

Communications Methods Used by Agricultural Extension Agents

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Ohio agricultural Extension agents were studied to determine which communications methods they used to deliver instruction in five subject matter areas. Methods the agents used were the ones they perceived to be most appropriate for use with farmers. Office calls, telephone calls, bulletins, and newsletters were the methods used most often by OCES agents. Methods used least were the mass media (radio, television, and magazines) and teleconferencing. Two major conclusions reached in the study were: 1) the subject matter that the agents delivered was not what they perceived to be most important, and 2) the methods that the agents used most often were the ones that they deemed most important.

The education of farmers is not a new phenomenon in America. As early as 1607, American Indians were teaching colonists how to produce crops (Anderson, 1982). In 1785, the Philadelphia Society for Promoting Agriculture was formed to increase agricultural production and in 1860 there were over 940 versions of the society (Phipps & Osborne, 1989). In 1826, farmers were being educated through what was labeled

the "lyceum movement" (True, 1929). In 1870, more than 900 towns held lyceum (town) meetings to discuss agricultural topics. Courses, books, and other materials were available for public consumption (True, 1929).

Universities became involved in educating farmers as a result of the 1862 Morrill Act which specified that one institution per state should be responsible for delivering instruction in agriculture and the mechan-

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cal arts. To facilitate the teaching of research-based subject matter, the Hatch Act of 1887 provided for one agricultural experiment station at each of the Morrill Act institutions. According to Vitzthum and Florell (1976), research findings generated by the experiment stations were initially disseminated by farmer institutes. Phipps and Osborne (1989, p. 475) indicate that the farmer institutes evolved into a form of publicly controlled adult education. In 1914, the Smith-Lever Act created the Cooperative Extension Service as a system to disseminate practical and useful information from the agricultural experiment stations to the citizenry.

Related Literature

Numerous public and private organizations now deliver educational programming for farmers. The Cooperative Extension Service is perhaps the best known of the public sector organizations. Today's agricultural Extension agent uses various communications methods to deliver instruction, a large proportion of which focuses on livestock and crop production. This type of instruction tends to dominate even though agricultural educators have identified farm business management as the number one educational need of farmers (Burhoe & Stewart, 1983). Martin and Omer (1988) confirmed that the educational priorities of Iowa young farmers are congruent with most of the priorities of the above agricultural educators.

Further, participants in Extension programs tend to be satisfied with the instruction. Martin and Omer (1988) found that 80% of Iowa young farmers had attended Extension meetings; over 70% were satisfied or very satisfied with the infor-

mation and services received. Ha-beeb, Birkenholz, and Weston (1987) concluded that Missouri Extension council officers and farmers who use the Extension Service were satisfied with the information, methods, specialists, and the agricultural Extension education program.

A number of studies have documented the value of communications methods that Extension agents use. When presented with a list of 12 agencies and organizations, Ohio farmers ranked meetings and clinics conducted by Extension agents first in both importance and confidence (Kramic, 1987). In addition, these farmers ranked Extension bulletins and newsletters first in confidence and content accuracy. When this group of farmers make production and marketing decisions, county Extension agents are exceeded only by other farmers and family members as important resource persons (Kramic, 1987).

In a related study, Richardson (1989) found that North Carolina farmers used newsletters, meetings, farm visits, telephone calls, and on-farm tests more often than 16 other Extension communications methods. Fairs, computers, exhibits, and videotapes were used least. Richardson also found no significant difference between full and part-time farmers on which methods were important to them and their current use of those methods. In addition, "For 23 of the 29 media choices, the percentage of producers projecting future use showed less than a 5% increase or decrease" (Richardson, 1989, p. 25-26). Computers was the notable exception as it moved from a ranking of 19th in current use to 8th in future use.

Computers was also the area in which New York Extension agents

need the most communication training. Scherer and Masielat (1988) found that in addition to computers, the agents were most deficient in the areas of video, desktop publishing, communication strategies, media selection, and photography. They need the least amount of training in areas such as design, writing, meetings, and radio.

Purpose and Objectives

Agricultural Extension agents deliver instruction to farmers through a variety of nonformal approaches. However, few studies have been designed to simultaneously investigate a) the subject matter being delivered, b) the target audience, and c) the communications methods used to deliver the instruction. Thus, this study was designed with five objectives:

1. To describe the types of farmers who participate in instruction being delivered by agricultural Extension agents.
2. To determine the types of subject matter that the agents are delivering for farmers.
3. To determine which communications methods the agents perceive to be most appropriate for them to use with farmers.
4. To identify the methods that agricultural Extension agents use most often while delivering instruction to farmers.
5. To determine if the methods that agricultural Extension agents use with farmers are the ones that the agents perceive to be most appropriate.

Methods and Procedures

The target population for the study consisted of 71 agricultural agents employed by the Ohio Cooperative Extension Service (OCES).

The sampling frame for the study was provided by the OCES personnel director. A random sample of 46 agricultural agents was drawn to provide a 95% level of confidence and a 5% sampling error (Krejcie & Morgan, 1970).

The researchers developed a questionnaire to collect data for the study. One agricultural communications faculty member and three agricultural education faculty members at The Ohio State University validated the content of the instrument. A random sample consisting of agricultural Extension agents who were not chosen for the study was used to pilot test the questionnaire. Five subscales on the questionnaire that measured the importance of subject matter being taught and the appropriateness of the communications methods had acceptable reliability (Cronbach's alpha coefficients ranged from .83 to .95).

The questionnaire was mailed to the sample on May 20, 1988. After four weeks, 39 agents had responded (84.7%). A follow-up procedure recommended by Miller and Smith (1983) was used to determine if the nonrespondents perhaps biased the data. Miller and Smith (1983) indicate that nonrespondents tend to resemble late respondents, thus, agents who returned the questionnaire the first two weeks were compared with those responding the last two weeks. No significant differences were observed ($p > .05$) in years of professional experience, years in present position, age, predominant type of farming in the county, highest degree earned, and employment status.

Findings

Sixteen of the 39 OCES agents were in the 36-45 age category, 11

were in the 46-55 category, and nine in the 26-35 age category. All but one agent held at least a master's degree. Twenty-two agents had been in their present positions fewer than 10 years, however, 33 had 10 or more years of Extension experience. All but one agent considered themselves full-time adult educators, i.e. they had few youth programming responsibilities.

Objective 1

The agents were asked to describe the types of farmers who participate in most of their programming. They classified the farmers using the following Bureau of the Census (1983) criteria: Part-time farmers were employed and worked off the farm 100 or more days during the year; full-time farmers worked off the farm fewer than 100 days. The agents indicated that 56% of their participants were part-time farmers. The agents also indicated that they were delivering programming for farmers of all ages. Slightly over 20% of the farmers participating in programs the agents delivered were 35 or younger.

Farms in geographic areas served by the agents were categorized using the following Bureau of the Census

(1983) standard: Small scale farm has annual gross sales under \$100,000, medium scale between \$100,000 - \$250,000, and large scale over \$250,000. In 1985, the average Ohio farm was small scale because the mean gross farm income was \$50,416 (Ohio Agricultural Statistics Service, 1986, p. 59). The OCES agents tended to deliver instruction in areas where small and medium size farms dominated.

Objective 2

The agents were asked which of five subject matter areas were most important for them to deliver programming for farmers. As shown in Table 1, crop and livestock production were ranked most important, followed by general agriculture, horticulture, and agricultural mechanics. However, during 1987-88, the agents spent most of their contact hours delivering instruction about general agriculture and livestock production (see Table 1). General agriculture included farm business management, human relations, natural resources, computers, environmental management, and other topics not classified as crops, livestock, horticulture, or mechanics. Crop production was the area in

Table 1
Importance of Subject Matter Areas and Mean Contact Hours of Instruction Delivered to Farmers During 1987-88 by OCES Agricultural Agents

Subject Matter Area	Importance*			Contact Hours		
	Mean	SD	Rank	Mean	SD	Rank
Crop Production	4.0	.5	1	27.5	41.7	5
Livestock Production	3.9	.5	2	186.4	186.6	2
General Agriculture	3.4	.4	3	206.7	133.7	1
Horticulture	2.8	.8	4	96.0	124.1	3
Agricultural Mechanics	2.5	.7	5	56.2	51.4	4
Mean :	3.3	.6	-	114.6	70.7	-

*Importance computed on scale of 1 = Not Important to 5 = Extremely Important.

(Spearman rho=.10, n=5, p>.05 for agreement between Importance and Contact Hour rankings).

which OCES agents devoted the least contact hours. As shown in Table 1, the agents devoted a mean of 114 hours to each subject matter area. In addition, large standard deviations associated with the means indicate that individual agents devoted a wide range of contact hours to the subject matter areas.

To determine if the agents delivered the subject matter that they perceived to be most important, the contact hour ranking for the five subject matter areas was correlated with the importance ranking for the same five subject matter areas (see Table 1). A Spearman rho coefficient of .10 indicates that the two rankings do not agree ($p > .05$, $n=5$). Thus, the subject matter that the agents delivered during 1987-88 was not what they perceived to be most important.

Objectives 3-5

Communications methods that OCES agricultural agents perceived most appropriate to use with farmers are presented in Table 2. Office calls, telephone calls, bulletins, newsletters, on-farm demonstrations, on-site individualized instruction, and classroom sessions were methods that the agents perceived to be most appropriate. The least appropriate methods involve mass media: newspapers, teleconferencing, radio, television, and magazines.

Methods that the agents used during 1987-88 to deliver instruction to farmers are also presented in Table 2. Office calls, telephone calls, bulletins, and newsletters were the methods used most often by OCES agents. Methods used least were the mass media (radio, television, and magazines) and teleconferencing.

Table 2
Appropriateness of Communications Methods and Methods
That OCES Agricultural Agents Used During 1987-88.

Communications Method	Appropriateness*		Use During 1987-88**	
	Mean	Rank	Mean	Rank
Office calls	3.7	1	3.5	1
Telephone calls	3.6	2	3.5	1
Bulletins	3.5	3	3.4	3
Newsletters	3.5	3	3.3	4
On-farm demonstrations	3.4	5	3.0	6
On-site individualized instruction	3.4	5	3.0	6
Classroom sessions	3.4	5	2.9	10
Workshops	3.3	8	3.0	6
Resource persons	3.2	9	3.0	6
Newspapers	3.0	10	3.1	5
Teleconferencing	3.0	10	1.5	14
Radio	2.9	12	2.7	11
Television	2.9	12	2.0	12
Magazines	2.7	14	2.0	12

*Appropriateness computed on scale of 1 = Not Appropriate to 4 = Extremely Appropriate.

**Use computed on scale of 1 = Never Used to 4 = Usually Used.

(Spearman rho = .81, $n=14$, $p < .05$ for agreement between appropriateness and use rankings).

To determine if the agents used communications methods that they perceived to be most appropriate, the level of use and appropriateness rankings presented in Table 2 were compared. As shown in Table 2, three major discrepancies occurred in the rankings: Classroom sessions ranked 5th in appropriateness and 10th in use; newspapers 10th in appropriateness but 5th in use; and teleconferencing 10th in appropriateness and last in use. However, when all 14 methods are considered as a group, the appropriateness and use rankings are in very high agreement. A Spearman rho coefficient of .81 indicates that the methods the agents used with farmers are the ones that they perceived to be most appropriate.

Discussion and Implications

The subject matter that OCES agricultural agents delivered during 1987-88 was not what they perceived to be most important. The instruction that the agents delivered tended to match the Burhoe and Stewart (1983) findings about crop and livestock subject matter ranking between farm management and agricultural mechanics in importance.

From an instructional standpoint, the agents had used all of the communications methods. However, the methods they used most often tended to be individualized approaches followed by printed materials and nonformal group methods. Few agents used teleconferencing extensively even though it was considered an appropriate communications method.

The findings of this study also closely match those of the Richardson (1989) study of North Carolina farmers. The communications methods that OCES agents used most often

were similar to the methods that North Carolina farmers participated in most often.

The findings of Martin and Omer (1988) also corroborated most of the findings achieved in this study of OCES agents. Martin and Omer, however, found a different ranking for the importance of the methods. They found that Iowa young farmers wanted Extension agents to use group methods such as community and county meetings more than office and telephone conferences. The findings of the Martin and Omer (1988) also indicate that Iowa young farmers ranked mass media higher in importance than the OCES agents included in this study.

Recommendations

Two recommendations are made based on the findings of the study.

1. Extension educators and staff development officers should use the findings of this study when designing inservice activities for county personnel who deliver programming for farmers.
2. Faculty who instruct teaching methods and communications courses should also use the findings when designing experiences for students who will deliver adult farmer instruction.

Questions for Further Study

The findings provided answers to objectives of this study. However, they yielded additional questions that need to be researched:

1. What impact do the experiences and ages of agricultural agents have on the information that is delivered and the methods that are used?
2. To what extent should the subject matter and delivery methods be

tempered by the farmers' earnings and their status as full-time or part-time farmers?

3. How can the mass media be used more extensively by agents to deliver instruction to farmers?
4. Do agents and farmers have similar perceptions about the benefits of communications methods?

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