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# Assessing Preference of Small Tennessee Farmers for Risk-Management Training

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Small farms represent an important segment of the agricultural sector and rural communities in the U.S. (USDA 2010; Rossett 1999; Steele 1997). They account for 56 percent of the total U.S. value of agricultural land and buildings, about 91 percent of all U.S. farms, and more than half of the land in farms (United States Department of Commerce 2007). This trend holds true for the state of Tennessee, where 93.2 percent of the farmers were small-scale operators in 2007. Small farmers, however, face a number of problems that continue to challenge their viability. A 2006 USDA survey (USDA-NIFA 2010) indicated that Tennessee small-scale farmers' most pressing concerns were changes in government laws and policies/regulations (institutional risk), decreases in crop yields or livestock output (production risk), and uncertainty in commodity prices (price risk).

Agricultural risk remains the primary problem faced by small farmers in Tennessee, where more than one-third of farmers do not have proper risk management strategies (Ghosh and Brian 2001). In general, small farmers in Tennessee and elsewhere face limited resources such as lack of sufficient inputs, access to credit and technology, and above all limited education to manage agricultural risk. The farmers have to make use of risk-management tools and strategies to ensure economic viability and sustainability of their operations. Small farmers frequently struggle to find appropriate risk-management strategies. Thus it is important to understand their risk-management training needs in order to design effective risk-management education programs and efficiently allocate resources.

## Objective

This study identifies risk-management training needs and preferred training delivery methods of Tennessee small farmers.

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## Data and Methodology

Data were collected between May and September 2010 through a mail-in survey administered to 250 randomly selected small farmers in Middle, East, and West Tennessee with the assistance of the Tennessee Agricultural Statistical Services.

The questionnaire was thoroughly pretested on selected small farmers having diverse enterprises on their farms in Davidson County, Tennessee. Questions contained in the questionnaire were aimed at identifying risk-management education needs of small farmers. The survey also included questions to identify characteristics of the farmers such as type of enterprises and size of operation.

Completed questionnaires were received from 92 farmers, a response rate of 36.8 percent. The data were checked for accuracy and completeness and then coded and organized for further analysis.

Farm types were divided into two major groups based on responses for analytical purposes. The first type included livestock farmers (dairy, sheep, beef, goat, etc.). The second included crop (fruit and vegetable) farmers. The data collected were analyzed using the Statistical Package for the Social Sciences (SPSS).

## Results and Discussion

### *Respondents' Characteristics*

USDA (1998) defines small farms as having gross annual sales from agricultural commodities of \$250,000 or less. Based on this definition all (100 percent) of the farms surveyed were small farms. In addition, 85.4 percent had less than \$40,000 income from farm sales. A majority of the respondents were engaged in off-farm work and earned income from off-farm sources. Less than one-third (28.8 percent) of the respondents relied on farming as their sole source of income. 71.2 percent were employed off the farm, with 57.3 percent of those holding full-time jobs (Table 1).

**Table 1. Distribution of Selected Farmers by Farm income, Off-Farm Income, and Level of Off-Farm Employment (%).**

Gross annual income from farm enterprises	Full-time farmer	Off-farm employment		
		Part-time	Full-time	Total
Less than \$10,000	2.1	0	3.2	5.3
\$10,000–\$19,999	0	3.2	5.4	8.6
\$20,000–\$29,999	5.4	4.3	17.3	27
\$30,000–\$39,999	14.1	5.4	25	44.5
\$40,000–\$49,999	1	1	4.3	6.3
\$50,000–\$100,000	6.2	0	2.1	8.3
Total	28.8	13.9	57.3	100

The average farm size of the selected farmers was 174.96 acres, with a standard deviation of 523.2. Only 4.8 percent of the farmers had more than 250 acres under production. Most (55 percent) of the respondents were livestock farmers and 45 percent were crop farmers (Table 2). In addition the analysis highlighted that 28.2 percent of the farmers considered their farming operation susceptible to very high levels of risk and 36.9 percent considered their operations to susceptible high levels of risk. Furthermore, the farmers who had moderate to low levels of risks were not concerned about risks.

As expected, the majority (92.1 percent) of the farmers selected were male and more than one-quarter had a high school or equivalent education, 22.8 percent of the respondents had some college-level education, 26 percent had a college degree, and another 16.3 percent had a graduate degree or some graduate-level education (Table 3).

#### *Respondents' Risk Management Training Needs*

The selected small farmers identified and ranked the risk-management training workshops which they felt they needed to attend in order to improve their operations. The farmers ranked the workshop on Marketing and Value-Added Agriculture as their major need. Additional examination revealed that 41.4 percent of the crop farmers and 31.3 percent of the livestock farmers ranked the workshop on

Marketing and Value-Added Agriculture at the top, followed by the workshop on Farm Financial Analysis and Business planning (19.5 percent of crop farmers and 21.5 percent of livestock farmers) as their most critical needs (Table 4).

Chi square analysis was used to determine the association between the level of risk in farming operations as perceived by the farmers and their requirements for risk-management training workshops. The analysis showed a  $\chi^2 = 0.041$ , showing the relationship between the two to be significant. The selected small Tennessee Farmers with very high and high perceptions of risk in their farming operations ranked the workshop on Marketing and Value-Added Agriculture as the one they most needed (Table 5).

#### *Respondents' Preferred Training Methods and Days*

A high proportion of the farmers (64 percent) indicated that their preferred method of risk-management training was in-depth training by risk-management experts, 25 percent preferred to be trained by extension agents, and 11 percent preferred Internet- or computer-based educational modules. A majority of the livestock (58 percent) and crop (68 percent) farmers preferred to be educated about risk through in-depth training by risk-management experts. The farmers also pointed out that they wanted

**Table 2. Distribution of Selected Farmers by Farm Size and Type of Enterprise (%).**

Farm size	Type of Enterprise		Total
	Crop	Livestock	
Below 50 acres	2.1	7.6	9.7
50–99 acres	6.5	7.6	14.1
100–149 acres	13	9.7	22.7
150–199 acres	13	19.5	32.5
200–249 acres	8.6	7.6	16.2
Above 250 acres	1.8	3.2	4.8
Total	45	55	100

**Table 3. Distribution of Selected Farmers by their Level of Education, Gender, and Marital Status.**

Level of education	Marital status	Gender		Total
		Male	Female	
Attended grade school	Married	1		1
Some high school	Married	2		2
	Widowed	2		2
High school diploma or equivalent	Married	26		26
	Divorced	1		1
Some college or technical school but no degree	Married	16	3	19
	Divorced	2	0	2
College degree	Married	20	1	21
	Single	1	0	1
	Divorced	1	0	1
	Widowed	1	0	1
Some graduate school or graduate degree	Married	9	3	12
	Single	3	0	3
Total		85	7	92

**Table 4. Selected Small Tennessee Farmers Ranking of Risk-Management Training Needs by Enterprise.**

Required risk-management training workshops	Type of enterprise		
	Crop	Livestock	Total
Marketing and value-added agriculture	17	16	33
Farm financial analysis and business planning	8	11	19
Alternative enterprises and diversification	8	8	16
Crop insurance	2	1	3
Estate planning	4	8	12
Assistance available from USDA agencies	2	7	9
Total	41	51	92

**Table 5. Selected Small Tennessee Farmers Ranking of Risk-Management Training Workshops and their Perceived Level of Farming Operational Risks (%).**

Required risk-management training workshop	Farming operations level of risk					Total
	Very high	High	Moderate	Low	None	
Marketing and value-added agriculture	15.6	13	4.3	1	2.1	36
Farm financial analysis and business planning	6	10.8	2.1	2.1	0	21
Alternative enterprises and diversification	1	8.7	2.1	5.4	0	17.2
Crop insurance	1	0	2.1	0	0	3.1
Estate planning	7.7	4.3	0	1	0	13
Assistance available from USDA agencies	4.4	4.3	1	0	0	9.7
Total	35.7	41.1	11.6	9.5	2.1	92

to be trained on Saturdays (57 percent) rather than on weekdays (25 percent) or during the evenings (18 percent).

A comparison between the farmers' preferred the training days and their off-farm employment status was carried out. The result shows that 15.2 percent—those who did not have off-farm jobs—preferred to have training sessions during weekdays and farmers who had off-farm jobs opted for Saturdays.

The association between farmers' preferred

methods of training and their level of education was tested. The results show that farmers who had the lowest levels of education preferred more personal risk-education methods (Table 6).

Additional analysis revealed a relationship between the farmers' perceived farm operations level of risk and their preferred training methods. The selected farmers who perceived risks in their operations as very high and high favored in-depth training by risk-management experts when it came to risk-management training techniques (Table 7).

**Table 6. Selected Famers Preferred Training Methods and Their Level of Education (%).**

Training methods	Level of education						Total
	Grade school	Some high school	High school diploma	Technical school	College degree	Graduate school	
In depth training by risk-management experts	1	21.5	16.3	6.5	10.8	7.6	63.7
Training by extension agents	3.2	9.7	4.3	4.3	1	2.1	24.6
Internet- or computer-based educational modules	0	0	4.3	2.1	2.1	3.2	11.7
Total	4.2	31.2	24.9	12.9	13.9	12.9	100

**Table 7. Perceived Farm Operations of Risk and Preferred Training Methods (%).**

Training methods	Farming operations level of risk					Total
	Very high	High	Moderate	Low	None	
In-depth training by risk-management experts	22.5	25	9.7	5.4	1	63.6
Training by extension agents	8.6	10.8	2.1	3.2	0	24.7
Internet- or computer-based educational modules	4.3	5.4	0	1	1	11.7
Total	35.4	41.2	11.8	9.6	2	100

### Summary and Implications

The survey results highlight small farmers' risk-management training needs and their preferred training delivery methods. Despite a relatively diverse sample in terms of education, farm size, type of enterprises operated, and farm income, the results show that there is considerable agreement on the relative importance of risk-management training needs among small farmers. Results also reveal the socioeconomic characteristics of the respondents.

Farmers ranked production risks (rainfall variability and pests [insects, weeds, and diseases]) as their most important category of risks, followed by

market related risks (credit availability). In identifying the various sources of risk, this knowledge can be used to develop targeted educational programs and policies that will help small farmers improve their viability.

The survey also obtained both qualitative and quantitative information which can assist policy makers and others working with small farmers in the state. Extension professionals and other risk-management specialists can use the information when designing risk-management workshops, determining appropriate training schedules, and developing effective delivery methods that will be important for small farmers in Tennessee. This

study shows the need to make a concerted effort by all working with small farmers to implement risk-management strategies that will enhance small farmers' economic viability.

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