

## EDUCATIONAL PRIORITIES OF SMALL FARMERS IN WEST TENNESSEE

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### Abstract

*The major purpose of this study was to assess the educational priorities of small farmers regarding delivery methods, educational programs, and program activities of the agricultural extension service in West Tennessee. The target population was 408 small farmers from three counties in West Tennessee. Random sampling was used to select 150 farmers, who represented 37 percent of the target population. Data collection was accomplished through a farm visit using a survey questionnaire. Cronbach's alpha was calculated to determine the internal consistency of the instrument. The composite reliability coefficients were .92 or above.*

*The major findings revealed that there was a greater need for educational programs for small farmers in the areas of crop marketing, soil conservation practices, and the use of pesticides. A majority of the respondents were full-time farmers and 53 percent of the farmers had less than a high school education. Most of the farmers were near retirement age and it appeared that the number of small farmers will continue to decline. There was a strong interest among the farmers that the extension agents place more emphasis on individualized methods to help farmers in solving problems.*

*The following recommendations were made: 1) extension agents should develop educational programs that are aimed at enhancing the technical knowledge and managerial skills of small farmers; and 2) extension agents should place more emphasis on helping farmers improve existing marketing systems.*

During the past 80 years, the agricultural extension service has played a major role toward developing rural communities and family farmers. The agricultural extension service has been in the forefront in educating farmers about new technology and providing technical assistance. In recent years, farming has become more competitive in a global agricultural industry. Small farmers are facing many complex problems and definitely need help deciding which direction to take in the years ahead. Singh and Williamson (1985) wrote that "the established means of communication have failed to work for low income farmers. Small farmers do not seek help or use information from the agricultural extension service as readily as other farmers."

The agricultural extension service has been responsible for disseminating research results. In theory, extension programs are freely available to

everyone. Obahayujie and Hillison (1988) wrote that "the methods used must coincide with the maturity, education level, background, and objective of the audience being served." Ford (1987) found that farm visits, demonstrations, and field days were the most effective methods used by extension agents to disseminate information. He also found that the most important program content areas were soil conservation practices, financial planning, and livestock records. Singh and Williamson (1985) recommended that the agricultural extension service provide more educational programs geared to a one-to-one basis to utilize effective channels of communication and that the programs should be tailored to develop the managerial and technical knowledge of small farmers. Bowen and Escolme (1990) found that three-fourths of the farmers who used microcomputers had some college education. However, almost two-third of the non-users had

earned a high school diploma or less formal education.

A number of questions should be investigated surrounding the role of the agricultural extension service toward small farmers. Some of the important questions are: What are the educational needs of small farmers? What role can agricultural extension agents play in helping small farmers make more informed decisions? Should extension agents spend more time utilizing one-on-one methods to communicate with low income farmers? Can extension agents encourage small farmers to adopt current practices and technologies? This study attempts to address some of the above questions.

### **Purpose and Objectives**

The purpose of this study was to determine the educational priorities of small farmers regarding delivery methods, educational programs, and program activities of the agricultural extension service in West Tennessee. The specific objectives were to:

1. determine educational programs that small farmers perceived as being most important.
2. identify extension methods that small farmers perceived as being most effective.
3. determine the perceptions of small farmers regarding educational activities.
4. determine and analyze selected demographic characteristics of small farmers.

### **Procedures**

#### Population and Sample

The research design was descriptive survey. The target population consisted of 408 small farmers who were from three counties in West Tennessee. Small farmers used in this study were secured from the mailing lists of the county extension agents. The selection of counties was based on the various farm enterprises and sizes. A computer random sampling program was used to select 150 farmers, who represented 37 percent of the target population. According to Van Dalen (1978) a sample size of 10 to 20 percent of a population is often used in descriptive research. Small farmers were identified as individuals who made less than \$20,000 gross income from the sale of farm products.

#### Instrumentation

A survey questionnaire was developed after an extensive review of literature relative to educational needs of small farmers. The instrument contained 61 scaled items divided into three parts: 1) educational programs, 2) methods used to disseminate information, and 3) educational activities. The demographic information was comprised of respondents' gender, age, years of education, income, size of farm, and size of household. The instrument was validated using a pilot test, which involved 11 extension agents and nine small farmers.

A one to 99 scale was used for farmers to express their feelings. The researcher believed it was easier for the farmers to conceptualize more accurate responses when responding to the questionnaire items. The one to 99 scale had descriptive values, which were similar to farmers using quarters to count a dollar. The descriptive values were: 1, no importance; 25, little importance; 50, average importance; 75, much importance; and 99, utmost importance. This type scale allowed for more accurate responses when using participants of different education experiences and backgrounds (Wolins & Dickinson, 1973).

## Data Collection

The researcher and agricultural extension agents collected data using a survey questionnaire. A farm visit was made during the months of September and October, 1992. For those farmers who were not at home during our visit, a questionnaire was placed at their home to be completed and returned to the local extension office. A follow-up visit was made by the extension agents in late October for those farmers who were not home during the first visit or who didn't return the questionnaire.

The extension agents indicated from their past experience that these small farmers had a history of not completing mail questionnaires. It was determined by the researcher that the farm visit would be the means of collecting data. One-hundred and eight farmers completed the survey instrument representing a 72 percent response rate. Because of the high response rate, a planned telephone follow up to non-respondents was not conducted since a 72% response rate was considered adequate (Brinkerhoff & Associates, 1983).

## Analysis of Data

Cronbach's alpha was calculated to determine the internal consistency of the instrument. The composite reliability coefficients were .92 or above. The total reliability of the 61 scaled items was .92. The data were analyzed using the Statistical Package for the Social Sciences (SPSS). Means, standard deviations, and mean ranks were provided in the study.

## **Findings**

Among the 108 respondents, 98 were male

Table 1. Means, Standard Deviations, and Mean Ranks of Small Farmers Regarding the Most Important Educational Programs (n=108)

and ten were female. Sixty-one farmers were at least 60 years of age, 25 were between 50 to 59 years of age and the remaining 22 were between 20 to 49 years of age. Nearly two-thirds or 63 percent of the respondents were full-time farmers, while 40 or 37 percent were part-time farmers. Fifty-three respondents had less than a high school education, 29 had a high school diploma and the remaining 26 respondents had some college training or a four year degree.

All the respondents indicated their gross farm income was less than \$20,000 per year. Sixty farmers had a combined gross income from all sources of less than \$19,999, 35 farmers had combined gross incomes between \$20,000 to \$39,999 and the 13 remaining farmers reported that they made more than \$40,000 in combined income. The average size farm owned was 52 acres and the average size farm rented was 82 acres. The average household was 3.3 persons and 36 respondents had two persons in their household.

The first objective of this study was to determine the perceptions of small farmers regarding the educational programs in agriculture. As indicated in Table 1, the respondents rated 10 of the 25 items as being in the "much importance" category, nine items were in the "average importance" category, and the remaining six items in the "little importance" category. None of the items were perceived as being of "no importance" or "utmost importance." The two highest rated items were crop marketing and crop production, whereas the two lowest rated items were poultry marketing and poultry production.

The second objective in this study was to identify the most effective teaching methods used by the agricultural extension agents as perceived by small farmers. As indicated in Table 2, the respondents rated six of 24 items as being in the

Item	Mean	S.D.	Rank Mean
Crop Marketing	78.50	21.20	1
Crop Production	76.37	22.32	2
Soil conservation practices	74.15	21.42	3
Crop pesticides	73.21	23.11	4
Marketing systems	65.62	26.79	5
Making decisions	65.15	27.92	6
New crop varieties	64.99	25.10	7
Vegetable production	64.58	28.74	8
Fruit and vegetable pesticides	64.17	27.27	9
Farm policies	63.95	27.11	10
Financial planning	61.79	28.88	11
Agricultural credit	59.93	32.69	12
Farm machinery	57.71	28.73	13
Livestock marketing	54.41	33.82	14
Fruit production	53.72	30.15	15
Livestock breeding and reproduction	51.11	33.99	16
Livestock records	46.52	35.80	17
Computers in farm management	43.49	35.16	18
Computers in crop production	40.49	35.53	19
Computers in livestock production	35.69	34.45	20
Computers in horticulture	35.57	33.95	21
Turf management	35.09	31.74	22
Computers in poultry production	26.55	32.57	23
Poultry marketing	25.48	31.32	24
<b>Poultry production</b>	<b>24.91</b>	<b>31.38</b>	<b>25</b>

Note: The range of descriptive values was: 1-12.49, no importance; 12.5-37.49, little importance; 37.50-62.49, average importance; 62.50-87.49, much importance; 87.50-99 utmost importance.

Table 2. Means, Standard Deviations, and Mean Ranks of Small Farmers Regarding the Most Effective Extension Methods (n=108)

Item	Mean	S.D.	Rank Mean
How effective are the following methods:			
Farm visits	77.46	21.15	1
County meetings	73.93	22.45	2
Office conferences	64.80	24.80	3
Bulletins	64.69	25.76	4
Demonstrations	63.65	27.68	5
Telephone conferences	63.03	27.98	6
Field days	61.34	26.21	7
Newsletters	60.51	28.35	8
Newspapers and magazines	57.28	26.47	9
Local community meetings	56.67	35.08	10
Group meetings	53.04	32.49	11
Seminars	51.79	35.45	12
New stories	50.33	30.36	13
Panel discussions	47.16	33.82	
14			
Educational displays	47.06	34.92	15
Lecture-discussions	46.24	33.74	16
Workshops	44.63	35.84	17
Institutes	41.88	35.64	18
Video tape programs	41.77	35.29	19
Radio programs	40.96	34.65	20
Computer applications	39.91	35.60	21
Television programs	39.50	36.60	22
Audio recorder programs	37.11	34.40	23
Short courses	36.56	34.62	24

Note: The range of descriptive values was: 1-12.49, not effective; 12.5-37.49, little effective; 37.5-62.49, average effective; 62.5-87.49, much effective; and 87.50-99, very effective.

"much effective" category, 16 items as being in the "average effective" category and the remaining two items in the "little effective" category. None of the items were perceived as being "not effective" or "very effective." The three highest means were farm visits, county meetings, and office conferences, whereas, television programs, audio recorder programs, and short courses were the three lowest means. Obahayujie and Hillison (1988) found that part-time farmers rated on-farm demonstrations and full-time farmers rated newsletters and visits to experiment stations as the highest rank dissemination methods.

The third objective in this study was to assess educational activities of the agricultural extension service as perceived by small farmers. As shown in Table 3, the highest rated items were individualized instruction used to help farmers in program evaluation and select farmers to serve on committees and boards. All 12 items were ranked in the "agree" category.

### Conclusions

The following conclusions were drawn from the findings of this study:

Table 3. Means, Standard Deviations, and Mean Ranks of Small Farmers Assessing Educational Activities of the Agricultural Extension Service (n=108)

Item	Mean	S.D.	Rank Mean
Agricultural extension agents should:			
Use individualized methods to help farmers in solving problems	84.47	15.56	1
Provide accurate information	82.33	22.75	2
Provide educational content centered on the needs of clients	81.62	20.27	3
Prepare instructional plans that meet the needs of clients	81.19	19.60	4
Provide information based on research	80.57	19.81	5
Utilize non-formal teaching methods and techniques in unique situations	80.15	19.46	6
Provide information in a prompt time frame	79.94	21.47	7
Use a variety of instructional methods	79.82	18.99	8
Provide farmers with current information	79.30	21.31	9
Involve farmers in program planning	74.80	21.53	10
Involve farmers in program evaluation	72.94	20.84	11
Select farmers to serve on committees and boards	63.91	29.55	12

Note: The range of descriptive values was: 1-12.49, strongly disagree; 12.50-37.49, disagree; 37.50-62.49, uncertain, 62.50-87.49, agree and 87.50-99, strongly agree.

- Small farmers indicated that there was a greater need for educational programs centered around crop marketing, crop production and soil conservation practices. These farmers also indicated that they needed technical knowledge in the areas of crop pesticides and marketing systems.
- Farm visits, county meetings, office conferences, new bulletins, and demonstrations were the most effective methods perceived by the farmers.

3. The farmers indicated that more emphasis should be placed on the use of individualized methods to help farmers in solving problems.
4. The majority of the respondents were full-time farmers and 53 percent had less than a high school education. Most of the farmers were near retirement age and it appears that the number of small farmers will continue to decline.

### **Recommendations**

Based on the findings and conclusions of this study, the following recommendations were made:

1. Agricultural extension agents should develop educational programs that are aimed at enhancing the technical knowledge and managerial skills of small farmers. These educational programs should offer incentives such as demonstrations to create an environment for communication.
2. Agricultural extension agents should consider using one-on-one meetings and small group methods as the primary means of educating these farmers.
3. Agricultural extension agents should place more emphasis on helping small farmers improve the existing marketing systems.
4. Agricultural extension agents should encourage small farmers to use alternative farming practices, particularly those that influence several facets of the farm, such as soil fertility and pesticides.

5. A major problem facing small farmers is the existing marketing systems. Further research is essential in the area of assisting small farmers in improving their marketing practices and identifying new markets.

### **References**

- Bowen, B., & Escolme, K. (1990). Computer education priorities of farmers. Journal of Agricultural Education, 31(1), 39-45.
- Brinkerhoff, R. O., & Associates (1983). Program evaluation: A practitioner's guide for trainers and educators. Boston: Kluwer-Nijhoff.
- Ford, C. L. (1987). Perceptions of selected agricultural groups toward education programs in agriculture. Unpublished doctoral dissertation. Iowa State University, Ames.
- Obahayujie, J., & Hillison, J. (1988, Spring). Now hear this: Delivery methods for farmers. Journal of Extension, 21.
- Singh, S. P. & Williamson, H. (1985). Perspectives on the small farm: Small, low income farms in Tennessee. Nashville: School of Agriculture and Home Economics, Tennessee State University, 50.
- Van Dalen, D. B. (1978). Understanding educational research: An introduction. New York: McGraw Hill, Inc.
- Wolins, L. & Dickinson, T. L. (1973). Transformation to improve reliability and/ or validity for affective scales. Educational and Psychological Measurement, 711-713.