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I am submitting herewith a thesis written by Connie A. Gately entitled "Diffusion of Farm Information in Two Middle Tennessee Communities: A Survey." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Communications.

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DIFFUSION OF FARM INFORMATION IN TWO
MIDDLE TENNESSEE COMMUNITIES:
A SURVEY

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Connie A. Gately

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ABSTRACT

The purpose of this study was to determine what factors affect a farmer's use of information sources. In particular, the relationships between age, education, income, number of enterprises engaged in, and cosmopolitanism and the number of sources used were examined. Community influence was also considered as a possible predictor of source usage.

Two Wilson County, Tennessee communities were chosen for the study because they are typical of two types of rural communities in Tennessee. Mt. Juliet is a changing community which has experienced rapid growth because of a migration of middle-management and professional persons from Nashville. Watertown is a more stable community with stronger local ties and more traditional norms.

A survey was conducted of 60 farmers in each community to determine which factors are related to source use.

The data showed that the farmers in Mt. Juliet used significantly more sources of information than did those in Watertown. Education was a significant predictor of source use in Mt. Juliet while age was a significant predictor of source use in Watertown.

In both towns those individuals designated as cosmopolitans used more sources than those designated as locals. However, cosmopolitans from the cosmopolitan community did not use significantly more sources than cosmopolitans from the local community and locals from the cosmopolitan community did not use more sources than locals from the local community.

The study has implications for extension workers and other agricultural communicators in Tennessee. In different types of communities, different communication methods may be needed to disseminate messages about new technology and recommended practices. In cosmopolitan communities extra effort may be needed to reach less educated farmers. In local communities, on the other hand, the hard-to-reach audience may be the older farmers.

Additional research is needed on community influence on farmers' source usage. More information is needed on why farmers living in a particular community are more likely to make use of available sources while farmers living in another community nearby do not.

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CHAPTER I

INTRODUCTION

Agriculture in the United States is becoming an increasingly technological, mass-production oriented field. American farmers produce more food than any other country in the world, and the production figures rise every year because of advances made by agricultural scientists and adopted by farmers.

In 1830, the average American farmer produced enough food to feed four persons. In 1946, he produced enough for 10 persons. By 1959, the figure had risen to 24 persons (Rogers, 1960). Last year in 1978, the average American farmer produced enough food to feed 59 persons ("The New American Farmer," 1978).

In spite of the apparent prosperity and expertise of U.S. agriculture as a whole, today's farmer operates with a very small margin of profit because of inflated production costs and low returns on his produce. Rising retail food prices do not necessarily mean higher returns for the farmer because there are several links in the chain between the farm and the consumer. Suppose, for example, that grain farmers in the Western Plains produce a bumper crop of wheat in 1979. Because of the overabundant supply, the price of grain goes down and the farmer's return per acre is lowered. At the same time, farm input costs are rising because of inflation, and the profit per acre is smaller (U.S.D.A., 1979). Even though the farmer receives less return for this wheat crop, inflation pushes processing and distribution costs upward and the price of food rises.

To survive in farming at a time of low returns and rising production costs, today's farmer must be aware of up-to-date technological advances and marketing information. The number of farmers has been declining each year since the mid-thirties (U.S.D.A., 1979) partly because many lack the knowledge and awareness that are necessary to succeed. Although knowledge of new technology and improved practices does not guarantee adoption of a new product or practice, it is one requirement for adoption of innovations (Yapa and Mayfield, 1978). Even in underdeveloped nations, studies have shown, farmers must understand the principles underlying a recommended practice before they will be willing to try it. In Ghana (Opare, 1977), extension workers found that by explaining the scientific basis for recommended practices to cocoa growers in a small group setting, they could increase trial and adoption rates.

Because adequate knowledge of practices and advances is so important, and because agricultural media practitioners and agricultural agency personnel are responsible for disseminating information from research workers to the farmer, a question is raised. Why do some farmers actively seek out and utilize many information sources while others do not take advantage of those that are readily available? What are the factors that affect an individual's use of different sources of farm information?

CHAPTER II

LITERATURE REVIEW

Diffusion of Information in Farm Populations

The process of information diffusion has been studied at length by rural sociologists since the 1920s. At that time, the United States Department of Agriculture, in cooperation with state and local extension offices, began a series of "Farm Practice Adoption Studies" in several states. These were designed to study the effect of extension programs on diffusion of innovation (Smith and Wilson, 1938; Wilson and Gallup, 1955).

The Ryan and Gross (1943) study of diffusion of information and innovation of hybrid seed corn was the basis for many later studies. They found that salesmen and mass media were cited most often by the farmers as sources of initial information about a problem or a new product. Friends and neighbors, however, were the most influential sources for adoption.

In a study of Michigan farmers, Hoffer (1946) found that their most important sources of information about farm practices were, in order of importance, radio, farm journals, neighbors, local newspapers, extension bulletins, and county agent contacts.

Lionberger conducted a study in 1955 to compare the information-seeking habits and personal characteristics of farmers in a Missouri farm community. He found that non-users of institutionalized sources of information (county agents, Soil Conservation Service, Production and Marketing Administration, vocational ag teachers, and extension

bulletins) were older and more locally oriented. They also had smaller farms and lower levels of membership in farm organizations.

In 1973, Menegay conducted a study of the communication behavior of 100 Tennessee farm supply dealers. He found that dealer representatives, sales literature, and up-to-date farmers were the most important sources of information for the farm supply dealers. Co-op and chemical dealers ranked extension agents and bulletins as important sources of information about innovations.

Leuthold and Kennedy (1976) conducted a study of the information source use habits of beekeepers in Tennessee. They found that the mass media were used most often as sources of initial information. Personal sources, however, were most effective in persuading beekeepers to try a new practice.

The Step Flow Theory of Diffusion

Before 1940, communication researchers subscribed to the hypodermic needle theory of mass media effects. This theory, essentially a one-step flow model, had its origins in the stimulus-response theory of psychology and assumed that the effects of mass media were direct, immediate, and overpowering.

The mass media were seen as a giant hypodermic needle, "pecking and plunging" at a passive audience (Rogers, 1973).

Katz (1963, p. 80) said the mass communication model of these early researchers consisted of (a) the all-powerful media which could impress ideas on defenseless minds, and (b) the atomized mass audience connected to the mass media but not to each other.

Rogers (1973) said that evidence of the manipulative power of the mass media came from such historical events as: (1) the role of the U. S. newspapers in arousing positive public opinion toward the Spanish-American War with such shibboleths as "Remember the Maine"; (2) the apparent power of Goebbels' propaganda machine in World War II; and (3) the fear of Madison Avenue's influence on consumer and voting behavior.

The hypo theory was discredited when Lazarsfeld, Berelson, and Gaudet (1944) conducted their study of diffusion of political information and influence. They found that personal contacts had much greater influence on political opinion than did mass media.

Since the Lazarsfeld study, researchers have used the idea of the two-step flow as a framework for examining mass media. This theory stated that information flows from the mass media to influentials called opinion leaders and then from opinion leaders to everyone else.

Lazarsfeld and Menzel (1963) attempted to define the concept of opinion leadership. They said opinion leaders are characterized by interest in the topic, competence in that area, greater use of the mass media than their followers, more access to non-media information from outside the social system, and accessibility to their followers.

Later research has shown six limitations of the two-step flow theory (Rogers, 1973). (1) The theory assumes opinion leaders are actively seeking information all the time and others are always passive receivers. Troidahl et al. (1965) and Rogers with Svenning (1969) found that everyone can play both active and passive roles depending on the situation. (2) The theory assumes that mass communication is a

two-step process. Research has shown that a follower gets some information directly from the mass media without using the opinion leader as a go-between. On the other hand, mass communication may result in a multi-step process with several levels of opinion leaders and followers (Menzel and Katz, 1955). (3) The theory assumes that opinion leaders rely on mass media for their information. Rogers with Svenning (1969) suggested rather that they utilize channels that are "most relevant for initiating the communication flow, but these are not the mass media in all cases." In underdeveloped countries, for example, many times the sources may be conversations with change agents. (4) The theory does not recognize the role of different channels at different adoption stages. Research has shown that the mass media are effective and widely used in the early awareness stages of adoption. Interpersonal communication is more widely used and more effective at the later adoption stages (van den Ban, 1966; Rogers with Shoemaker, 1971). (5) The theory does not consider time as a factor in communication behavior. Later research has shown that early adopters of innovations use mass media more than later adopters (Rogers, 1973 and others). (6) The theory assumes that opinion leadership is a dichotomous attribute. Research has shown that it is a continuous variable. Opinion leaders for one subject at one point in time and in one situation may be followers for other subjects, times, and situations (Lazarsfeld and Menzel, 1963; Rogers, 1973).

One variation of the step-flow model is the one-step flow suggested by Trolldahl (1966). This model suggests that the mass media communicate directly with the mass audience, but do not reach all equally or with

the same effect. Although this is similar to the hypodermic needle theory, it does recognize that the media are not all-powerful and it allows for selective perception, exposure, and retention, as well as for different effects with different receivers (Rogers, 1973).

The multi-step flow model is generally accepted by communication researchers today. It states there are any number of steps between source and receiver. The number of steps depends on availability and extent of exposure, the nature of the message, importance of the message to the receiver, and the intent of the source. (Rogers, 1973).

The multi-step flow model takes into account the idea that individuals may be opinion leaders for one topic and not necessarily for another. Rogers (1973) claimed that few individuals are opinion leaders for a variety of topics.

Cosmopolitans and Locals

Merton introduced the terms cosmopolitan and local in 1968 to describe polar types of individuals. He used the term cosmopolitan to describe individuals who are oriented primarily to the outside world rather than to their immediate community. They are more mobile and would leave their community under certain circumstances. They are selective in their interpersonal contacts and choose friends with whom they can "exchange ideas." They join organizations like professional societies or hobby and activity groups in which they can utilize their knowledge and special skills. They read more news magazines and use more mass media sources than locals.

Locals are more parochial, and are more likely to confine their interests to the community. Often, they were born in the community in which they reside, or at least, have lived there for a long time. Locals are not selective in making interpersonal contacts. They are interested in knowing as many members of the community as possible. They are likely to join organizations like service clubs or secret societies that are useful in making contacts. They read fewer magazines and national newspapers than cosmopolitans, but are more likely to subscribe to the local paper. They also read more national tabloids, and Merton suggests that this is due to the personal ingredient found in tabloids.

The terms "local" and "cosmopolitan" are beginning to appear in rural sociology studies. Cummings, Briggs, and Mercy (1977) published a case study of a rural Appalachian community where fundamentalist preachers and school teachers were debating censorship of textbooks. Cummings et al. said this situation was a local-cosmopolitan conflict in which the teachers (cosmopolitans) were attempting to bring new worlds of thought into the community and the preachers (locals) were trying to maintain the traditional community ways of life.

In 1978, Heffernan and Lasley described two types of grape producers in Missouri. Although they did not use the terms cosmopolitan and local, they were describing the two polar types.

They said the family farm operator had strong local ties and a strong civic spirit. He tended to view wealth as a means of continuing his way of life. The owner-manager farmer was not strongly tied to the community and quite often had not lived there very long. He tended

to view economic success and wealth as a major goal in life.

Using Kendall's tau, Heffernan and Lasley showed that family farm producers participate significantly more often in the social activities of the community. They attend more functions, are more active in community affairs, and know more people well than do the owner-manager producers.

Sources of Information Used by Farm Opinion Leaders

Many of the farm diffusion studies describe characteristics and communication behavior of farm opinion leaders, and these were summarized in 1962 by Rogers and in 1971 by Rogers with Shoemaker. Opinion leaders are more cosmopolitan, they have higher social status, they have more interpersonal contacts, and they are more innovative than their followers.

In farm studies, opinion leaders are identified by one or more of the following three methods, and all three methods have been found to be equally valid.

- (1) Researchers ask farmers who their farm opinion leaders are.
- (2) Researchers ask farmers if they perceive themselves to be opinion leaders.
- (3) Researchers ask a panel of key informants from the population who the opinion leaders are for that population.

Many of the farm opinion leader studies deal with the use of information sources by opinion leaders in a community. These indicate that opinion leaders use more mass media sources than do their followers according to Rogers (1962) and Lazarsfeld and Menzel (1963).

Farm opinion leaders subscribe to more agriculture periodicals than do their followers (Lionberger, 1953). Rogers (1955) found that not only did Iowa farmer and homemaker opinion leaders subscribe to more agriculture periodicals, they also watched more television farm shows.¹

Research also indicates that opinion leaders for farmers use more technically accurate sources of information than do their followers (Rogers, 1962). Farm opinion leaders had more contact with county extension agents (Emery and Oeser, 1958, pp. 49-53; Rogers and Capener, 1960; Rogers and Burdge, 1962; and van den Ban, 1961), and more contact with agricultural scientists at state colleges (Rogers, 1955; Rogers and Burdge, 1961, 1962) than did their followers.

Sources of Information Used by Early Adopters of Farm Innovations

Farm studies have shown early adopters to be more cosmopolitan and educated, more specialized in their farm operations and of higher socioeconomic status.

The early studies dealing with the communication behavior of early adopters have been summarized by Rogers (1962) who lists four characteristics of the communication behavior of these farmers.

¹ Several farm studies conducted in underdeveloped countries have also dealt with the communication behavior of opinion leaders. In 1961, for example, Rahim found that opinion leaders in a village in Pakistan read more farm magazines, newspapers, and extension service bulletins than their followers.

1. Early adopters use more impersonal sources of information than do later adopters. This proposition is supported by Bowers (1938), Beal and Rogers (1960), Rahim (1961), Rogers with Shoemaker (1971), and Taylor and Miller (1978).

2. Cosmopolitan sources of information (farm magazines, newspapers, and broadcasts; extension bulletins, contacts with out-of-town farmers, contacts with scientists at state colleges of agriculture, and contacts with the county extension office) are more important than localite sources (friends, family, and neighbors) for early adopters. This generalization is supported by farm studies conducted by Rogers and Leuthold (1962), Rogers and Burdge (1961, 1962), Rogers (1961), Rogers with Shoemaker (1971), and Taylor and Miller (1978).

3. Early adopters are more likely than late adopters to use information sources that are in close contact with the origin of new ideas. These sources are agricultural scientists and extension personnel. Rogers and Burdge (1961, 1962) and Rogers (1961) also found that early adopters had a more favorable attitude toward agricultural scientists than did later adopters. Rogers with Shoemaker (1971) said early adopters have a more favorable attitude toward change and science than do later adopters.

4. Early adopters use a greater number of different sources than do later adopters. The research shows that early adopters are more inclined to seek out and use different sources of information. Marsh and Coleman (1955) and Copp (1956) found this to be true among Kentucky farmers. Coughenour (1960) found that the number of farm magazines read was greater for early adopters than for later adopters.

More recent studies of early and late adopters have dealt with environmental innovations rather than commercial innovations. Environmental innovations are recommended practices that deal with conservation or improvement of natural resources.

Pampel and van Es (1977) separated environmental innovations into two categories: those that are profitable for the farmer (rotation cover, reduced tillage, and sod waterways) and those that are not profitable for the farmer (contour farming, tree planting, and terracing). They found that predictors of early adoption for commercial practices (farm size, education, farm sales, and capital) were not good predictors of early adoption of environmental practices. They also found that farmers who were innovative concerning commercial practices were not as innovative concerning environmental practices and vice versa. In addition, they found that farmers who saw farming as a way of life were more likely to adopt unprofitable environmental innovations than were farmers who viewed farming as a commercial enterprise. On the other hand, farmers who viewed farming as a commercial enterprise were more likely to adopt profitable environmental innovations.

Taylor and Miller (1978) criticized the methodology of Pampel and van Es because they used socioeconomic status variables exclusively as predictors of adoption rate. In the Taylor study, the researchers used variables from earlier studies which had been shown to predict adoption of commercial innovations, such as the number of contacts with change agents and attitude toward agricultural scientists.

They found that, in general, the variables that predict commercial practice innovation also predict environmental practice innovation. There were some differences, however. Earlier adopters of an environmental innovation had a lower socioeconomic status than later adopters while earlier adopters of a commercial innovation had a higher socioeconomic status than later adopters. Early adopters of environmental innovations were less cosmopolitan than later adopters, again just the opposite of early adopters of commercial innovations.

The researchers attributed these differences to the idea introduced by Pampel and van Es (1977) that farmers who view farming as a way of life (lower socioeconomic class, more locally oriented) are more likely to adopt environmental innovations than farmers who view farming as a commercial enterprise to make money (higher socioeconomic status, more cosmopolitan).

Social System or Community Influence on Information Flow

In the preceding sections, differences in information source usage between early and late adopters and between opinion leaders and followers have been discussed. Another factor affecting source use is the influence of the community in which a farmer lives. Heterophilous and homophilous communities have different types of communication behavior.

The terms homophily and heterophily were introduced by Lazarsfeld and Merton in 1964. Homophily is the "degree to which pairs of individuals who interact are similar in certain attributes, have like beliefs, like values, education, social status, etc.," (Rogers, 1973).

A homophilous community is one in which the members are much alike in their beliefs, attitudes, values, education, etc.

A heterophilous community is one in which the individuals have widely varying beliefs, attitudes, backgrounds, etc.

Research by Lazarsfeld and Merton (1964) and Rogers with Svenning (1969) has shown that interpersonal communication takes place more readily and is more efficient in a homophilous community because the members share a common background, common attitudes, and common experiences.

On the other hand, heterophilous communities promote a rapid flow of new information and innovations into a community. (Rogers with Svenning, 1969). When individuals vary greatly in their attitudes, social status, education, etc., they are able to bring different viewpoints from several sources into the community. They are more likely to have interpersonal contacts with individuals outside the community.

Lionberger, Chii-jeng Yeh, and Copus (1975) found that neighborhoods in Missouri exercised a "containing" influence on farm talk and information-seeking among farmers by restricting the flow of information from outside of the community. Farmers communicated primarily with others in their own community and little new information was incorporated. These constraints were stronger in the agriculturally stable (homophilous) community than in the rapidly changing community (heterophilous).

Re-examination of the Problem

The purpose of this review of the literature has been to summarize research dealing with possible reasons why some farmers make use of all available sources of farm information and some do not. Research of non-farm populations has indicated that education and socioeconomic status are positively related to the individual's use of the mass media (Tichenor, Donohue, and Olien, 1970; Samuelson, Carter, and Ruggels, 1963). Information relating to farm populations is not so clear cut, however. Lionberger's research has found that non-users of institutionalized sources of information are older and more locally oriented than users of these sources.

Other than Lionberger's research in Missouri, however, most of the information-source-use studies deal with opinion leaders or early adopters. The literature has shown that among farm populations, early adopters and opinion leaders make greatest use of available information sources. Both groups use more mass media sources, they read more extension bulletins, and they have more contact with agricultural scientists and extension agents than do other farmers.

There have been many farm studies describing opinion leaders and early adopters. Opinion leaders are more cosmopolitan and innovative, and they have higher social status and more interpersonal contacts than their followers. Early adopters are younger and more educated, they have higher socioeconomic status, they have more specialized operations, and they are more cosmopolitan than later adopters.

One purpose of this study was to determine whether some of the demographic characteristics of early adopters and opinion leaders are accurate predictors of a farmer's use of information sources. For example, is a college graduate more likely to have contact with the local extension agent than a high school graduate? Is a younger farmer more likely to use mass media sources than an older farmer? Does a cosmopolitan farmer have more contacts with an agricultural scientist than a local farmer?

Another purpose of this study was to determine whether the community in which a farmer lives influences his use of information sources. There is a trend in many areas of the country according to Schwarzeller (1979) of migration from metropolitan to rural areas. At this time, many rural communities are experiencing a large influx of middle management and professional urban dwellers.

In this study, a cosmopolitan rural community adjacent to a metropolitan area was compared to a local rural community to determine whether individuals in the cosmopolitan community make more use of information sources than individuals in the local community.

CHAPTER III

HYPOTHESES

Several hypotheses can be developed from a review of the literature.

H1: The level of education and income of individual farmers within a community is positively related to the number of different sources of farm information used and the number of mass media sources used, the number of contacts made with extension agents and agricultural scientists, and the number of extension and experiment station bulletins read.

H2: The age of individuals and the number of enterprises they are engaged in are negatively related to the number of different sources and the number of mass media sources used, the number of contacts made with extension agents and agricultural scientists, and the number of bulletins read.

H3: Cosmopolitan individuals within a community use a greater number of different sources of farm information and more mass media sources, have more contacts with extension agents and agricultural scientists, and read more bulletins than do local individuals.

H4: Cosmopolitan individuals in the more cosmopolitan community use more different sources of farm information and more mass media sources of information, have more contact with extension agents and agricultural scientists, and read more experiment station and extension bulletins than do cosmopolitans from the more local community.

H5: Local individuals in the more cosmopolitan community use more different sources of farm information and more mass media sources,

have more contacts with extension agents and agricultural scientists, and read more experiment station and extension service bulletins than do local individuals from the more local community.

CHAPTER IV

METHOD

Procedures

This was a comparative study of two communities in Wilson County, Tennessee. According to the 1974 Census of Agriculture, about 67 percent of the total land area is in farms. The size of the average farm is 128 acres, and a majority of the farmers hold additional jobs off the farm.

Livestock and cash crop production are diverse in this area. Wilson County farmers raise beef and dairy cattle, swine, sheep, horses and ponies, and poultry. They grow tobacco, corn, soybeans, and wheat.

The median education level of the farmers in Wilson County is 9.2 years of school.

The community of Mt. Juliet is located in west Wilson County and is adjacent to the Metropolitan Nashville/Davidson County line. In the last several years, the population has grown with a steady flow of Davidson County residents moving away from Nashville. U.S. Census figures comparing the populations in 1960 and 1970 show an increase of 150 percent. Many of the farms have been sold and subdivided into individual lots for homes. Some others have changed hands and are now owned by new residents.

The community is assumed to be cosmopolitan because the population is mobile. The influx of urban and suburban dwellers also suggests that the level of education for the farm population in Mt. Juliet may be higher than the county average. In addition, the community is in close proximity to Nashville where much of the state agricultural market

information originates and where many statewide agricultural organization meetings and programs are held.

Watertown, on the other hand, is assumed to be a more stable community, where local ties are very important. The community is located in the east area of Wilson County and is isolated from the interstate highway system and from any metropolitan area. Unlike Mt. Juliet, Watertown has not experienced a large influx of new residents. U.S. Census figures show a 4 percent increase from 1960 to 1970.

Random samples of farm operators in the two Wilson County communities were drawn from lists compiled by the Tennessee Farm Bureau and the Tennessee Livestock Association. A sample of 60 of the 213 farm operators in Mt. Juliet and 60 of the 154 farm operators in Watertown were selected to participate in the study. These sample numbers represent 27 percent of the Mt. Juliet farmers and 39 percent of the Watertown farmers.

Subjects were asked to complete a self-administered questionnaire (see Appendix A). The questionnaires were delivered by the interviewer to the individual farmers and were collected on the following day.

Item 25 on the form was designed to measure the individual's perception of himself as a member of the community. This was included as a check on the validity of the geographic boundaries of the community. All of the respondents correctly identified themselves as members of the designated community.

Items 6-19 were developed from measures of cosmopolitanism devised by Campbell (1966). This scale was chosen because the items relate directly to Merton's descriptions of cosmopolitans and locals.

Because the items ask for opinions on cosmopolitan-local questions, it is assumed that the scale will provide a measure of this attitude.

One item of Campbell's scale which mentioned imported versus American-made goods was deleted. Because of a recent controversy among farm people concerning imported beef carcasses, it was believed that this item would produce a biased response not only for that item but also for the questionnaire as a whole. The wording in other questions was altered slightly to make the items more applicable and understandable to farm people.

Items 6-19 were scored in Likert style. Total scores range 14 to 56. An index was constructed by dividing the individual's total score by the number of responses. Any of the items which were left blank or were marked "no opinion" were eliminated before the index was calculated.

Items 20, 21, 23, and 24 were designed to measure the demographic variables of age, number of enterprises, income, and education, respectively.

The second part of item 26 was designed to measure the length of time the farmer had lived in his community.

The questionnaire was delivered in December, 1978. Very little resistance was encountered to completing them. However, there was some initial reluctance because many thought the survey had something to do with the Census of Agriculture which was then in progress.

The questionnaire was left with the farmer or with a member of his immediate family. If no one was at home, the form was left on the front door. In many cases, more than one trip was made back to the

farm to pick it up. Farmers sometimes forgot to complete it the first time or they left the next day for a period of time and forgot to leave it on the front door.

In addition to the questionnaire, the farmers were asked to sign a separate consent form which was required by the University of Tennessee (see Appendix B).

Only three farmers from Watertown and two farmers from Mt. Juliet refused to fill out the survey form. All five were very suspicious of papers which required a signature.

Limitations

A descriptive study of this type can indicate relationships between variables, but cannot show cause and effect. Even if significant relationships are found between the variables, it can only be said that one predicts the other.

In addition, the results of the study are generalizable to the population sampled, but are not necessarily valid for other populations. The results, however, are suggestive of possible results for other farm communities in Tennessee.

The response rate was good (96 percent) and the sample was random to the extent that the Farm Bureau and Livestock Association lists were complete.¹

One possible source of bias is the fact that the interviewer was from one of the communities surveyed. The respondents were aware of her

¹The Farm Bureau list was made up of members and non-members and is assumed to be at least 80 percent complete. With the addition of the Livestock Association names, the list should be even more complete.

hometown and because many of them might think of her as a neighbor, this may have influenced their responses somewhat. Three of the Mt. Juliet farmers and one of the Watertown farmers surveyed were acquaintances of the interviewer. It is believed, however, that this commonality between the interviewer and the respondents facilitated the response rate to a great extent and so, was more of an asset than a liability.

CHAPTER V

DEFINITIONS

Constituent Definitions

A community is a group in which membership is based on locality. It is composed of people in communication with each other and together geographically with common interests or ties.

A cosmopolitan is an ideal polar type defined by Merton (1968) as an individual whose orientation is external to a particular social system. Cosmopolitans are oriented toward a mass society rather than toward an individual community.

A local is also an ideal polar type defined by Merton (1968) as an individual whose orientation is internal to a particular social system. Locals are oriented toward the immediate community rather than toward a mass society.

Operational Definitions

Farmers are classified as cosmopolitans or locals according to their responses to items 6-19 on the survey. For each item, the subjects received a score of 1,2,3, or 4 with 4 indicating the most cosmopolitan response and 1 indicating the most local response. If the subject checked the "no opinion" blank, the item was not included in the subject's final score. The total score for items 6-19 was added up and the sum was divided by the number of items answered. If this figure was above 2.5, the individual was classified as a cosmopolitan. If the figure was 2.5, or below, the individual was classified as a local.

CHAPTER VI

RESULTS

A t-test was used to determine whether the average cosmopolitan-local index score was significantly different for respondents in the two communities. The average score for Mt. Juliet residents was 2.6 and the average score for Watertown residents was 2.2. The scores were determined to be significantly different ($t = -5.7$, $d.f. = 113$, $p \leq .001$).

This indicates that, as measured by the index, farmers in Mt. Juliet are more cosmopolitan than are the farmers in Watertown.

Kendall's tau was used to determine whether education, age, income, and number of farm enterprises are related to the number of sources and number of mass media sources used, the number of contacts made with extension agents and agricultural scientists, and the number of bulletins read.

Kendall's tau is a non-parametric rank order correlation statistic designed for use with ordinal data (Hays, 1966). The test was conducted for the entire sample and separately for the local and cosmopolitan communities.

For all three tests (the total sample, the local community, and the cosmopolitan community) a negative tau value was calculated when age and the number of enterprises were correlated with the communication behavior variables. When income and education were correlated with the communication behavior variables, a positive tau value was found. Thus, the direction of the relationships between the independent and dependent

variables was correctly predicted in hypotheses 1 and 2. The correlations were not significant, however. In fact some were very low.

The number of enterprises was not significantly related to any of the dependent variables in the total sample or in either of the two communities. In addition, none of the independent variables (age, education, income, or number of enterprises) had a significant correlation with the number of contacts with agricultural scientists as was predicted.

For the total sample (see Table 1) age was found to have a significant relationship with the number of sources and the number of mass media sources used, the number of extension agent and agricultural scientist contacts made, and the number of bulletins read.

The number of bulletins read was also significantly correlated with the level of education and income.

In the cosmopolitan community (Table 2) age was found to be related to the number of sources and mass media sources used, the number of contacts made with extension agents, and the number of bulletins read. The number of bulletins was also significantly correlated with education for the cosmopolitan community sample.

In the local community (Table 3) age was significantly related only to the number of extension agent contacts. The tau values comparing age to the number of sources used, the number of mass media sources used, the number of scientist contacts made, and the number of bulletins read were not significant.

Education, however, was significantly related to the number of sources and the number of mass media sources used, the number of

TABLE 1
RANK ORDER CORRELATION (KENDALL'S TAU) BETWEEN INFORMATION BEHAVIOR AND
DEMOGRAPHIC VARIABLES FOR TOTAL SAMPLE

Information Behavior	Age	Education	Income	Number of Enterprises
Number of mass media sources used	-.14*	+.08	+.05	-.060
Number of different sources used	-.14*	+.04	+.10	-.003
Number of extension contacts made	-.25***	+.06	+.04	-.003
Number of contacts with scientists	-.08	+.02	+.17	-.100
Number of bulletins read	-.24**	+.19**	+.18*	-.010

* = $P \leq .05$.

** = $P \leq .01$.

*** = $P \leq .001$.

TABLE 2

RANK ORDER CORRELATION (KENDALL'S TAU) BETWEEN INFORMATION BEHAVIOR AND
DEMOGRAPHIC VARIABLES FOR COSMOPOLITAN COMMUNITY SAMPLE

Information Behavior	Age	Education	Income	Number of Enterprises
Number of different sources used	-.19*	+.01	+.04	-.15
Number of mass media sources used	-.18*	+.05	+.17	-.11
Number of extension contacts made	-.29**	+.02	+.07	-.07
Number of contacts with scientists	-.04	+.07	+.17	-.00
Number of bulletins read	-.35***	+.20	+.12	-.06

* = $P \leq .05$.

** = $P \leq .01$.

*** = $P \leq .001$.

TABLE 3
RANK ORDER CORRELATION (KENDALL'S TAU) BETWEEN INFORMATION BEHAVIOR AND
DEMOGRAPHIC VARIABLES FOR LOCAL COMMUNITY SAMPLE

Information Behavior	Age	Education	Income	Number of Enterprises
Number of different sources used	-.11	+.21*	+.15	-.02
Number of mass media sources used	-.09	+.19*	+.06	-.14
Number of extension contacts made	-.20*	+.21*	+.18	-.10
Number of contacts with scientists	-.13	+.05	+.13	-.25*
Number of bulletins read	-.10	+.22*	+.19*	-.11

* = $P \leq .05$.

** = $P \leq .01$.

*** = $P \leq .001$.

extension contacts made, and the number of bulletins read in the local community. Income also had a significant correlation with the number of bulletins read.

These results indicate a definite contrast between the two communities. In the cosmopolitan community, age seemed to be the best predictor of source usage; while in the local community, education was the best predictor.

For this study, the number of enterprises engaged in was not a good predictor of source usage, though the relationship was in the negative direction as predicted. Likewise, none of the four independent variables was a good predictor of the number of contacts with agricultural scientists. There were very few individuals who had even one contact with an agricultural scientist, but there were more in the cosmopolitan community (8 versus 3).

To determine the validity of hypothesis 3 (cosmopolitans use more information sources in general, more mass media sources in particular, have more contacts with extension agents and with agricultural scientists, and read more bulletins than do locals) a t-test was used.

The t-test compares the means of two groups to determine whether one is significantly different from the other. The t-test was conducted for the entire sample, for the cosmopolitan community, and for the local community. Within each of these three samples, the individuals were classified as either cosmopolitans or locals on the basis of their cosmopolitan-local index score. In order to make the two contrasting groups as even in size as possible, 2.5 was chosen as the reference point. All individuals with a score above 2.5 were classified as cosmopolitans.

All those with a score below 2.5 were classified as locals. (There were no scores of exactly 2.5.)

By using this classification, there were 64 cosmopolitans and 51 locals in the total sample. In the cosmopolitan community, there were 46 cosmopolitans and 12 locals. In the local community, there were 18 cosmopolitans and 39 locals.

In each test (that of the total sample, the cosmopolitan community, and the local community) the number of sources of information and the number of mass media sources used, the number of extension contacts made, and the number of bulletins read was significantly greater for the cosmopolitans than for the locals as predicted. Many were significant beyond .001 (see Tables 4, 5, and 6).

There was not a significant difference between cosmopolitans and locals in the mean number of contacts with agricultural scientists.

The t-test was also used to determine whether the cosmopolitans in the cosmopolitan community differed significantly from the cosmopolitans in the local community in their source usage. In the same manner, the locals in the cosmopolitan community were compared with the locals from the local community.

In every case, the mean number of uses was greater for the individuals in the cosmopolitan community. None of the differences was significant, however (see Tables 7 and 8).

This is due, in part, to the small proportion of locals in the cosmopolitan community (12 of 58) and the small proportion of cosmopolitans in the local community (18 of 57).

DIFFERENCES IN INFORMATION BEHAVIOR BETWEEN COSMOPOLITAN AND LOCAL FARMERS IN THE TOTAL SAMPLE

Information Behavior	Number of Persons in Each Group	Mean	Standard Deviation	t-Value
Number of sources used cosmopolitans	64	3.6	1.6	6.3***
locals	51	1.9	1.1	
Number of mass media sources used cosmopolitans	64	2.6	1.3	4.0***
locals	51	1.7	0.9	
Number of extension contacts cosmopolitans	64	4.0	3.1	5.8***
locals	51	1.3	1.3	
Number of contacts with scientists cosmopolitans	64	0.2	0.4	1.8
locals	51	0.1	0.3	
Number of bulletins cosmopolitans	64	5.3	4.1	5.5***
locals	51	2.0	1.4	

*** = $P < .001$.

TABLE 5

DIFFERENCES IN INFORMATION BEHAVIOR BETWEEN COSMOPOLITAN AND
LOCAL FARMERS IN COSMOPOLITAN COMMUNITY

Information Behavior	Number of Persons in Each Group	Mean	Standard Deviation	t-Value
Number of sources used cosmopolitans	46	3.8	1.8	2.98**
locals	12	2.1	1.6	
Number of mass media sources used cosmopolitans	46	2.6	1.3	2.36**
locals	12	1.6	1.2	
Number of contacts with extension cosmopolitans	46	4.1	3.6	2.92**
locals	12	1.0	1.1	
Number of contacts with scientists cosmopolitans	46	0.2	0.5	1.07
locals	12	0.1	0.3	
Number of bulletins read cosmopolitans	46	5.7	4.9	2.53*
locals	12	2.2	1.9	

*** = $P < .001$.** = $P < .005$.* = $P < .01$.

TABLE 6

DIFFERENCES IN INFORMATION BEHAVIOR BETWEEN COSMOPOLITAN AND LOCAL FARMERS IN LOCAL COMMUNITY

Information Behavior	Number of Persons in Each Group	Mean	Standard Deviation	t-Value
Number of sources used cosmopolitans	18	3.2	1.1	4.54***
locals	39	1.8	1.0	
Number of mass media sources used cosmopolitans	18	2.5	1.1	
locals	39	1.7	0.9	2.79**
Number of extension agent contacts cosmopolitans	18	3.8	1.2	6.72***
locals	39	1.4	1.3	
Number of scientist contacts cosmopolitans	18	.11	.03	
locals	39	.08	.03	0.42
Number of bulletins read cosmopolitans	18	4.6	1.0	6.05***
locals	39	2.0	1.2	

*** = $p < .001$.

$$** = P < .005.$$
$$* = P < .01.$$

TABLE 7

DIFFERENCES IN INFORMATION BEHAVIOR BETWEEN COSMOPOLITANS FROM
COSMOPOLITAN COMMUNITY AND COSMOPOLITANS FROM LOCAL COMMUNITY

Information Behavior	Number of Persons in Each Group	Mean	Standard Deviation	t-Value
Number of sources used cosmopolitan community	46	3.8	0.3	-1.19
local community	18	3.2	0.2	
Number of mass media sources used cosmopolitan community	46	2.6	0.2	-0.24
local community	18	2.5	0.3	
Number of extension contacts cosmopolitan community	46	4.1	0.3	-0.34
local community	18	3.8	0.5	
Number of scientist contacts cosmopolitan community	46	0.2	0.1	-1.04
local community	18	0.1	0.1	
Number of bulletins read cosmopolitan community	46	5.7	0.7	-0.96
local community	18	4.6	0.5	

TABLE 8

DIFFERENCES IN INFORMATION BEHAVIOR BETWEEN LOCALS FROM THE COSMOPOLITAN
COMMUNITY AND LOCALS FROM LOCAL COMMUNITY

Information Behavior	Number of Persons in Each Group	Mean	Standard Deviation	t-Value
Number of sources used cosmopolitan community	12	2.1	1.0	-0.61
local community	39	1.8	1.6	
Number of mass media sources used cosmopolitan community	12	1.7	0.9	-0.51
local community	39	1.6	1.1	
Number of extension contacts cosmopolitan community	12	1.4	1.3	-1.05
local community	39	1.0	1.1	
Number of scientist contacts cosmopolitan community	12	.08	0.3	-0.07
local community	39	.08	0.3	
Number of bulletins read cosmopolitan community	12	2.2	1.2	-0.42
local community	39	2.0	1.9	

Farmers living in the cosmopolitan community had lived there an average of 11 years while those in the local community had lived there an average of 19 years. As was expected, the cosmopolitan community's population was more mobile and many had been farming in Mt. Juliet for only a short time.

CHAPTER VII

CONCLUSIONS

Parts of hypotheses 1 and 2 were not confirmed in this study. The independent variables of age, education, income, and the number of enterprises are not accurate predictors of source usage in all cases. In fact, different variables are source predictors in the two communities. In the cosmopolitan community where the farm population interacts with many highly-educated, upper-income families, the significant predictor is age. The older farmers are less likely to use the various sources of information than are the younger farmers.

In the local community where the population is older, more settled, and less open to cosmopolitan influences, the significant predictor is the individual's level of education. In this community, the more educated farmers are more likely to use more sources of farm information than are the less educated farmers.

Hypothesis 3 is accepted. Cosmopolitanism and localism are accurate predictors of source usage at significance levels beyond .001. Cosmopolitans in both communities were more likely to use more different information sources than were locals. This is an important finding for agriculture communicators in Tennessee. Many areas in this state are growing rapidly because of an influx of urban dwellers into rural areas. In cosmopolitan areas, information can probably be disseminated most efficiently by using the mass media, an important source for cosmopolitans. In local areas, communicators may have to rely more

on personal visits and small group community meetings to share information with farmers.

The study also indicates that an extra effort and more communications channels may be needed to reach older farmers in cosmopolitan areas and low education level farmers in local areas. According to these data, these farmers are the ones who will be hardest to reach with a message.

The influence of the community in this study was very slight. Cosmopolitan and local individuals from the cosmopolitan community did have slightly more source usage than their counterparts in the local community, but none of these differences was significant; so hypotheses 4 and 5 must be rejected for this study. Neighborhood influences of cosmopolitanism and localism should not, however, be discounted. With a larger sample or with different populations, the differences might well be significant.

Another suggestion for ag communicators is to stay current in sociological and communication research outside of farm populations. Test their hypotheses in your area to see whether they are applicable. Survey your audience to find cosmopolitan and local areas. Determine average age, education level, and income for different communities and structure information programs accordingly. Finally, to reach the largest percentage of the audience, use a variety of communication channels. Do not assume that personal columns and telephone calls will reach everyone. This study showed that individuals vary tremendously in their use of mass media sources and in the number of extension contacts they made according to their age or education and according to their cosmopolitan-local index score.

Further research is needed in the area of source usage in farm populations. Other variables which may influence source use should be tested. It may be, for example, that farmers who raise different species of livestock and who grow different crops may use different sources of information. It may be that family-owned farm operators use different sources of information than do company-owned farm managers. For too long, agricultural communication researchers have assumed that the results from the studies in the late 40s and 50s are still valid today, even though the farm population has changed tremendously since that time. Today, farmers are more educated. They have larger, more mechanized farms and higher incomes. Perhaps it may no longer be true that mass media are only important at the awareness stage of adoption for all farmers. Perhaps personal contacts are not the only method of communication that will influence today's farmer to adopt new ideas.

Much more research is needed in this area so that agricultural communicators can present their messages to their audiences in the most efficient and effective ways possible.

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APPENDICES

APPENDIX A

SURVEY QUESTIONNAIRE

Please take the time to answer all of the items on this sheet. I will be by tomorrow to pick it up along with the consent form. If you do not plan to be at home tomorrow, please leave them on your front door.

1. Who or what do you consider to be important sources of farm information for you? List all that are important to you.

2. What farm magazines or newspapers, if any, do you read?

3. About how many, if any, extension or experiment station bulletins have you read since January 1, 1978? _____

4. Have you contacted the county extension office since January 1, 1978? _____ If so, about how many times?

5. Have you contacted an agriculture scientist or specialist at the University of Tennessee since January 1, 1978? _____ If so would you happen to remember their name(s)?

The following items deal with your opinion on a variety of topics. Please check the line that best describes your opinion of the statement.

6. It's a good idea to look around for a place to settle, but there's nothing like setting your roots in one spot.

Strongly Agree	Slightly Agree	No Opinion	Slightly Disagree	Strongly Disagree
_____	_____	_____	_____	_____

7. When it comes to what I do in my spare time, I don't pay much attention to what people might think.

Strongly Agree	Slightly Agree	No Opinion	Slightly Disagree	Strongly Disagree
_____	_____	_____	_____	_____

8. I don't care to know a person unless there is something to the person.

Strongly	Slightly	No	Slightly	Strongly
Agree	Agree	Opinion	Disagree	Disagree

9. I judge a man by who he is more than by what kind of person he is.

Strongly	Slightly	No	Slightly	Strongly
Agree	Agree	Opinion	Disagree	Disagree

10. It's best to join clubs where the people are most like yourself.

Strongly	Slightly	No	Slightly	Strongly
Agree	Agree	Opinion	Disagree	Disagree

11. It's best to know a few selected people rather than a lot of them.

Strongly	Slightly	No	Slightly	Strongly
Agree	Agree	Opinion	Disagree	Disagree

12. News from home seems more meaningful than other news found in the newspaper.

Strongly	Slightly	No	Slightly	Strongly
Agree	Agree	Opinion	Disagree	Disagree

13.. In order to better himself and his family, a man must sometimes give up some of his friends.

Strongly	Slightly	No	Slightly	Strongly
Agree	Agree	Opinion	Disagree	Disagree

14. In general, it is preferable to read local newspapers rather than magazines.

Strongly	Slightly	No	Slightly	Strongly
Agree	Agree	Opinion	Disagree	Disagree

15. If a person gets tired of people he's known for years,
he should stop seeing them.

Strongly Slightly No Slightly Strongly
Agree Agree Opinion Disagree Disagree

16. Joining civic clubs or lodges is preferable to joining
occupational or professional organizations.

Strongly Slightly No Slightly Strongly
Agree Agree Opinion Disagree Disagree

17. One of the best ways to judge a man is by his success
in his job or career.

Strongly Slightly No Slightly Strongly
Agree Agree Opinion Disagree Disagree

18. People ought to pay attention to new ideas even if they
seem to go against the accepted way of life.

Strongly Slightly No Slightly Strongly
Agree Agree Opinion Disagree Disagree

19. It is best to borrow money from close friends or one's
family rather than from a bank or loan firm.

Strongly Slightly No Slightly Strongly
Agree Agree Opinion Disagree Disagree

20. Your age: Please check the line that includes your age.

_____ 24 or younger _____ 45-49 years

_____ 25-29 years _____ 50-54 years

_____ 30-34 years _____ 55-59 years

_____ 35-39 years _____ 60-64 years

_____ 40-44 years _____ 65-69 years

_____ 70 or older

21. In what farm enterprises are you engaged? Please check all that apply to your farm.

☐ Beef ☐ Sheep ☐ Soybeans
☐ Dairy ☐ Poultry ☐ Wheat
☐ Swine ☐ Tobacco ☐ Other (please specify _____)

22. Do you have an additional job other than farming?

☐ Yes ☐ No

23. Check the line that includes your approximate net farm income for 1978.

☐ 0-\$4,999 ☐ \$15,000-\$19,999
☐ \$5,000-\$9,999 ☐ \$20,000-\$24,999
☐ \$10,000-\$14,999 ☐ \$25,000 or more

24. Check the line that lists the last grade of school you completed.

☐ Grades 1-6 ☐ Some college
☐ Grades 7 or 8 ☐ College graduate
☐ Grades 9-11 ☐ Other (please specify _____)
☐ High school graduate

25. In what Wilson County community do you live? _____

_____ How long have you lived in this community? _____

Thank you for taking the time to complete this survey questionnaire. I appreciate your interest.

APPENDIX B

Dear Sir,

I am a graduate student in communication and agriculture at the University of Tennessee, and I'm conducting a survey of Wilson County farmers for my thesis. It is my hope that surveys of this type will give others an understanding of farmers' interests and opinions.

In order for the study to be successful, it is important that everyone participate. No names will be recorded on the questionnaire.

If you decide you would be willing to fill out the questionnaire, please sign your name below in order to comply to U.T. regulations.

If you have questions about the questionnaire, please call me at 758-5770.

I appreciate your time and your consideration.

Sincerely,

Connie Gately

I, _____, agree to participate in this survey of Wilson County farmers. I understand that my answers will be anonymous, that there are no risks involved, and that there is no penalty if I decide not to participate.

VITA

Connie Anne Gately was born in Nashville, Tennessee on September 5, 1954. She attended elementary schools in that city and later moved to Mt. Juliet, Tennessee where she graduated from high school in 1972.

In 1976, she received a Bachelor of Science degree in agriculture with a major in animal science. The following September she began graduate study majoring in communications and minoring in animal science. She received a Master of Science degree in June 1979.

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