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Labor Use and Challenges Faced by Tennessee Fruit and Vegetable Producers

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Background and Purpose

United States fruit and vegetable operations depend heavily on labor for planting, growing and harvesting crops. Labor costs as a share of total gross cash farm income can be between 25 percent and 35 percent for these specialty crop operations (USDA, ERS, 2020). Thus, labor management strategies are fundamental to ensure the long-term sustainability of farms specializing in these labor-intensive crops. In recent years, however, it has become increasingly difficult for farms to obtain the labor they need to produce their crops. As a result, farmers look for alternative solutions to their labor needs, such as participating in a federal guest worker program, mechanizing their production processes, transitioning to less labor-intensive crops and scaling back their operations, among others (Charlton et al., 2019; Bampasidou and Salassi, 2019).

The purpose of this publication is to describe the use of labor among Tennessee fruit and vegetable farms, the labor challenges faced by these farmers and the labor management strategies they use to overcome these challenges based on data from a survey conducted in 2020. Additionally, this publication aims to assess the information University of Tennessee Extension could provide to them to help them overcome the labor challenges they are facing.

The Survey

A survey of Tennessee fruit and vegetable growers was administered between February 1 and February 20, 2020. The survey was web-based and was administered through Qualtrics. The survey was initially distributed on February 1, 2020, to individuals in a contact list made available by the Tennessee Department of Agriculture. The survey was only sent to fruit and vegetable producers in Middle and West Tennessee. Farmers from East Tennessee were excluded from this survey because a different survey was being distributed to these growers as part of another funded project. The inclusion of these farmers would have threatened the response rate of the abovementioned survey. Later in this publication, we will discuss regional differences and the potential implications and limitations associated with excluding East Tennessee growers from the survey data.

Survey questions elicited respondents' perceptions of farm labor availability for their farm in 2019, current labor use, labor challenges they faced, strategies used to overcome those challenges, information needs related to farm labor

and familiarity with and use of the H-2A program. Additionally, the survey instrument included questions to obtain information about general farmer and farm business characteristics, such as acres in fruit and vegetable production, farm revenue, farming experience, age, occupation, household size and education.

After removing duplicate and incorrect email addresses, the final contact list included 464 fruit and vegetable farmers. From this initial list, five farmers indicated they do not farm or that they do not operate a fruit and vegetable farm. There were 47 completed surveys, representing a survey response rate of 10 percent.

Given the fairly low response rate of this survey, and the fact we excluded farms from counties located in the East Tennessee, we evaluated the representativeness of the survey sample. This was done by comparing the distribution of the survey sample based on reported acres in vegetable production to the distribution of Tennessee vegetable farms by farm size category in terms of vegetable acres in production based on 2017 Census of Agriculture data (USDA, NASS, 2020). We used acres in production as a measure of farm size because data associated with fruit and vegetable sales are not available. The 2017 Census of Agriculture reports acres in vegetable, fruit and nuts, and berry production separately and does not report the number of farms by size for fruit and nuts, and berry farms. Therefore, the distribution of Tennessee vegetable farms by farm size category is the best data available to evaluate the representativeness of the survey sample.

The survey sample tends to overrepresent larger operations (i.e., 5 to 99.9 acres), and underrepresent farms with less than 5 acres in vegetable production (Figure 1). This could be explained by the fact that larger operations might perceive labor as a critical component of their operation's long-term sustainability and, therefore, might be more likely to answer a survey focusing on labor issues. In contrast, smaller farms rely heavily on unpaid family and operator labor, and might not necessarily perceive labor as a limitation for running their farm businesses.

Since the 2017 Census of Agriculture does not contain data about the distribution of farms by farm size on a per county basis, but only the number of operations and acres harvested per county, we compare the average farm size for those farms located in West and Middle Tennessee with those located in East Tennessee. To be consistent with the representativeness evaluation presented above, we look at the average vegetable farm size by region. The average vegetable farm size in East Tennessee is 13.3 acres, while the average farm size in the Middle and West Tennessee combined is 5.4 acres. It seems that our sample would have been biased toward smaller farms, since we excluded farms in East Tennessee from the initial contact list. Nonetheless, as explained above, Figure 1 suggests an overrepresentation of larger farms due to the main topic cover by the survey.

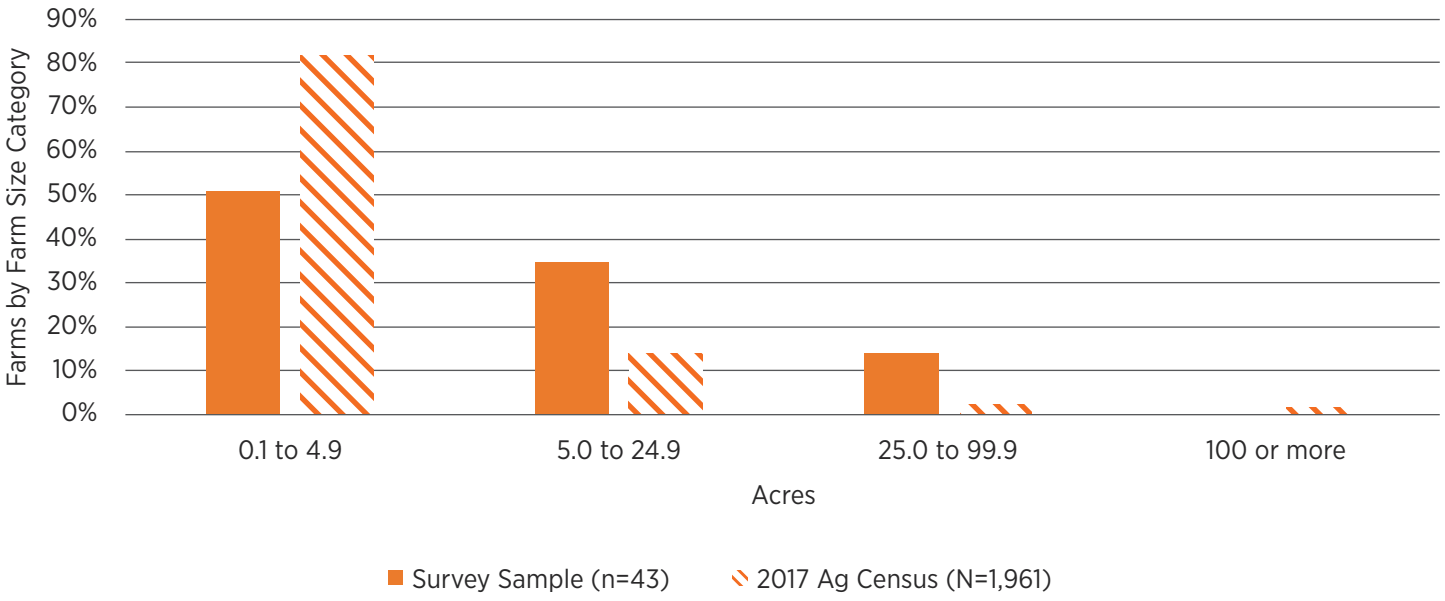

Figure 1. Percentage of farms in each farm size category based on acres in vegetable production according to 2017 Census of Agriculture data (USDA, NASS, 2020) and average acres in fruit and vegetable production in 2018 and 2019 according to data from the 2020 survey of Tennessee fruit and vegetable farmers.

Respondent Characteristics

Survey respondents had an average of 21 years of farming experience. The average farm size was 8.5 acres, which is slightly below the average size of vegetable operations in Tennessee (12.5 acres) and the average size of vegetable operations in East Tennessee (13.3 acres), and well above the average size of fruit and nut operations in Tennessee (2.9 acres), according to data from the 2017 Census of Agriculture (USDA, NASS, 2020). Approximately 52 percent of survey respondents reported on-farm revenue of less than $25,000. Less than half of respondents, 46 percent, indicated that farming is their full-time profession.

Labor Use

Respondents to the fruit and vegetable survey indicated they employed an average of nine workers in 2019 for the production of fruits and vegetables (Table 1). Farms with between 25 and 100 acres in fruit and vegetable production employed about twice as many workers as those farms with less than 5 acres in fruit and vegetable production. The average number of hired farmworkers for the survey sample was 4.3, with farms between 25 and 100 acres in size employing over seven times as many hired farmworkers as farms smaller than 5 acres in size. The survey results indicate that those farms with less than 25 acres in fruit and vegetable production were more likely to employ unpaid workers like family members and volunteers. Survey respondents reporting less than 25 acres in fruit and vegetable production employed, on average, one unpaid worker in 2019.

The survey results associated with the use of contract labor (Table 1) are surprising, as contract labor could be expensive because an intermediary (i.e., contractor) is used to hire the workers. Therefore, it is surprising that only farms with less than 5 acres in vegetable production reported using contract labor. It is possible that respondents could have been confused by the term "contract labor." Also, the averages reported in Table 1 for contract labor are affected by the number of zeros in the sample, and that explains why the calculated average for the whole sample is smaller than the average for the farms between 0.1 and 5 acres. Survey respondents in the 0.1- and 5-acres category reported employing anywhere between one and five contract workers.

Table 1. Average paid and unpaid number of workers involved in the production of fruits and vegetables in 2019, as reported by the respondents to the 2020 Tennessee Fruit and Vegetable Survey.

		Farm size in acres		
	Sample average	0.1 to 4.9	5.0 to 24.9	25.0 to 99.9
Total Workers	8.7	7.1	8.5	15.3
Hired Labor	4.3	1.7	4.9	12.3
Contract Labor*	0.3	0.6	0.0	0.0
Paid Family Labor	1.1	0.8	0.8	2.7
Paid Interns	0.0	0.0	0.0	0.0
Unpaid Family Labor	1.2	1.2	1.4	0.3
Volunteers	0.9	0.9	1.3	0.0
Other	1.0	1.9	0.0	0.0

*Workers indirectly hired through farm labor contractors.

Labor Challenges

The most commonly cited labor challenge reported by respondents was difficulty finding reliable and/or productive employees (Figure 2). This finding may reflect a combination of the physically demanding nature of the work and relatively low wage rates. Additionally, respondents reported the inability to generate enough revenue to hire employees as an important labor challenge (Figure 2). This finding is not surprising given that more than half of the respondents to the fruit and vegetable survey indicated they generate less than $25,000 in gross-revenue per year from fruit and vegetable sales.

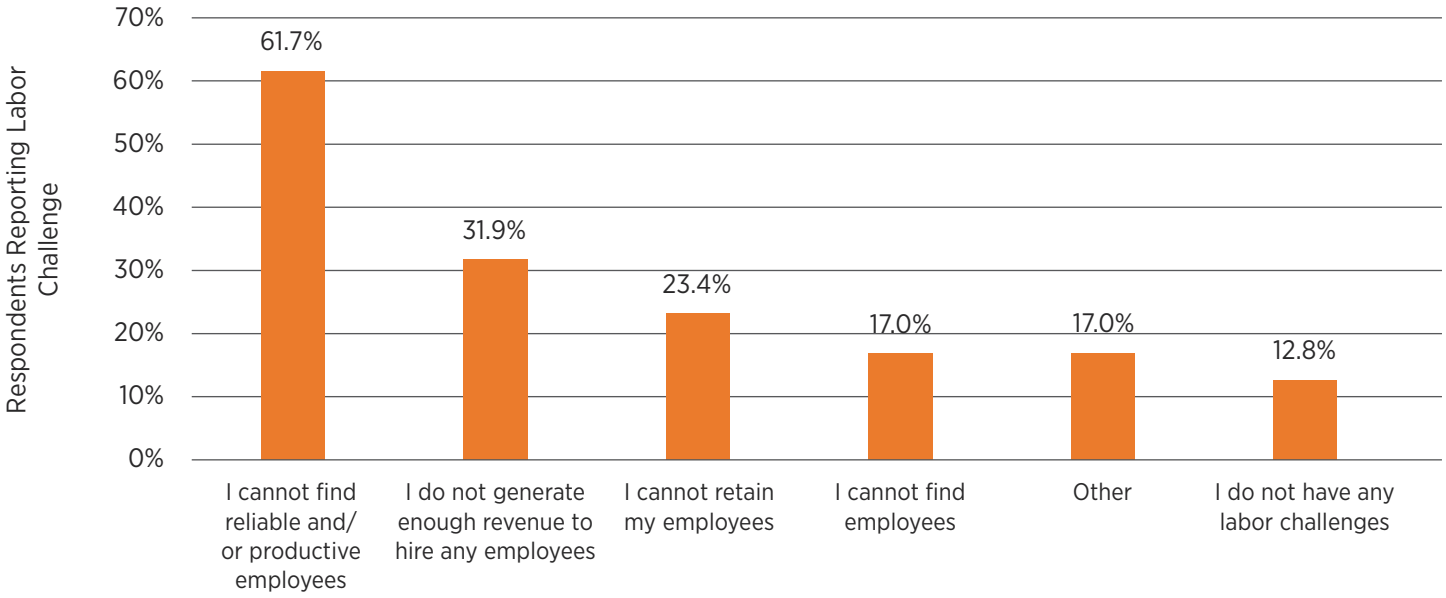

Figure 2. Labor challenges reported by Tennessee fruit and vegetable producers (n=47).

Strategies Used to Overcome Labor Challenges

Respondents to the Tennessee Fruit and Vegetable Farm Survey indicated they employ a variety of strategies to mitigate labor challenges they are facing. Among these strategies, the most common were placing expansion plans on hold, which 39 percent of respondents reported doing, and adopting mechanized technologies, which 34 percent of respondents reported doing (Figure 3). Over 27 percent of respondents have resorted to scaling back their operations.

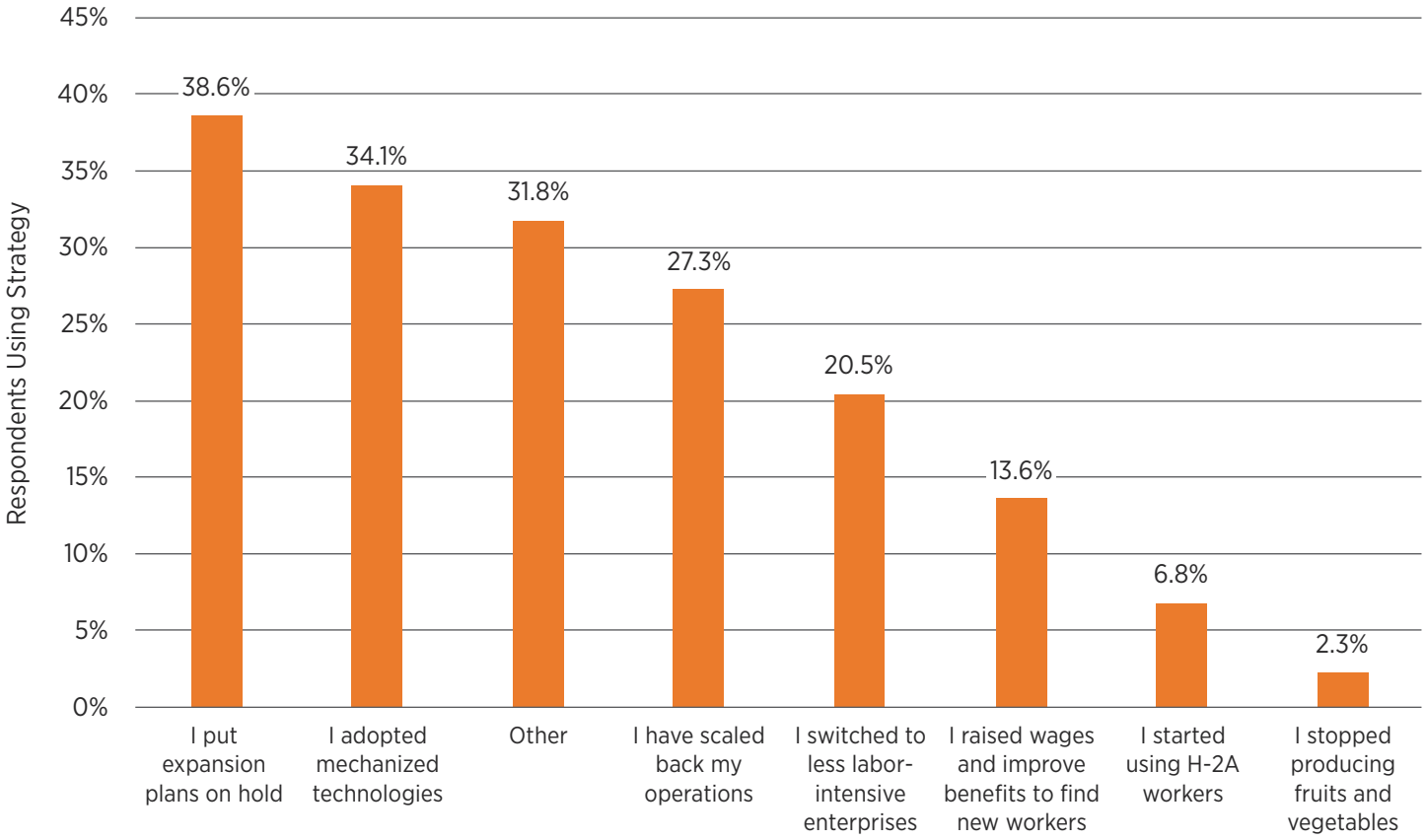

Figure 3. Strategies fruit and vegetable producers are using to overcome labor challenges they are facing (n=44).

The H-2A Program

Figures 4 and 5 illustrate respondents' familiarity levels with the H-2A program and usage rate of the program. Nearly half of respondents (49 percent) report having no familiarity with the H-2A program, while 38 percent report some level of familiarity with the program. Only 13 percent of respondents describe themselves as "very familiar" with the H-2A program. It follows, therefore, that very few of the respondents report utilizing H-2A labor. Only 6.7 percent of respondents report having H-2A workers on their operation's payroll in 2019. It is important to acknowledge that the exclusion of counties in East Tennessee region might have affected the responses related to the H-2A program. As suggested at the beginning of this publication, vegetable farms in the East Tennessee region are, on average, larger than those farms located in the Middle and West Tennessee regions. For example, farms in Grainger and Rhea counties have an average farm size of 11 and 21 acres in vegetable production, respectively (USDA, NASS, 2020). These farms might be more likely to use the H-2A program as a source of labor, because H-2A workers might be the only source of labor for large operations with low mechanization options. Fresh market tomato and pepper production, which is very labor-intensive, is considerable in these counties (USDA, NASS, 2020). Mechanization options are limited for these farms.

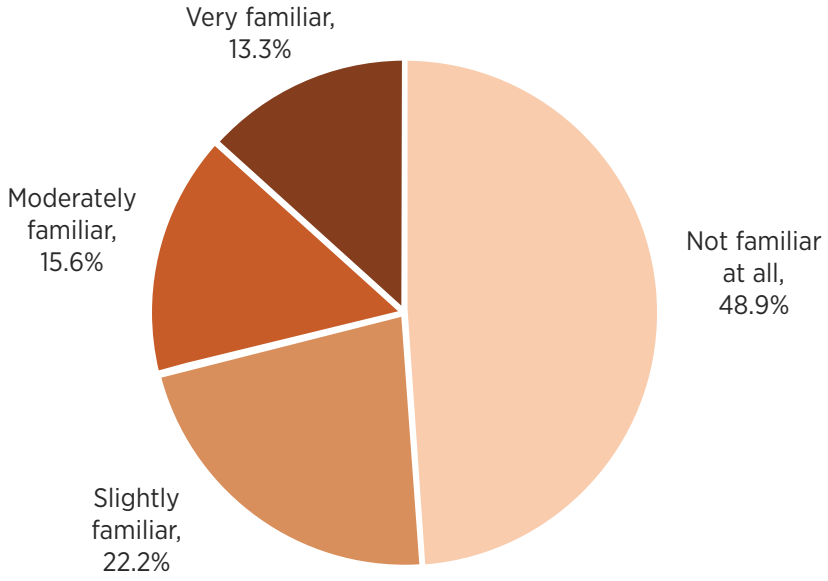

Figure 4. Survey respondents' answer to the question, "How familiar are you with the H-2A program?" (n=45).

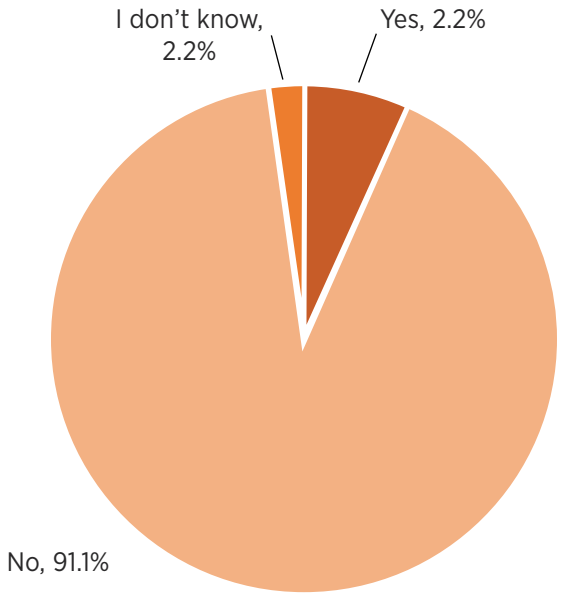

Figure 5. Survey respondents' answer to the question, "During 2019, did your operation have any H-2A temporary agricultural workers on the payroll?" (n=45).

Given the low reported utilization rate of the H-2A program among respondents to the Tennessee Fruit and Vegetable Farmer Survey, it was important to understand the challenges producers perceive to be associated with using the program. Half of the respondents (50 percent) state that they do not have enough information about the H-2A program, 48 percent report that obtaining H-2A labor is too costly, and 40 percent feel that the process of obtaining H-2A labor is too complicated (Figure 6). These results suggest that some Tennessee growers need additional information about the H2-A program to assist them with decision making about program participation. Among the "Other" responses, which 23.7 percent of respondents selected, producers report that they cannot offer enough hours to justify obtaining H-2A labor and that they are concerned about annual wage increases — likely due to established adverse effect wage rates. [1]

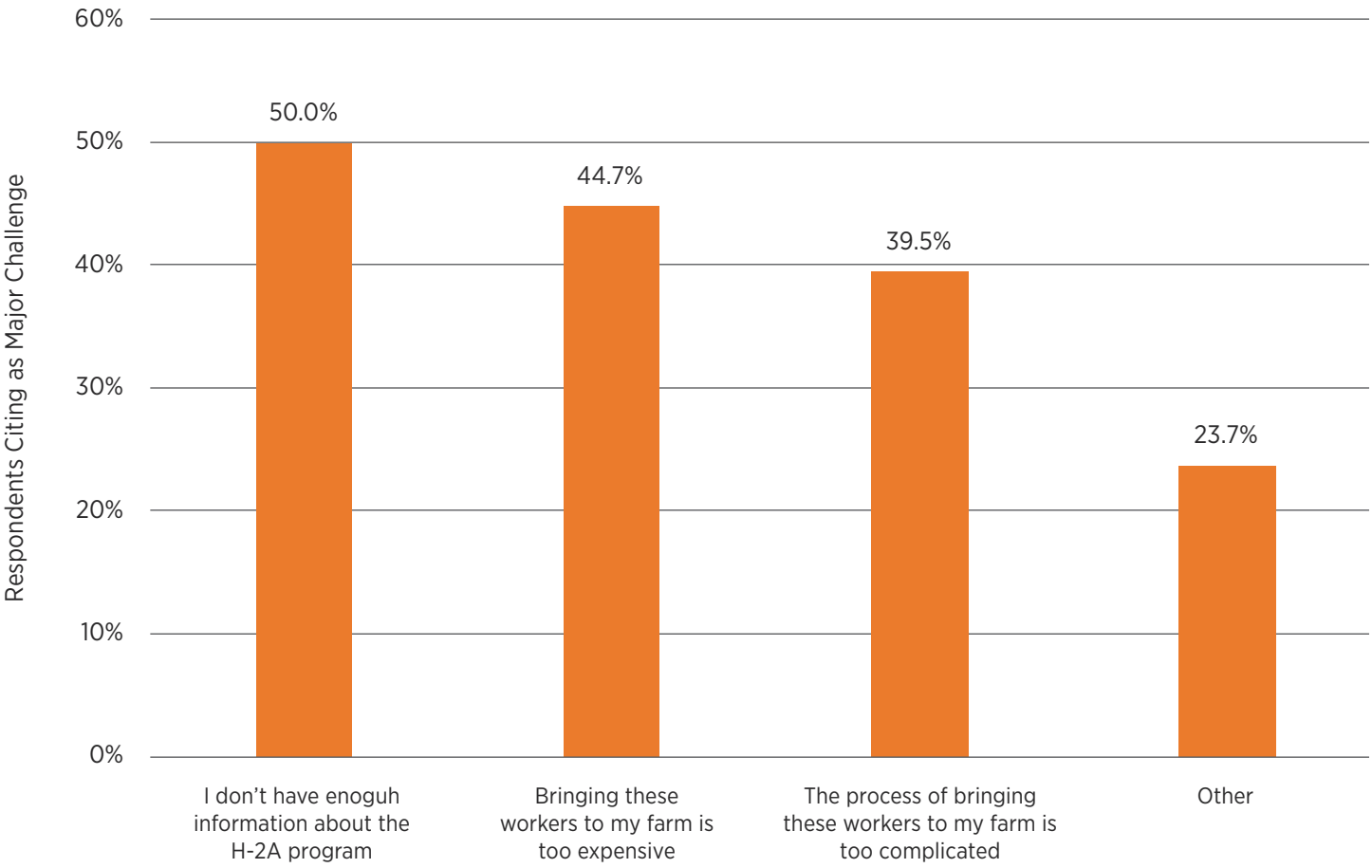

Figure 6. Survey respondents' answer to the question, "What are the major challenges associated with the use of H-2A temporary agricultural workers on your farm?" (n=38).

[1] The Adverse Effect Wage Rate is the minimum wage rate established by the US Department of Labor as the one an employer needs to offer and pay to H-2A workers and workers in corresponding employment so that wages of similarly employed US workers will not be adversely affected.

Discussion

We asked respondents to the Tennessee Fruit and Vegetable Farmer Survey to indicate information that UT Extension could provide to help them overcome the labor challenges they are facing. Respondents to this survey state that information about the use of interns and apprentices as a source of labor could be useful in helping them address labor challenges. Fruit and vegetable producers also identified information about the H-2A program and mechanical aids as information that could help them overcome the labor-related challenges they face.

These findings suggest that Extension programming that addresses use of interns and apprentices, specifications of the H-2A program, and use of mechanical aids could assist fruit and vegetable growers in addressing their labor needs. For example, UT Extension could provide information about the H-2A program processes, associated costs, application options, resources and contact information of organizations that help farmers navigate the H-2A program. This information would help producers get familiar with the program and make informed decisions about the use of the program to access labor. Additionally, providing information such as cost-benefit analyses, return on investment and payback period on mechanical aids, as well as demonstrations of these technologies for growers, are additional ways in which UT Extension can assist growers and enable them to make informed decisions about mechanical aid adoption.

It is important to acknowledge that the lack of representation for farms located in the East Tennessee region in the survey data might have affected responses in terms of information needs to overcome labor challenges. Information needs from farmers in East Tennessee still need to be explored to make sure they align with growers' information needs in the Middle and West Tennessee, as presented in this publication.

Acknowledgments

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