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## Profiling H-2A Program Participants in Tobacco Farming: Implications for Extension

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**Abstract:** *The challenge to meet tobacco's labor requirements by domestic sources has prompted tobacco growers to seek a foreign source of labor through the H-2A program. The H-2A program is the only legally sanctioned program allowing farm employers to bring foreign workers into the country to perform seasonal and temporary agricultural work. The article profiles H-2A program participants in major*

*tobacco growing states. The results will help Extension personnel better understand their constituents' labor needs and inform the design of specific Extension programs and workshops in farm labor management, labor laws and regulations as well as labor cost-saving measures.*

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## **Introduction**

While it is debatable that there is a nationwide shortage of farm labor (Levine, 2009), it is evident that agricultural producers in some production sectors and geographical regions have difficulty finding sufficient domestic farm workers during certain stages of the production cycle. The two geographical areas most affected by the lack of sufficient domestic hired labor are the southeast and western regions, where tobacco and specialty crops are widely grown, respectively. The challenge of meeting labor requirements with domestic sources has prompted these producers to seek foreign labor through the H-2A guest worker program. The H-2A program is the only legally sanctioned program allowing U.S. farmers to bring foreigners into the country to perform seasonal and temporary agricultural work.

To participate in the H-2A program, farm employers must first apply for labor certification from the Department of Labor (DOL) (U.S. DOL, 2009). Labor certification depends upon two things. One, applicants must demonstrate the need for H-2A workers by establishing the lack of sufficient U.S. workers who are able, willing, and qualified, and who will be available at the time and place needed, to perform the intended job. To establish this, applicants must actively engage in the recruitment of U.S. workers, coordinating recruitment activities through the appropriate State Workforce Agency and advertising openings in appropriate media. Two, applicants must establish that the entry of the foreign workers will not adversely affect wages and working conditions of comparably employed U.S. workers. To do so, applicants must offer the job at the highest wage rate of the following five wage rates: the Adverse Effect Wage Rate, the prevailing hourly rate, the agreed upon collective bargaining rate, or the federal or state minimum wage rate. In addition, applicants must provide benefits, including: free housing that meets applicable federal and state safety and health standards, either kitchen facilities or three meals per day at no more than the DOL-set price, transportation and travel subsistence expenses, workers' compensation insurance, and guaranteed employment for 75% of the contract period. Applicants must also provide employment to any qualified, eligible U.S. worker who applies for the job opportunity until half of the work contract period has elapsed.

Given these stringent requirements, the number of H-2A farm workers annually admitted into the country accounts for a small proportion of the total agricultural labor force. With 2.6 million workers, including paid family members, employed on farms and ranches in the country (U.S. Department of Agriculture, 2007), just over 3% of all hired farm workers come through the H-2A program. Tobacco growers are important participants in the program. "In the past, many small tobacco operations were able to handle the workload by supplementing operator and family labor with hired local laborers. As tobacco acreage per farm increases, family labor and the supply of local residents willing to work with tobacco may no longer meet labor requirements" (Dohlman, Foreman, & Da Pra, 2009, pp. 32). The top four tobacco growing states (North Carolina, Kentucky, Tennessee, and Virginia) accounted for about 23% of the H-2A certified positions in 2009 (U.S. DOL, 2009)—over 8% of the 237,096 farm workers in these states.

Despite the importance of H-2A for tobacco growers, little is known about their household characteristics. This article profiles participants of the H-2A program in the top four tobacco growing states and draws implications for Extension.

## Methods

Data for the study reported here came from the Center for Tobacco Grower Research's 2010 mail survey of tobacco producers. A standard questionnaire was administered to a sample of 8,354 growers, of whom 3,516 completed and returned the questionnaires, representing a 42% response rate. Of those who completed and returned the questionnaires, 1,995 reported they grew no tobacco in 2009. Therefore, the number of active growers in the study is 1,521.

The survey was conducted in three waves in order to maximize the response rate. Even so, the response rate was low. Hence, the data was tested for non-response bias using the approach of comparing initial and late responders on key variables. Growers who responded to the third mailing were considered as late responders. Miller and Smith (1983) suggest that non-respondents tend to be similar to late respondents.

Respondents were divided into two groups. Participants were defined as tobacco growers who hired at least one H-2A worker in 2009. Non-participants were defined as those tobacco growers who reported hiring no H-2A workers during 2009. Relationships were then hypothesized between participation in the H-2A program and household characteristics, which were analyzed using a logistic regression.

## Results and Discussion

One of the accepted approaches used to test for non-response bias is comparing the values of key variables from both the initial respondents and the late respondents. Results showed no statistical difference between these groups (at  $p < 0.05$ ) suggesting that results can be generalized to the survey population.

Table 1 presents a summary of the farm and family characteristics of the sample tobacco growers. The majority of the sample tobacco growers are full-time farmers with a high school education, operating farms generating farm cash sales of \$10,000 to \$250,000. About 23% of the sample participated in the 2009 H-2A program. Comparing participants and non-participants, the proportion of college-educated, full-time farmers growing flue-cured and dark tobacco and operating farms with total cash receipts of \$250,000 or more with 50% or more coming from tobacco is relatively higher among participants than among non-participants.

**Table 1.**

Demographic and Farm Characteristics of H-2A Program Participants and Non-Participants

<b>Characteristics</b>	<b>Categories</b>	<b>Participants</b>	<b>Non-Participants</b>	<b>Overall</b>
H-2A program (%)		23.0	77.0	
<i>Average Age (years)</i>		54.0	57.0	56.0
<i>Educational level (%)</i>	High school education	48.5	58.7	56.4
	College education	51.5	41.3	43.6
<i>Average Household size (#)</i>		3.0	3.0	3.0
<i>Occupation (%)</i>	Full-time farmer	66.3	47.9	52.1
	Part-time farmer	33.7	52.1	47.9

<i>Tobacco type (%)</i>	Burley	34.5	79.7	69.3
	Flue-cured	36.0	10.4	16.3
	Dark	29.5	9.9	14.4
<i>Total farm cash receipts (%)</i>	Less than \$10,000	1.5	13.7	10.9
	\$10,000 to \$249,999	45.8	71.2	65.4
	\$250,000 or more	52.7	15.1	23.7
<i>Proportion of cash receipts from tobacco (%)</i>	Less than 50%	26.5	48.0	43.1
	50% or more	73.5	52.0	56.9
<i>State (%)</i>	KY	48.4	55.2	53.6
	TN	11.3	16.0	14.9
	NC	27.0	10.0	13.8
	VA	11.3	4.5	6.1
	Others	2.0	14.3	11.6

Table 2 provides the ML parameter estimates of the model, measuring the change in the predicted log-odds (logit) of participating in the H-2A program for a one unit change in a given predictor, holding all other predictors constant. Education and occupation are found to have a statistically significant relationship with the likelihood of participating in the H-2A program while age of the grower and household size were not significant, *ceteris paribus*. Growers with a college education are 39% more likely to employ H-2A workers than growers with a high school education. This may be explained by the information-intensive nature of participation in the H-2A program.

**Table 2.**

ML Parameter Estimates and Odds Ratio of Selected Variables

	Parameter	Odds
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<b>Variables</b>	<b>estimates</b>	<b>SE</b>	<b>ratio</b>
Intercept	-11.238	14.182	
Age	0.002	0.007	1.002
Educational level	0.331**	0.154	1.392
Household size	0.055	0.065	1.056
Occupation	0.330**	0.166	1.391
Tobacco type 1: Flue-cured	2.132***	0.410	8.435
Tobacco type 2: Dark	1.578***	0.199	4.845
Total farm cash receipts 1: Medium farms - total farm cash receipts of \$10,000 to \$250,000	0.571*	0.318	1.769
Total farm cash receipts 2: Large farms - total farm cash receipts of \$250,000 or more	1.965***	0.342	7.134
50 percent or more of cash receipts from tobacco	0.880***	0.169	2.412
State 1: KY	3.245***	0.551	25.673
State 2: TN	2.538***	0.581	12.654
State 3: NC	1.928***	0.461	6.877
State 4: VA	3.122***	0.531	22.691
<b>Note.</b> ***, **, * denote statistical significance at 1%, 5% and 10%			

Similarly, full-time tobacco growers are 39% more likely to hire H-2A workers than those with off-farm employment. This may be due to the fact that growers who work off-farm have less time to dedicate to the H-2A process and the management of a group of H-2A workers.

As expected, flue-cured and dark tobacco growers are more likely than burley growers to hire H-2A workers. Flue-cured and dark tobacco growers are more than eight times and five times as likely as burley growers to be H-2A employers. This can be explained by the greater number of labor hours required on flue-cured and

dark tobacco farms compared to burley farms. Dark tobacco and burley production requires over 300 and 150-200 hours of labor per acre, respectively (Snell & Powers, 2009). In contrast, largely mechanized flue-cured tobacco production requires a little over 100 hours of labor per acre (NCSU, 2010). However, the average number of acres of flue-cured tobacco is six times that of burley and dark tobacco. As a result, the total number of labor hours required for flue-cured production at the farm level is the highest, followed by dark tobacco farms. Comparing flue-cured and dark tobacco types, flue-cured growers are twice as likely as dark tobacco growers to hire H-2A workers.

Total farm cash receipt, used as a proxy for farm size, is positively related to the likelihood of hiring H-2A workers. Growers with medium and large farms are, respectively, about two and seven times as likely as those with small farms (total farm cash receipts less than \$10,000) to participate in the H-2A program. One possible explanation is that growers who operate larger farms can spread out the costs over larger acreage.

As expected, the proportion of cash receipts from tobacco has a positive relationship with the likelihood to hire H-2A workers. The higher the percentage of total farm cash receipts accounted for by tobacco, the higher the likelihood of H-2A participation. Controlling for other predictors, growers earning 50% or more of their total farm cash receipts from tobacco are more than twice as likely to participate in the H-2A program as growers who earn less from tobacco.

Results also suggest that there are regional differences in likelihood of hiring H-2A workers. Among the major tobacco states, growers in Kentucky followed by those in Virginia are the most likely states to hire H-2A workers.

## **Conclusion and Implications**

With the ongoing increase in the acreage per farm, in the absence of an accompanying technological change that reduces the tobacco labor hours per acre, Extension should anticipate the increasing importance of the H-2A program in terms of both the number of participants and the number of H-2A workers per farm. These changes pose a unique set of management challenges and suggest the need for Extension efforts in providing farm labor management training, elaborating relevant federal and state labor laws and regulations, and identifying labor cost-saving measures. The effectiveness of such Extension efforts warrants understanding growers' labor needs and uses and identifying target groups.

The study has looked into the use/non-use of H-2A labor on tobacco operations, comparing farm and family characteristics. The use/non-use of H-2A labor to use is associated with the type of tobacco grown, scale of operation as measured by farm cash receipts, the percentage of income from tobacco, and the level of participation in off-farm employment.

Results indicate that tobacco type, total farm cash receipts, regional location, proportion of tobacco receipts, education, and occupation are the most important characteristics—in the same order—that can be used to distinguish between H-2A participants and non-participants. H-2A participants tend to be college-educated, full-time flue-cured and dark tobacco growers operating farms with cash receipts of \$250,000 or more with more than 50% of their total farm income coming from tobacco. Non-participants tend to be off-farm employed burley growers operating small farms with cash receipts of less than \$10,000 and less than 50% coming from tobacco.

The identification of the above mentioned farm and family characteristics of H-2A participants and understanding their respective labor needs have important implications for Extension.

- The relative importance of the H-2A program among flue-cured and dark tobacco growers suggests that they could face disproportionate impacts compared to burley farms in the event of unfavorable changes in immigration and labor policy.
- The relative importance of the H-2A program among some groups of tobacco growers suggests that agents can better design and target tobacco educational programs in farm labor management, farm labor laws and regulations, labor/cost saving measures.
- This information provides an opportunity to improve the efficiency of Extension delivery by concentrating efforts on a target group of interest and customizing the content of programs in light of the particular growers' labor needs and uses.

Extension workers involved in enterprises other than tobacco can use the methods used in the study reported here to identify the target group of producers based on demographic and farm characteristics and customize the content of Extension programs.

Several studies have demonstrated the importance of targeted Extension interventions to achieve increased farm productivity and sustainability (Oelker, 1995; Brasier, Hyde, Stup, & Holden, 2006). Generally, study results can prove useful in identifying the target audience for a given issue, evaluate the information needed, and design a program that meets the needs of the targeted farm audience.

While the H-2A program remains a viable and steady source of labor for now, the issue of further mechanization should receive serious consideration in light of the ongoing increase in the acreage per farm with the resulting concentration of production on fewer and larger farms.

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