

**METHODS OF INFORMATION DISSEMINATION
TO LIMITED-SCALE LANDOWNERS**

D. Dwayne Cartmell II, Assistant Professor
Oklahoma State University
448 Ag Hall
Stillwater, Oklahoma 74078-6031
Telephone: (405) 744-0461
FAX: (405) 744-5176
E-mail: dcart@okstate.edu

Chandra L. Orr, Graduate Student
Oklahoma State University
448 Ag Hall
Stillwater, Oklahoma 74078-6031
Telephone: (405) 744-8135
FAX: (405) 744-5176

Danna B. Kelemen, Graduate Student
Oklahoma State University
448 Ag Hall
Stillwater, Oklahoma 74078-6031
Telephone: (405) 744-8135
FAX: (405) 744-5176
E-mail: dannak@okstate.edu

Abstract

Information and technology are ever-changing characteristics of the world in which we live. The Cooperative Extension Service strives to meet the needs of their audience by providing relevant information through a variety of informational outlets. Studies indicate that clientele preferences do exist and are dependent upon the audience itself. Therefore, the dissemination of information must be conducive to the needs. As the population moves from city dwelling to rural residency, the methods for information dissemination must be closely examined to determine the role of technology in dissemination and the role of demographics in preferred delivery method. This paper is a study of the informational needs of limited-scale landowners within the urban/rural interface of Lincoln County, Oklahoma, to address the methods of information dissemination by the Cooperative Extension Service and the role that demographic variables play in the preferred delivery method to intended audience members. Findings indicate that the Extension's audience prefers the use of direct mail as the primary method of information dissemination. The majority of the audience members owned a computer and a VCR and less than half used the Cooperative Extension Service. In cross-referencing age and education level with preferred sources of information, the study indicated that audience members, regardless of age and education level preferred direct mail as their source for information dissemination. Therefore the relationship in this study between age and educational level is inconclusive as it relates to preferred methods of information dissemination.

Key Words: Cooperative Extension Service, Extension, Limited-Scale Landowner, Urban/Rural Interface.

Introduction

Information dissemination is a core principle of the Oklahoma Cooperative Extension Service (Orr, 2003). If information is to be used and empowering, it must be disseminated in a manner that best facilitates its reception. However, information is delivered in a multitude of manners and the challenge is to determine which method is most appropriate to the audience attempting to be reached. Knowing where people look for information is only half the battle for Extension communicators; but knowing where people find information is the other half (Pounds, 1985). Studies clearly show that clientele preferences do exist and may be quite different depending upon the audience being served. Considering the great variability among groups and indicated personal preferences, it is likely that no single delivery method is suitable for everyone (Richardson, 1995). Previous studies have noted that farmers' preferences for informational delivery methods depend on a variety of demographic characteristics such as age, income, formal education, and farm size (Iddings & Apps, 1992). Landowners living in the urban/rural interface have diverse interests and unique concerns (Creighton, Baumgartner, & Gibbs, 2002). The abundance of methods for disseminating information creates a need for Extension to know the types of technology its audience owns and/or regularly uses (Orr, 2003). Knowing the audience will assist the source in disseminating information in a method that is both well received and used.

Purpose

The purpose of this study was to examine methods of information dissemination to limited-scale landowners in Lincoln County, Oklahoma.

Research Objectives

- (1) To determine the preferred information dissemination method/s of limited-scale landowners in Lincoln County, Oklahoma.
- (2) To determine what method/s of information dissemination the Oklahoma Cooperative Extension Service uses to reach limited-scale landowners in Lincoln County, Oklahoma.
- (3) To describe the technological capabilities of limited-scale landowners in Lincoln County, Oklahoma.
- (4) To describe the preferred information dissemination method/s based on demographic variables of limited-scale landowners in Lincoln County, Oklahoma.

Review of the Literature

For more than 75 years, Extension's mission has been the dissemination of information and knowledge derived from practical experience to help people lead more productive and satisfying lives (St. Clair, 2001). The Morrill Acts of 1862 and 1890 made possible the establishment of colleges for American citizens (1862, 1890). The Homestead Act of 1862 gave citizens the opportunity to own land of their own and encouraged agricultural practices on the land that helped to settle the United States (1862). The Hatch Act of 1887 provided federal funds for agricultural research at state colleges and universities, thus establishing agricultural experiment stations (1887). The Smith-Lever Act of 1914 set up the Cooperative Extension system of county agents (1914). All five Acts in early American history played a significant role in establishing agriculture as a mainstay of our country.

The Extension Service must be able to provide information that makes a difference (Astroth, 1990). Extension provides an important linkage between farmers and researchers, and

farmers have come to value the services they receive from Extension (Ekanem, Singh, Tegege, & Akuley-Amenyenu, 2001). In a less-complicated time, the Cooperative Extension Service was simpler. The land-grant university research findings were disseminated directly to rural people by agents in the counties (Buford, 1990). The dawn of the information age has forced Cooperative Extension to radically change its methods of disseminating research-based information to clientele to compete with private enterprise and other educational institutions (Boldt, 1987). Today, as we navigate through the information and technology-laden world in which we now live, the sharing of information becomes easier and yet more complex. New methods for dispersing information have surfaced, yet not all individuals have adapted to this new form of communication via electronic media such as computers, television, VCRs, DVD players, and the Internet.

The challenge arises in how best to disseminate information to target populations. For the Cooperative Extension Service to best serve its intended audience, it needs to determine who its audience is and how to most effectively target and disseminate information to that audience (Orr, 2003). Not only does the Cooperative Extension Service strive to meet the needs of large production farms, but also it seeks to fulfill the needs of small-farm landowners, non-traditional producers, and homeowners (Polson & Gastier, 2001). Subsequently, because of a much broader audience today, Extension must seek the most effective means of reaching individuals based on their preferences for receiving information.

Agriculture remains the most important industry in rural America, but now employs relatively few people (Dillman, 1991). In addition, Dillman (1991) points out that more than 60% of all farm families rely on off-farm income to help support their lifestyles. As these changes occur, so too do the methods landowners use to obtain information. Research indicates

that people use different sources depending on the kind of information they are seeking (Pounds, 1985). One study showed that family, friends, and neighbors, along with newsletters, bulletins and fact sheets, magazine articles, printed dealer/sales materials, and farm organizations/associations were most frequently used as information sources (Phipps, Murphy, Maddox, & Neas, 2001). However, Richardson reported (1995) that an interesting finding showed that even though great diversity existed in the interests of the targeted audiences and the program focus for those audiences, their preferences of delivery methods were remarkably similar. The Cooperative Extension Service uses many methods to disseminate information to select audiences (Orr, 2003). Orr stated that while Extension still uses meetings, on-farm visits, and field days to some extent, much information also can be found in media formats such as the Internet, videos, and computer software packages. Thus, the need to know the audience is imperative to determine the preferred methods of information dissemination.

In urban counties and counties adjacent to urban areas, the farm population is an even smaller proportion of the rural population due to the increased movement of non-farm residents from city to countryside (Sharp, Imerman, & Peters, 2002). In Oklahoma, approximately 36.8% of the state's population (n=1,258,600) lives in the metropolitan areas of Tulsa and Oklahoma City (Population Statistics, 2003). In 2002, 33% of Oklahoma's population was classified as living in rural areas (Development Alliance, 2002). However, in Lincoln County, Oklahoma, the urban/rural interface between Tulsa and Oklahoma City, 82.8% of the population is considered rural (Development Alliance, 2002). As a result, there is a growing concern about the future of farming at the urban/rural interface (Sharp, Imerman & Peters, 2002). This trend in

Oklahoma alone indicates that the rural population is increasing and the need for information dissemination will likely rise accordingly.

Methods

The research design used for this study was descriptive in nature using a telephone interview. Since the survey used a random sample, the data can only be generalized back to the original population.

The population was landowners who owned 50 acres of land or less (N=808) in Lincoln County. The landowners' information was compiled by the Lincoln County Cooperative Extension Service (Jones, 2001). Lincoln County was chosen in Oklahoma because of the concentration of limited-scale landowners, and it is an ideal representation of the urban/rural interface as it is located between Tulsa and Oklahoma City.

Individuals on the original list who were duplicates or did not have a phone number were removed from the population. The final population used in this study numbered 707. Using the final population number and the Krejcie & Morgan (1970) table, it was determined the study needed approximately 254 responses to reach a 95% confidence level so results could be generalized to the population. A random sample of the population was surveyed by the Oklahoma Agricultural Statistics Service who was hired to conduct the telephone interviews. The OASS generated 300 useable responses.

Instrument

A 42-question telephone survey was developed to address the research questions determined by the researchers. A pilot study was conducted to determine the reliability and validity of the instrument. At the completion of the pilot study, data were analyzed and the instrument was revised to improve its validity and to reduce confusion on the part of the

respondents and those administering the survey. Feedback was encouraged from both the surveyors and respondents to generate a more precise and accurate survey for the main study. The questions contained in the survey consisted of short-answer questions, “yes/no” questions, interval questions, and multiple-choice questions. Those sampled in the pilot study were removed from the population to be used for the main study.

In the pilot study, some confusion arose on behalf of some of the participants to wording issues on the instrument. A committee was formed to review the pilot study, analyze the problem areas, and clarify the instrument. This not only made the survey easier to administer and respond to, but also allowed the results from the instrument to be more valid and reliable.

Reliability was assessed through the pilot study and was determined by the pilot study participants’ ability to consistently answer the questions without confusion. Since there were no scaled items in the instrument, it was unnecessary to run a Chronbach's Alpha.

A panel of experts consisting of faculty members from Oklahoma State University, the Associate Director of the Oklahoma Cooperative Extension Service, the Associate Director of the Oklahoma Agricultural Extension Service, and the State Statistician of the Oklahoma Agricultural Statistics Service were used to establish content validity of the instrument.

Data Collection and Analysis

The Oklahoma Agricultural Statistics Service administered the telephone survey between the dates of Nov. 12, 2002, and Nov. 20, 2002. A postcard was sent to potential respondents to notify the individuals several days prior to data collection of the upcoming survey. Both genders were surveyed; however, the gender was determined by the landowner who answered the phone.

Descriptive statistics were used for data analysis because of the nature of the study. Respondents were asked open-ended questions, “yes/no” questions, multiple-choice questions, and interval questions.

The data gathered from the instrument was statistically analyzed using the version 11.0 Window’s Statistical Package for Social Sciences (SPSS) and hand analysis. The data was coded into SPSS to analyze non-inferential statistics.

Findings

Findings Related to Information Dissemination Methods and Information Dissemination

Methods Used by the Cooperative Extension Service

The first and second research objectives of this study address the preferred information dissemination methods of limited-scale landowners in Lincoln County, Oklahoma, and the methods used by the Cooperative Extension Service to reach these landowners. To address these questions, it is necessary to know what percentage of respondents use the Cooperative Extension Service and for what purposes.

Limited-Scale Landowners in the Rural/Urban Interface of Lincoln County, Oklahoma,

Who Use the Cooperative Extension Service

Of the responses generated in this survey, 32.7% (n=98) answered that they did use the Cooperative Extension Service, 66.7% (n=200) answered that they did not use the Cooperative Extension Service, and 0.7% (n=2) failed to answer.

Of those respondents who did use the Cooperative Extension Service, 85.7% (n=256) also provided a response of how they used the Cooperative Extension Service (Table 1). The primary usage was for information purposes about soil conservation, types of vegetation to plant, water testing, supplies for livestock, and breeds of livestock that are suitable to Oklahoma.

Table 1

Cooperative Extension Service Uses

Use	n	%
Information	33	39.3
Crop problems /needs	14	16.7
Gardening/Canning	7	8.3
Livestock information	7	8.3
Other	7	8.3
Soil issues	6	7.1
Workshops/Classes	4	4.8
Land Improvement	3	3.6
Water issues	3	3.6

Important Information Sources and Media Formats for Limited-Scale Landowners in the Urban/Rural Interface in Lincoln County, Oklahoma

Information Sources.

For the Cooperative Extension Service to better serve its audience, it needs to know the information sources its audience is already using. Of those respondents who completed the survey, they were asked where they received their agricultural information. They were allowed to respond with more than one source. From this question, the survey generated 437 responses. The primary response was the Cooperative Extension Service with 108 responses, followed by the Internet with 59; other responses were generated such as: magazines (11.5%), other people (11.5%), the local co-op (11.1%), Oklahoma State University (6.1%), agricultural organizations (5.8%), the local agriculture teacher (5.6%), the feed store (4.6%), the coffee shop (4.0%), the library (0.6%), reading (1.5%), the courthouse (0.8%), T.V. (0.6%), trial and error (0.4%), mail (0.2%), the newspaper (0.2%), the radio (0.2%), and fairs (0.2%) (Table 2).

Table 2

Information Sources

Source	n	%
Extension Service	108	22.5
Internet	59	12.4
Magazines	55	11.5
Person to Person	55	11.5
Local Coop	53	11.1
Oklahoma State University	29	6.1
Agriculture Organizations	28	5.8
Agricultural Teacher	27	5.6
Feed store	22	4.6
Coffee shop	19	4.0
Reading	7	1.5
Courthouse	4	0.8
T.V.	3	0.6
Library	3	0.6
Trial & Error	2	0.4
Direct Mail	1	0.2
Newspaper	1	0.2
Veterinarian	1	0.2
Radio	1	0.2
Fairs	1	0.2

Preferred Media Format.

The respondents were given the option in the survey to select their preferred method of receiving information from the following: Internet, direct mail, magazines, technical publications, newspaper, television, radio, workshops, and other. The respondents were allowed to select as many methods as they used. A majority of the respondents preferred direct mail (53.0%), and the least preferred methods were workshops and the radio, both with 3.0% (Table 3).

Findings Related to Technological Capabilities

The third research question addresses the technological capabilities of limited-scale landowners in Lincoln County, Oklahoma. To answer this question, this paper focused on

Table 3

Preferred Media Format

Format	n	%
Direct Mail	159	53.0
Magazines	70	23.3
Television	59	19.7
Internet	53	17.7
Other	28	9.3
Newspaper	27	9.0
Technical Publications	17	5.7
Radio	9	3.0
Workshops	9	3.0

identifying the best methods of sharing information with a targeted audience. To accomplish this, the type of technological advances present in the population's home is needed.

Owning a computer.

In this survey, respondents were asked if they owned a computer. In this study, 71.0 % answered that they owned a computer and 29.0% answered that they did not own a computer. Of those who answered positively to owning a computer, 57.4% reported the computer was more than two years old (Table 4). This study also found that out of those respondents who owned computers, 82.6% had Internet access, and 17.4% did not have Internet access.

Table 4

Computer Age

Age in Years	n	%
<1	20	9.3
1	20	9.3
1 - 2	50	23.5
2 - 3	44	20.7
> 3	78	36.7
Did not respond	1	0.5

Hours spent on the computer.

Of the 300 respondents surveyed, 197 reported the amount of time they spent on the

computer each day. The responses ranged from zero time spent on the computer each day to 16 hours spent on the computer each day. Of those who spent time on the computer, a majority (76.1%) used the computer three hours or less each day (Table 5).

Table 5

<i>Time on computer</i>		
Hours	n	%
0	3	1.5
<1	18	9.1
1	62	31.5
2	42	21.3
3	28	14.2
4	18	9.1
5	10	5.1
6	8	4.1
7	2	3.5
8	4	2.0
10	1	0.5
16	1	0.5

Owning a VCR or DVD player.

When the respondents were asked if they owned a VCR, 284 (94.7%) answered yes and 16 (5.3%) answered no. When respondents were asked about owning a DVD player, 95 (31.7%) respondents answered "yes," 204 (68.0%) answered "no," and one (0.3%) failed to respond.

Findings Related to Demographic Variables

The final research objective of this study addresses the demographic variables with regard to preferred information dissemination methods of limited-scale landowners in Lincoln County, Oklahoma. To answer this question, a cross-tabulation was conducted between the age of the respondents and their education level in comparison to their preferred method for information dissemination.

Age.

The respondents' ages were grouped into four categories; 30 years old or younger, between the ages of 31 and 50, between the ages of 51-70, and over the age of 70. These age groups were then cross-referenced with the different information sources. Those respondents 30 years old or younger preferred direct mail, as did respondents aged 31-50 and 51-70, where respondents over the age of 70 equally preferred direct mail and television (Table 6). The second preferred media format for all respondents under the age of 70 was magazines. Respondents over 70 preferred television.

Table 6

Preferred Media Format Based on Age

Age	30 or less(n)	31-50(n)	51-70(n)	Over 70(n)
Direct Mail	7	61	79	12
Television	2	13	32	12
Magazines	3	25	36	6
Internet	3	21	23	6
Newspaper	1	7	16	3
Technical Publications	1	8	7	1
Radio	0	1	7	1
Workshops	0	3	5	1
Other	0	7	17	4

Education Level.

The respondents' educational level was grouped into four categories; did not graduate, high school diploma, technical school or some college, and degreed. These education levels were then cross-referenced with the different information sources. All respondents in all four education level categories preferred direct mail (Table 7). The second preferred media format by education level varied among television, magazines, and the Internet.

Conclusions

The findings of this study indicate that the audience prefers the use of direct mail as the

Table 7

Preferred Media Format Based on Education Level

Ed. Level	No Diploma(n)	Diploma(n)	Tech/College(n)	Degree(n)
Direct Mail	16	65	58	20
Television	11	22	21	5
Magazines	6	22	27	15
Internet	3	11	26	13
Newspaper	3	9	10	5
Technical Pub.	0	3	9	5
Radio	0	3	4	2
Workshops	0	3	4	2
Other	2	8	11	7

primary method of information dissemination. In addition, audience members also indicated that television, magazines, videos that can be seen on a VCR, and the use of the Internet are the secondary preferred media formats for information dissemination. The study showed a majority of the audience owned a computer and did have access to the Internet. Of those who did own a computer, the majority indicated that their computer was more than two years old. While almost all audience members owned a VCR, very few owned a DVD player; thus limiting their technological capabilities further.

The findings also showed that more than half of the audience did not use the Cooperative Extension Service. However, the findings did indicate that the audience most often sought agricultural information from the Extension or the Internet. The audience members indicated that even with technological advancements in place, like computers and VCRs, the preferred method of information dissemination remained direct mail.

In cross-tabulation, the study further indicated that the majority of respondents aged 30 years or less, aged 31-50, and aged 51-70 preferred direct mail, while those over the age of 70 equally preferred direct mail and television as their preferred method of information dissemination. This finding is in agreement with the general findings of the study. The general

findings of the study are further reaffirmed with respondents having all levels of education choosing direct mail as well. The cross-tabulation of age and education level indicates no differences than those found in the findings of the general study. Therefore, while age and educational levels of respondents may differ, their preferred method of information dissemination remains the same.

Recommendations

With technological advances in the 21st century changing on a daily basis, it is crucial for the dissemination of information to be purposeful and targeted. The Cooperative Extension Service strives to meet this need for relaying information to their intended audience by determining their audiences' preferred method of informational delivery. The challenge lies in not necessarily using the latest or trendiest of technological advancements to deliver the message, but rather in determining the most effective method of reaching a particular audience.

Demographic factors may or may not play a role in informational delivery and should be examined further to determine how they relate to a particular audience with specific demographics as well as specific technological capabilities. In addition, a separate study should be conducted to determine why specific technological capabilities are used while others are not. Findings from such a study may indicate if Extension should be providing training to its audience with regard to technological capabilities.

This study used the urban/rural interface population of Lincoln County, Oklahoma, as a basis for study because of the trend of migration toward rural areas by city dwellers. A study should be conducted on a larger scale to determine if the results are similar and to generalize the findings beyond the scope of this sample population so that Extension can better meet its audiences' needs nationwide.

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