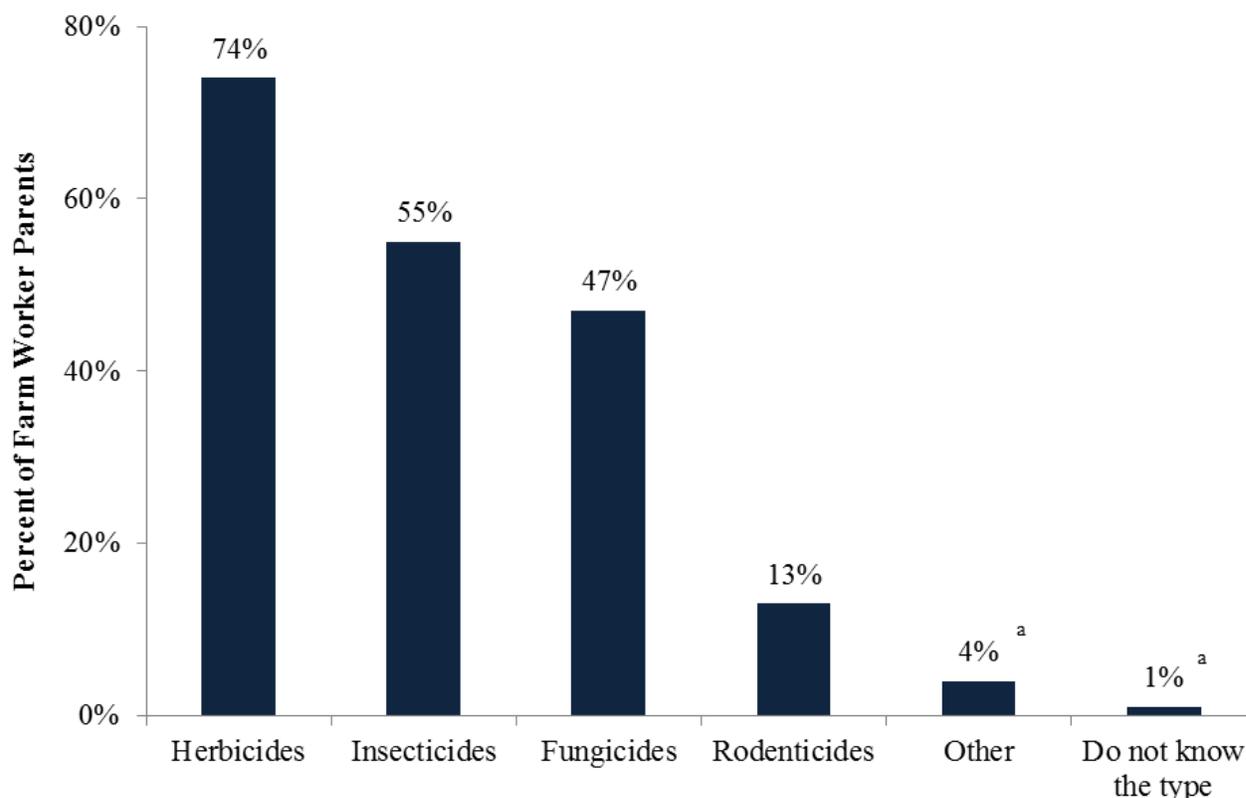
Parents are one route by which pesticides reach their minor children. An estimate of the number of children age 17 and under of farm worker parents that handled (mixed, loaded, or applied) pesticides was calculated. The estimate is based on 12,704 farm workers sampled during fiscal years 2004-2009; of those, 1,050 farm workers reported that they handled pesticides in the past 12 months and had one or more children age 17 and under in their household. The estimate of the number of children residing with parents handling pesticides in the past 12 months was weighted using a factor that accounted for possible double counting of children with two farm worker parents. This produced an annual estimate of 180,474<sup>24</sup> children age 17 and under residing with parents who had handled pesticides, which represents 20 percent of all farm workers' dependent children.

Farm worker parents most frequently handled herbicides and insecticides. Almost three in four (74%) parents handled herbicides; more than half (55%) handled insecticides; and less than half (47%) handled fungicides (Figure 3.4).

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<sup>24</sup> Estimate of 180,474 is calculated based on the estimated 1.4 million farm workers in U.S. crop agriculture per year.

**Figure 3.4: Classes of Pesticides Handled by Farm Worker Parents, Fiscal Years 2004-2009**



<sup>a</sup> Estimates should be interpreted with caution because they have relative standard errors between 31 and 50 percent.

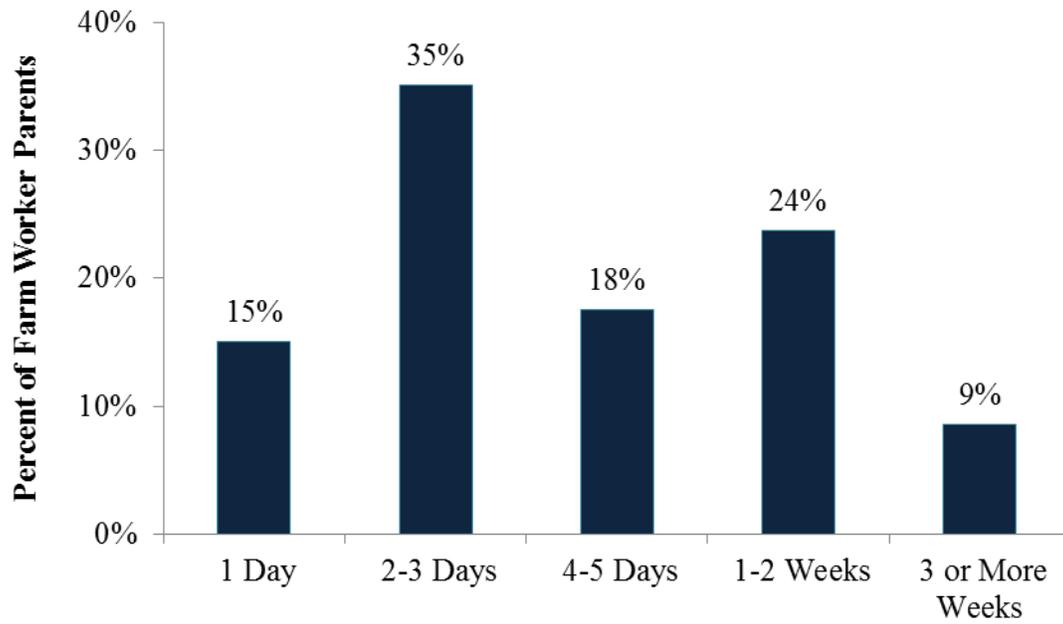
In fiscal years 2005 through 2009, farm workers who reported loading, mixing, or applying pesticides in the last 12 months were asked a series of follow-up questions to gauge the intensity with which they interacted with the chemicals. Workers who reported handling pesticides anytime in the previous 12 months were asked to also report the class(es) of pesticide they handled, the date they last handled the pesticide(s), the crop(s) to which they applied the pesticide(s), and the number of days in the previous 30 that they handled the pesticide(s).<sup>25</sup> As illustrated in Figure 3.5, half of farm worker parents handled pesticides for three or fewer days out of the previous 30; 15 percent handled pesticides for one day and 35 percent handled pesticides for two to three days.<sup>26</sup> Almost two in 10 (18%) parents handled pesticides for four to five days, and one in three (33%) handled pesticides for one or more weeks<sup>27</sup> out of the previous 30 days.

<sup>25</sup> Workers were asked to provide responses about the following classes of pesticides: insecticides, herbicides, fungicides, rodenticides, other, and type unknown.

<sup>26</sup> Because some respondents handled (mixed, loaded, or applied) more than one class of pesticide, potentially on the same day, the class of pesticide the respondent handled the most days is used to count the number of days the respondent handled any pesticide. This may result in a conservative estimate of the number of days of exposure for a single handler.

<sup>27</sup> For the purpose of the NAWS, one week of work is equal to six days.

**Figure 3.5: Number of Days Farm Worker Parents Handled Any Pesticides, Fiscal Years 2004-2009**



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## Conclusion

An estimated 84,000 youth were hired to work on U.S. crop farms each year. The youth crop labor force consisted primarily of recent arrivals to the U.S. and was predominantly male. Most youth crop workers lived apart from their parents and were poor. Youth farm workers tended to work in vegetable crops, performing harvesting tasks. While few handled pesticides in the performance of their work, most received training in the safe use of pesticides. Virtually all hired youth crop workers were provided with water for washing their hands while on the job, and used it.

The children of farm workers tended to be very young, with most being under the age of 14. Most dependent children were enrolled in school in the U.S., at a grade level appropriate for their age. Few dependent children of farm workers worked in the fields themselves. Those who tended to work were 14 years of age or older. When their parents went to work in the fields, children generally were looked after by the farm workers' spouse or other family member(s), stayed with a neighbor, or attended Migrant and Seasonal Head Start (MSHS), Head Start, Migrant Education, or a daycare center. A small fraction of children under the age of 14 sometimes accompanied their parents to the field.

Children are potentially exposed to pesticides when they accompany their parents to the field. Parents can also inadvertently be a route by which pesticides reach minor children. The latter can occur because pesticide residues can remain on skin and clothing following exposure to pesticides. While nearly all farm worker parents were provided with water, every day, for washing their hands while at work and most farm worker parents received training from their employer in the safe use of pesticides, the potential remained for farm workers' family members, including minor children, to be exposed to pesticides. Nearly a fifth of farm worker parents directly handled pesticides while on the job, and an unknown share of farm workers were indirectly exposed to pesticides while carrying out other farm tasks.

New and forthcoming information from the NAWS concerning the amount of time farm workers are engaged each day in particular crops and tasks and farm workers' hygiene and clothes laundering practices holds promise for improving assessments of pesticide exposure and developing improved training and educational programs to better manage the risks associated with exposure.<sup>28</sup>

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<sup>28</sup> The new seven-item supplement to the NAWS is on page 18 of the Cycle 73 questionnaire, which is available at: [http://www.reginfo.gov/public/do/PRAViewIC?ref\\_nbr=201202-1205-004&icID=13317](http://www.reginfo.gov/public/do/PRAViewIC?ref_nbr=201202-1205-004&icID=13317). The supporting statement (justification) for this supplement is available at: [http://www.reginfo.gov/public/do/PRAViewDocument?ref\\_nbr=201202-1205-004](http://www.reginfo.gov/public/do/PRAViewDocument?ref_nbr=201202-1205-004)