

## **Identifying Informational Sources and Educational Delivery Methods For Private Landowners**

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### **Abstract**

Reaching forest landowners with useful information has become a challenging task for educators. This task is even more complex when landowners have differing perceptions about the delivery method and usefulness of the information delivered. This study was conducted to determine the preferred educational delivery methods of private forest landowners in South Carolina. Additionally, the study examined differences, if any between demographic characteristics and preferred use of extension delivery methods. Descriptive research methodology was used to conduct the study. A random sample of 397 landowners responded to a five-section survey. After initial mailing and a follow-up, a total of 231 landowners responded for a return rate of 58%. Data were analyzed using descriptive and inferential statistics.

Findings revealed that landowners: 1) do have preferences toward educational delivery methods, 2) relied on a variety of sources for assistance and advice, and 3) significant differences were found between two demographic characteristics (age and occupation) and educational delivery methods (video and the Internet). The findings in this study reinforce the need to modify delivery systems to fit the demographic characteristics of landowners. We should willingly progress by adopting efficient technologies, but not abandon more traditional methods until it is warranted by lack of demand.

## Theoretical/Conceptual Framework

Understanding the communication process between educators and farmers must include the context in which farmers live, operate, and make decisions (Bruening, Radhakrishna, and Rollins, 1992). Effective communication requires a thorough knowledge of the linkages, which affect decisions. Extension educators and communication specialists should use models, which enhance the information-transfer capabilities (Fliegel, 1984).

Several researchers have documented the value of various educational delivery methods in effectively communicating information to farmers and other clientele. Fedele (1985) suggested that information delivery is done by a number of methods. For example, print-based information serves the clientele with specific answers to a myriad of topics. Audio-visual methods such as radio and video tapes often provide information without personally involving extension educators. Mass media delivery methods such as radio, television, and newspapers, are used to advertise events, anticipate client needs, and report agriculture business information. These methods are used in a variety of ways and in a number of contexts, depending on the needs of the farmers.

Richardson (2001) classified educational delivery methods into three groups—experiential, reinforcement, and integrative. To promote effective and efficient learning, a delivery system should include methods wherever possible, that provide desired experiential opportunities for the learner, reinforce the learning, and provide opportunity for the learner to integrate new information with existing knowledge and skills. Further, Richardson (2001) identified several factors that should be considered in the delivery of educational information: target audience, the educational objective, type and content of message being provided, the characteristics of the delivery method, and the method's utility for providing desired learning support.

A host of researchers and educators have examined the perceptions of farmers and other clientele toward delivery of educational information (Suvedi, Campo, and Lipinski, 1999; Trede and Whitaker, 1998; Caldwell and Richardson, 1995; Laughlin and Schmidt, 1995, and Gamon, Bounaga and Miller, 1992). Consensus from these studies suggest that various media and methods are used by extension educators to communicate new and emerging technologies to farmers and other clientele having differing perceptions toward the delivery of information. For example, beginning farmers in Iowa preferred one-on-one, on-site educational meeting and personal contacts (family and neighbors) for information. In addition, farmers preferred radio, newspapers and television for information. Farmers owning highly erodible soils in Iowa identified face-to-face discussion, newspapers, newsletters, and magazine articles as preferred delivery methods (Gamn, Bounaga, and Miller, 1992). Iams and Marion (1991) concluded that learning preferences of farmers and other clientele depends on the subject matter they are learning. For example, clientele preferred television, newspaper, and radio to learn about energy conservation, while pamphlets, correspondence courses and telephone messages were preferred to know more about health and financial management information. Further, when the subject was changed to environmental education, the preferred information sources were videotapes, educational meetings, workshops and bulletins.

Few researchers have examined information sources and education delivery methods that landowners find useful to learn about forestry, natural resource management and environmental issues. Padgitt (1987) found that over 60 percent of Iowa farmers preferred newspapers/magazines, radio and television to obtain information on groundwater quality. Downing and Finely (2002), in a Pennsylvania study, found that private forest landowners preferred active methods such as outdoor workshops combined indoor/outdoor workshops, field trips, demonstration areas, and skill demonstrations, followed by passive methods such as slides, videos, e-mail/web, correspondence course, video conference and bulletins/newsletters.

Longleaf pine once dominated southern landscapes from southeast Virginia to east Texas. In colonial times the tree occupied as much as 92 million acres (Frost, 1993). Today, less than 3 million acres remain (Outcalt and Sheffield 1996). In South Carolina, longleaf pine occurred on as much as 7.6 million acres, a figure that declined to just over 1.7 million acres in 1936 and to only 396,000 acres at present (Cecil Frost, personal communication; U.S. Forest Service 1989; Outcalt and Sheffield, 1996). The decline in longleaf pine forest resulted from development, overexploitation, and a shift in forestry practices.

Ecologists and many non-industrial forestland owners are interested in restoring longleaf pine to a larger portion of its natural range. Most importantly, longleaf is valuable because it is associated with one of the most biologically diverse ecosystems in the western hemisphere. As 70 percent of commercial forest land in the South is owned by private landowners, they have become a primary focus of longleaf pine restoration efforts. Reaching landowners with useful information has become a challenging task for educators. This task is even more complex when farmers and landowners have differing perceptions about the delivery method and the usefulness of the information delivered. As indicated by Seevers, Graham, Gamon, and Conklin (1997), the greatest ongoing challenge for educators is identifying, developing and delivering information that meets client needs.

For extension educators and communicators, it is particularly important to identify and examine the usefulness of each delivery method. Knowledge about the usefulness of delivery methods will not only help to identify the information needs of farmers, but also assist in developing educational resources to effectively communicate with farmers and other clientele.

### **Purpose and Objectives**

The overall purpose of this study was to determine the characteristics of longleaf pine landowners in South Carolina and their preferred use of educational delivery methods. The following objectives were developed to guide the investigation.

1. Describe the demographic profile of longleaf pine landowners in South Carolina.
2. Determine sources landowners use for technical and financial assistance.
3. Identify the preferred educational delivery methods that landowners find most useful in receiving information about longleaf pine.
4. Determine relationships, if any, between usefulness of educational delivery methods and demographic characteristics of landowners.

## Methods and Procedures

### Population and Sample

A list of forest landowners (names and addresses) with land ownership within the natural range of longleaf pine was developed from: (1) the South Carolina Forest Stewardship newsletter mailing list (Department of Forest Resources, Clemson, SC), (2) a list of South Carolina plantations, (3) South Carolina members of The Longleaf Alliance (School of Forestry and Wildlife Sciences, Auburn University, AL), and (4) lists of landowners who owned longleaf pine that were enrolled in industry landowner assistance programs. The combined list was checked for duplication and other errors. The final list consisted of a population of 1,170 names. A random sample of 397 names was selected using computer-generated numbers. The sample of 397 is based on a formula provided by Krejcie & Morgan (1970), with a 5% margin of error and a 4% sampling error.

### Instrumentation

The survey instrument was a questionnaire designed by the researchers. The survey contained four sections. Section one consisted of questions regarding longleaf pine tract characteristics. Section two inquired about technical and financial assistance information. Section three asked about the preferred format of educational delivery methods and section four requested landowner demographic information (ownership, age, educational level, occupation, income, etc.). Content and face validity of the survey was established by a six-member panel of experts that included three Extension specialists, one Extension agent, and two representatives from the Environmental Defense Fund (1875, Connecticut Avenue NW, Washington, DC).

### Data Collection and Analysis

The survey and cover letter explaining the purpose of the study was mailed to members of the sample. After three weeks, a total of 121 (30%) landowners had responded. A second mailing, including a revised cover letter and a copy of the survey was sent to all non-respondents. An additional 134 (34%) questionnaires were returned for a total data sample of  $n=255$  (64%). The final data sample included 231 useable questionnaires for a 58% response rate: 24 questionnaires were not useable due to incomplete responses and incorrect addresses.

The data from the 231 responses was coded and analyzed using Statistical Package for Social Sciences (SPSS) for Windows. Early and late respondents were compared on key variables as per the procedures suggested by Miller & Smith (1983). No significant differences ( $p>.05$ ) were found between early and late respondents. Descriptive and inferential statistics were used to summarize the data.

### Results

#### *Objective 1: Demographic Profile*

As shown in Table 1, the majority of respondents (82%) were “individual” landowners,

followed by family corporations (8%), partnerships (7%), and other (3%). Over one-half of the landowners (54%) were 55 years or older, 27% were between the ages of 45-54, 16% were between 35-44, and three percent under 25 years of age. A little over one-third of the landowners (35%) reported bachelor's (college) degree as their highest educational level completed, followed by less than college degree (34%-- some college--21%, high school diploma--12%, and less than high school--1%), and graduate degrees (31%).

Table 1  
*Demographic Profile of Landowners*

<b>Item</b>	<i>n</i>	<i>%</i>
<i>Land Ownership</i>		
Individual	183	82.8 %
Partnership	15	6.8
Family Corporation	17	7.7
Other	6	2.7
Total	221	100.0
<i>Age</i>		
Under 35 Years	6	2.7%
35 - 44	36	16.3
45 - 54	59	26.7
55 - 64	49	22.2
65 and Over	71	32.1
Total	221	100.0
<i>Educational Level</i>		
Less than College Degree	75	33.9%
College Degree	77	34.9
Graduate Degrees	69	31.2
Total	221	100.0
<i>Occupation</i>		
Retired	71	34.1%
Forester/Farmer	32	15.4
Engineering	23	11.0
Physician/Dentist	17	8.2
Real Estate/Bank	15	7.2
Self-employed	18	8.7
Attorney	9	4.3
Sales	10	4.8
Management	8	3.8
Others	5	2.4
Total	208	100.0

No single occupation dominated the landowner's primary profession (Table 1). A little over one-third (34%) were retirees. Fifteen percent were in farming and natural resources, 11%

in engineering, eight percent each were physicians/dentists and self-employed, seven percent were in real estate/banking, four to five percent each were in management, sales, and legal professions, and two percent in other occupations (Table 1). Twenty-two percent reported income less than \$55,000; 12% earned between \$55,000 and \$75,000; 28% earned between \$75,000 and \$115,000, and 38% over \$115,000. A little over one-half of landowners lived on the land they owned (54%), while the remaining 46 percent lived off-site or were absentee landlords.

Tract Characteristics

Collectively, respondents to this survey owned an average of 581.44 acres of forestland. This ranged from a minimum of 0 acres, up to 10,000 acres. The average acreage of longleaf pine was 83.25, with a range of 0 to 1,500 acres. Of this, fifty percent of the longleaf was in stands aged 0 to 25 years; 33 % in multi-aged stands; 10% in stands ages 26-50 years, 3.5% in stands greater than 50 years of age and 3.5% were unsure of age.

*Objective 2: Technical and Financial Assistance*

Seventy-seven percent of the respondents had received technical assistance from several sources (Figure 1), half of which came from private consulting foresters, followed by state foresters or wildlife biologists (43%), industrial forester (41%), extension service (25%), Natural Resources Conservation Service (24%), Farm Service Agency (20%), and other (5%).

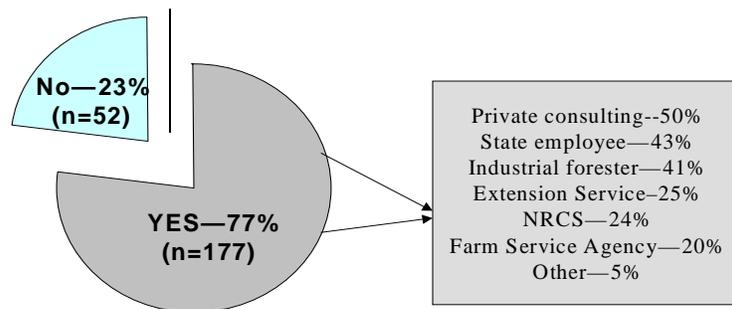


Figure 1: Received Technical Assistance

In addition, these landowners shopped around and got forestry help and advice from several sources including private consulting foresters (55%), State Forestry Commission (50%), Extension Service (40%), and both the Natural Resources Conservation Service and Industrial Foresters (27%), Farm Service Agency (18%), and other (3%). (Table 2).

Table 2

*Sources Longleaf Pine Landowners Depend on for Help and Advice*

Help and Advice	<i>f</i>	%
Private Consulting Forester/Wildlife Biologist	124	55%
Industrial Forester	61	27
State Employee (project forester)	112	50
Extension Service	89	40
Farm Service Agency	41	18
Natural Resource Conservation Service	61	27
Other	7	3

Sixty-one percent had received financial assistance in the form of cost-share for their land management activities (Figure 2). Those that didn't (39%) indicated that they did not apply (39%); did not qualify (24%); were uncomfortable with government (17%); or not interested (14%). (Table 2).

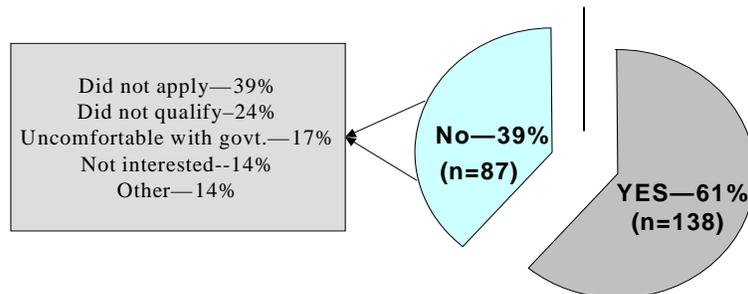


Figure 2: Received Financial Assistance

*Objective 3: Usefulness of Educational Delivery Method*

Landowners were asked to rate the usefulness of educational delivery methods on a scale 5= Very useful, 4= Useful, 3= Uncertain, 2= Not very useful, 1= Not at all useful. In declining order of utility, landowners rated newsletters ( $M = 4.17$ ) as most useful (Table 3), followed by publications ( $M = 4.15$ ), field tours (mean = 3.73), Video ( $M = 3.45$ ), workshops ( $M = 3.40$ ), evening meetings (mean = 3.38), short courses ( $M = 3.30$ ), formal classes ( $M = 3.00$ ), and the Internet ( $M = 2.82$ ).

Table 3  
*Usefulness of Educational Delivery Methods*

<i>Delivery Method</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Rank</i>
Newsletters	207	4.17	0.95	1
Publications	197	4.15	1.01	2
Field tours	181	3.73	1.22	3
Video	171	3.44	1.19	4
Workshops	174	3.41	1.28	5
Evening meetings	174	3.38	1.25	6
Short courses	167	3.30	1.22	7
Formal classes	163	3.00	1.25	8
Internet	156	2.82	1.40	9+

\* Mean computed on a scale: 1=Not at all useful to 5=Very useful

#### *Objective 4: Demographic Differences*

The fourth objective of the study was to determine differences, if any, between usefulness of educational delivery methods and demographic characteristics of landowners. The procedure One-way-ANOVA and Scheffe post hoc test were used to identify differences between groups. For purposes of analysis, age and occupation variables were grouped into four categories (age—less than 45 years, 45-54 years, 55-64 years and over 65 years and occupation—retired, self employed, professional and agricultural related occupations).

ANOVA results revealed significant differences between age and two educational delivery methods—video ( $F=4.43, p<.05$ ) and the Internet ( $F=6.05, p<.001$ ) (Figure 3). Younger landowners (under 44 years of age) tended to find video as most useful delivery method than older landowners (over 55 years of age). Landowners who were 55 years or younger tended to find the Internet as most useful delivery method than older landowners (Figure 3). Significant differences were also found between occupation and two educational delivery methods--video ( $F=5.52, p <.05$ ) and the Internet ( $F=5.47, p <.05$ ) (Figure 4). Landowners who were employed in professional, agricultural-related, and self-employed occupations tended to find video as most useful delivery method than retired landowners. Landowners employed in professional and agricultural related occupations tended to find the Internet most useful than retired and self-employed landowners (Figure 4).

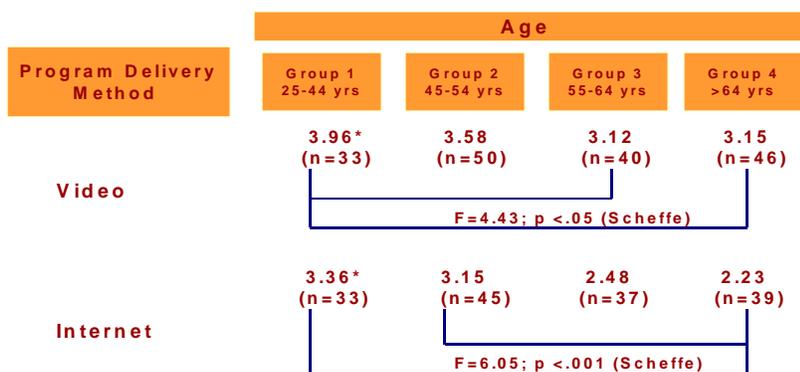


Figure 3: ANOVA Results for Age and Usefulness of Program Delivery Methods—Video and the Internet

\* Mean computed on scale 1=not at all useful to 5=very useful

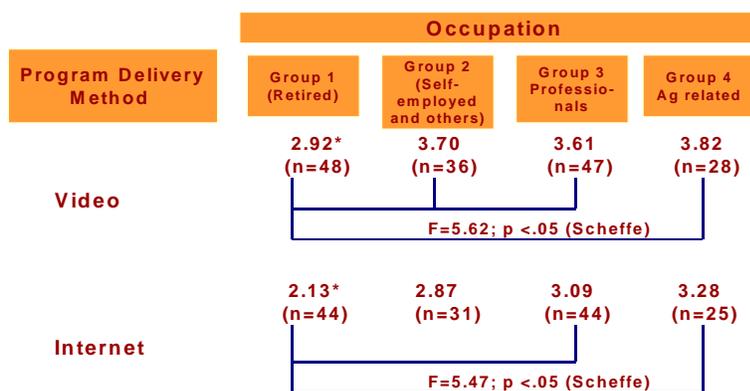


Figure 4: ANOVA Results for Occupation and Usefulness of Program Delivery Methods—Video and the Internet

\* Mean computed on scale 1=not at all useful to 5=very useful

## Conclusions and Recommendations

Results of this survey indicate that private forest landowners within the natural range of longleaf pine in South Carolina are typically more than 45 years-old, either work in a recognized profession or are retired, are well educated with above average income, and have individual ownership of their land. Their reliance on a variety of sources for assistance and advice would indicate that they are willing to listen and are receptive to a range of ideas. This generalized profile might infer positive approachability concerning information on the restoration and management of longleaf pine. However, landowner preferences did occur with respect to educational delivery methods and should be considered in order to maximize program efficiency.

The significant differences between age and high technology delivery systems (video and the Internet) demonstrates that educators should be careful when attempting to reach elderly landowners with video and the Internet. Based on delivery system rankings (Table 3), the large portion (34%) of retired landowners in this sample is likely more comfortable with traditional delivery systems such as newsletters, publications and field tours. Significant differences

between occupation and delivery methods show that certain professionally trained landowners may intuitively be better served with technology driven systems such as video and the Internet. As indicated by Laughlin and Schmidt (1995), extension professionals need to examine the best possible ways to deliver information within the technological revolution. The findings in this study reinforce the need to modify delivery systems to fit the demographic characteristics of the intended audience and to keep up-to-date surveys in order to determine demographic change. We should willingly progress by adopting efficient technologies, but not abandon more traditional methods until it is warranted by lack of demand.

The findings of this study has provided valuable information to design, develop, and deliver educational information for a specific group of Extension clientele, that is, private longleaf pine landowners. Extension professionals, especially those in natural resource management and forestry programming should use the findings of this study in designing their program offerings.

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