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SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE  
FARMING PRACTICES AND HOW THEY ARE ACCESSED BY  
FARMERS IN NEZ PERCE COUNTY OF THE STATE OF IDAHO

by

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SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE  
FARMING PRACTICES AND HOW THEY ARE ACCESSED BY  
FARMERS IN NEZ PERCE COUNTY OF  
THE STATE OF IDAHO

A Thesis

Presented in Partial Fulfillment of the Requirement for the  
DEGREE OF MASTER OF SCIENCE

with a

Major in Agricultural Education

in the

GRADUATE SCHOOL

UNIVERSITY OF IDAHO

by

Christopher Obel Gor

April, 1988

AUTHORIZATION TO SUBMIT

THESIS

This thesis of Christopher Obel Gor, submitted for the degree of Master of Science with a major in Agricultural Education and titled "SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES AND HOW THEY ARE ACCESSED BY FARMERS IN NEZ PERCE COUNTY OF THE STATE OF IDAHO" has been reviewed in final form and approved, as indicated by the signatures and dates given below. Permission is now granted to submit final copies to the Graduate School for approval.

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## ABSTRACT

The purpose of this study was to identify and describe the sources of information considered as credible, beneficial, and preferable by farmers in Nez Perce County when they seek information on new and/or innovative farming practices. The specific objectives of the study included: 1) identify sources of information on new and/or innovative farming practices available in Nez Perce County; 2) describe how farmers in Nez Perce County access the available sources of information; 3) identify the personal, situational, and intervening variables that influence farmers in seeking information on new and/or innovative farming practices in Nez Perce County.

The population selected for this study consisted of farmers in Nez Perce County whose addresses were received from the University of Idaho Nez Perce County Extension office. The data was collected via a mailed questionnaire. The study instrument consisted of a 23-item questionnaire, with the first 14 items focused on the sources and/or channels of information, their ratings, on the basis of benefit, preference, and credibility. Other items in this section included items designed to determine which sources and channels of information were used by farmers at the various stages in the adoption/diffusion process.

The second part in the study instrument consisted of a section designed to evaluate five (5) probable opinions on Cooperative Extension Service as a source of information while the third part of the study instrument sought farmers' preference of nine (9) methods of delivering agricultural information to farmers. The fourth and last part of the instrument was designed to collect data on variables believed to influence

farmers' access to various sources and channels of information on new and/or innovative farming practices (e.g. personal, situational, intervening, and behavioral variables).

One hundred and seventy-six (176) of the 225 instruments that were returned were accepted for use. Variable and value labels were identified and entered into the statistical program. Data were analyzed using the Statistical Package for the Social Sciences (SPSSx, Release 2.1) and subprograms frequencies.

Friedman's Two-way ANOVA was used to generate the relative order of the mean ranks of the respondents' ratings of sources of information and methods of presenting agricultural information.

Kruskal-Wallis One-way ANOVA was used to determine whether there were any significant differences in the pattern of responses based on the farmers' characteristics. And the Mann-Whitney U-Test was applied to investigate the pairwise contrasts of respondents' ratings of perceived benefits, opinions on the Cooperative Extension Service, and preference of methods of presenting agricultural information based on farmers' characteristics.

Major findings of this study included: 1) Nez Perce County farmers were most likely to use interpersonal sources of information (Cooperative Extension Faculty, Private Dealers and Distributors, and Neighbors/Friends/Family Members) during the awareness, interest, and decision stages of the adoption/diffusion process. However, mass media type of information sources (Agricultural magazines and/or Newspapers, and College of Agriculture Research or Extension Publications) were also highly preferred along side the interpersonal sources of information;

2) Farmers in Nez Perce County indicated a stronger preference for interpersonal methods of presenting agricultural information (On-Farm Demonstrations, Tours/Field Trips, Group Discussions/Idea Sharing, and Guest Speakers/Consultants). With the exception of Publications/Journals and/or Other Bulletins, the mass media methods of presenting agricultural information (Computer Programs/Computer Assisted Instruction, Home Study/Fact Sheet/Video Cassettes) were the least preferred by a majority of the respondents, and 3) although the Cooperative Extension Service was highly rated by respondents, they also indicated that there are other equally useful sources of information on new and/or innovative farming practices. Hence, it is imperative that for the sake of efficiency and for the benefit of the farmers, Cooperative Extension Faculty should assist farmers in identifying and encourage the use of other perceived beneficial and/or credible sources and methods of presenting agricultural information.

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Last but not least, I would like to share all the credit for success with everyone who contributed in different ways to make me succeed in obtaining this degree and complete this thesis. However, full

responsibility is mine solely to bear for any errors or shortcomings of any kind that may be found.

This thesis is dedicated to my late parents, Wilson and Wilkister Gor, who passed away in 1969 and 1974, respectively.

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## CHAPTER I

### INTRODUCTION

Today, more than ever, there is a wider source of information dealing with new and/or innovative farming practices available to farmers. However, there is little evidence the increased availability of information sources has effectively been used by farmers (Lionberger, 1982).

The following are some examples of information sources used by farmers today: government sponsored agencies (e.g. Soil Conservation Service, the Cooperative Extension Service, etc.); agricultural commodity associations (e.g. Wheat Growers Association, Cattlemen Association, Dry Pea and Lentil Association, etc.); dealers and/or distributors of agricultural supplies, (e.g. chemicals, seeds, implements, animal nutrition, etc.); and other associated industries (e.g. banks, veterinarians, and agricultural consultants).

Interactive electronic systems, videos, satellite dishes, and computers are among the latest machines in the market for agricultural information dissemination systems (VandeBerg, 1983).

Because of the diversity of information sources and the accompanying competitiveness with which the information is disseminated, credibility based on accuracy of information (expertness) and trustworthiness (reliability) will emerge as the leading determinants employed by farmers in seeking information on new and/or innovative farming practices (Fett, 1974).

The importance and value of information as a commodity in today's information age cannot be overemphasized since it has immensely contributed to the stagnation or progressiveness of many a farming operation (Fidel, 1987).

In today's agricultural industry, survival is often dictated by having an edge on information related to the market, efficient allocation of available resources, and use of new and/or innovative farming practices. When county agents and other farm advisors first became interested in researching how to convince farmers to adopt new farming practices, the focus had tended to be on the list of new practices adopted in the recent past (usually three years) and "why" but not "how" farmers adopt them. Hence the findings have been inconclusive (Lionberger, 1982).

On the basis of this argument, Lionberger (1982) stated:

But, when it was discovered that adoption is really the result of a sequence of influences operating through time and that the process could be divided into stages . . . they asked them how they became aware of the new practices, where they got additional information about them, what was most influential in helping them decide to accept the information (the evaluation stage), and where they got the information needed to put the ideas to use. It was found that the sources mentioned were quite different from those given when the farmers were only asked why they adopted the new practices. At the adoption stage, they were at a loss to give any answers. Their own experience, or that of other farmers was more important than outside information sources at that stage. (p. 64)

This statement among others ( e.g. Blackburn, 1984; Itharat, 1980) indicated that adoption of new and/or innovative farming practices was more complex than ordinarily acknowledged and seems to remain so today. Hence, a good understanding of the characteristics and communications behavior of farmers as it pertains to accessing information sources could facilitate better planning strategies in agricultural programs which would make agricultural information more cohesive and plausibly bridge the gap in communication between information providers and farmers.

Vital as the agricultural sector has become in many economies, it is worth noting that farmers form the solid founding cornerstones on which the agricultural industry is built. Suffice it to say in almost every

civilization known to mankind today, agriculture in its widest concept that encompasses mining, forestry, crop and animal husbandry was the spring-board for the transformation of the underdeveloped societies to the present advanced industrialized nations.

On a worldwide statistical scale, American farmers are noted to have outstripped their counterparts elsewhere world-wide in terms of increased productivity in output per unit of input in agricultural production. In the last decade alone, Americans have maintained the record of spending the least percentage of their disposable income on food as compared to nationals of other countries in the world. The result of this phenomenal success is due in part to the increase in productivity and other factors related to improvements in agricultural developments, including effective agricultural information systems.

It is with this apparent success of the American agricultural productivity in mind that this study has been undertaken. It is an effort to describe agricultural information sources utilized by farmers in Nez Perce County of the State of Idaho and to investigate the farmers' perceptions on the issues of credibility, benefit, and preference they accord to the various information sources.

#### Statement of the Problem

Much research-based agricultural information and/or technologies are left idle in research centers because of poor communication or linkages between researchers, extension personnel and farmers. Whether the Cooperative Extension Service or the research centers themselves are to bear the blame is not clear. But one thing which is clearly impeding the flow of information between researchers and extension personnel on the one

hand and farmers on the other is lack of identification of effective channels to use in the dissemination of useful agricultural information on new and/or innovative farming practices (Malton et al., 1983).

In order to make any decisive headway in bridging the gap between researchers, extension personnel and farmers, a good understanding of factors that influence the acceptance of change must be grasped. For example, a distinction must be made between personal, situational, intervening, and behavioral variables and how these interact to influence farmers when they seek information to alleviate their various farm problems.

The common belief is that the Cooperative Extension Service is the leading agricultural information source frequently consulted and preferred by farmers when looking for assistance to improve on their farming operations. Is this really the view/belief held by farmers as well?

Given the fact that adoption of new and/or innovative farming practices is a process that comprises distinct stages: awareness; interest; trial; evaluation; and adoption (Blackburn, 1986), it is important that suitable sources and/or channels of information be identified and employed effectively at the various stages.

A variety of methods that include field trip, guest speaker, group discussion, workshop, on-farm demonstration, audio-visual material, printed matter, and interactive telecommunications have been advocated by practitioners for information dissemination in agriculture (Sanders, 1980). From the farmers' point of view, which ones among these methods are preferable?

Competitiveness today is a household word in most open market societies around the world. It has come to mean excellence and future

prosperity to many in industries such as agriculture that are built around independent decision-makers that include individual producers and consumers.

Does competitiveness as it relates to local or foreign markets influence farmers to seek information on new and/or innovative farming practices? Or is it prices/profits/and productivity as they relate to survival that are important considerations which sway farmers to seek information on new and/or innovative farming practices?

Other important considerations that could influence farmers to seek information on new and/or innovative farming practices are skill as it relates to the level of technology required by the innovation, and reduction of labor requirements. The crucial question to answer here is what considerations influence farmers to seek information on new and/or innovative farming practices other than personal and behavioral variables?

Intriguing and complex as the topic concerning sources of information and how farmers access them could turn out to be, it is beyond the periphery of this study to address all the issues and/or concepts related to information dissemination in agriculture. The scope of this study will focus on identifying and describing which sources of information are considered credible, beneficial or preferable by farmers in Nez Perce County and how the identified sources and channels can be used effectively in disseminating information on new and/or innovative farming practices.

#### Purpose of the Study

The purpose of this study was to identify and describe which sources of information are considered credible, beneficial or preferable by farmers and how the identified sources and channels can be used effectively in disseminating information on new and/or innovative farming

practices. The following were the specific objectives of the study:

1. Identify sources of information on new and/or innovative farming practices available to farmers in Nez Perce County.
2. Describe how farmers in Nez Perce County access the available sources of information.
3. Identify the personal, situational, and intervening variables that influence farmers in seeking information on new and/or innovative farming practices in Nez Perce County.

#### Need for the Study

Past scholarly research on human communication has concentrated on "interpersonal channels" which involve a face-to-face exchange between two or more individuals, versus "mass media channels", all those means of transmitting messages such as radio, television, newspapers, and so on which enable a source of one or a few individuals to reach an audience of many (Rogers, 1983).

A third category of communication system has been recognized since the early 1980's and categorized as "machine-assisted interpersonal communication" (Dominick's study cited in Rogers, 1983). According to Rogers (1983):

Machine-assisted interpersonal communication has certain qualities of both mass media and interpersonal channels yet is different in several important ways from either one. An example of such machine-assisted interpersonal communication is the telephone . . . examples of newer communication technologies are: teleconferencing networks, electronic messaging systems, computer bulletin boards, and interactive cable television. (p. 3)

Rogers (1983) further observed that these new interactive technologies have been available only for several years, and they have not yet become very widely adopted in the United States. But their potential impact is

however, quite high.

A pronounced change has already taken place in the United States and several other advanced nations marked by the importance of information as a vital element in the new society that has emerged. The distinctive feature of the "information society" is in the makeup of the work force. Information workers are individuals whose main activity is producing, processing, or distributing information, and producing information technology (Rogers, 1983).

It was on the basis of these changes and the observed transition into an "information society" distinguished by the increase in numbers and variety of new communication technologies becoming available that there is need to determine how farmers perceive the information sources presently at their disposal. By seeking farmers' opinion and considering their views in designing information disseminating systems, the communication gap between practitioners and farmers will be narrowed.

Nez Perce County had been selected for this study because of the strong and well established extension services that prevailed in the area. The knowledge, experience, and findings derived from this study can provide practitioners relevant documented information on effective channels/methods for agricultural information dissemination in Idaho.

Although the findings of this study may not be inferred directly to other areas because the population of this study was the farmers of Nez Perce, they may serve as a model/strategy for agricultural information dissemination outside the area of study.

The inborn motivation for undertaking this study was to gain knowledge and insight through a practical experience in a research design that will increase my ability to reproduce a modified version of a similar study in

my community with the intention of assisting in building an effective agricultural information dissemination system.

#### DEFINITION OF TERMS

Adoption - The act of accepting an innovation (new idea, practice, or tool).

Adoption stages - The steps a person takes in thinking through and deciding to accept a new idea or practice.

Behavioral variables - Types of behavior that vary with circumstances, place, and time.

Change agents - A person who consciously and deliberately tries to inform people, and thereby change their attitudes or behavior. An agricultural change agent is one who tries to bring about changes in agriculture, usually involving adoption of new ideas and practices by farmers, but also involving changes in the way agencies and organizations operate to help farmers or support them in what they want to do.

Cosmopolite - A citizen of the world, so to speak; a person with broad acquaintances, knowledge, and concerns.

Diffusion - The consequence of acceptance of a new idea or practice among a designated group of people, e.g. those living in a village or state.

Dissemination - The process of communicating new information, ideas, or practices to others.

Early adopters - A more integrated part of the local social system than innovators. Early adopters are "respected", have high social status, and possess a great deal of opinion leadership. They serve role models and are often viewed as the people to check with before using a new idea. They usually exemplify success and discrete use of new ideas.

Information society - A nation in which a majority of the labor force is composed of information workers, and in which information is the most important element.

Innovators - People who habitually try new ideas or practices more quickly than others in a given locality.

Interpersonal communication - Communication that occurs on a person-to-person basis in situations in which both or all persons are physically present.

Intervening variables - Those that occur between the time when an action for an intended purpose is taken and the time when results actually appear.

Laggards - People characterized as "traditional", they are oriented to the past. Decisions are made in terms of what was done in the past. They are the most localite of all adopters - some may be near isolates. They are often suspicious of innovations, innovators, and change agents. While laggards may be the group in greatest need of extension assistance, they are probably the most difficult group for extension agents to work with.

Mass media - Commonly used to mean the same as mass audience channels, although to be more precise, a medium would be a device or mode used in putting together messages to use in the channels, e.g. impulses on tape, printing type, ink, or paper.

Opinion Leaders - Used synonymously with influentials, persons who exercise more influence over others than is routine.

Perception - Personal inclination to disregard some things about a message, emphasize others and put meanings together in one's own way.

Personal variables - Those things about individuals that vary from person to person.

Situational variables - Conditions in a person's natural or man-made environment that vary over time and from place to place.

## CHAPTER II

### REVIEW OF LITERATURE

Previous studies on adoption/diffusion in agriculture (Lionberger, 1982; Blackburn, 1986; Rogers, 1983; Itharat, 1980; Darisme, 1984; Hassan, 1984) considered communication strategies as a pivotal point in past, present, and future progressive agricultural developments.

Perhaps one of the most intriguing facts was the charge leveled against the Cooperative Extension Service, other change agents, and research centers alike that in several instances, there was much useful technology developed that was left sitting idle in research centers for lack of appropriate information dissemination strategies (Matlon et al., 1983).

In most cases, the stumbling block had been the communication gap between researchers and extension personnel on the one hand and farmers on the other. The contention was that the communication gap was not so much of a language and/or cultural nature as much as it was in the methods, channels, and sources of information employed for the agricultural information dissemination process.

It was apparent from the literature reviewed that, much research had been done on decision-making, adoption/diffusion, and the question of innovativeness among farmers (Hassan, 1984; Itharat, 1980; Blackburn, 1986). Particular studies had also dwelt on the various sources and/or channels of information in agriculture (Lionberger, 1982; Blackburn, 1986) but not much dealt with the identification of the most effective sources and/or channels. For the purpose of this study, the literature reviewed was divided into three sections: 1) Sources of Information on New and/or Innovative Farming Practices; 2) Social and Economic Characteristics

Attributed to Farmers; and 3) 'innovativeness' - how does it relate to farmers in accessing information about new and/or innovative farming practices.

#### Sources of Information on New and/or Innovative Farming Practices

In order to describe how farmers access information on agricultural technology, it was imperative that a list of the different sources and/or channels in use currently be made. Camboni (1984), stated:

Various information sources could be classified into two underlying dimensions which, per the nature of their index groupings, were named "institutional" and "non-institutional" sources of information. (p. 47)

Under the institutional sources of information Camboni listed:

1) Agricultural Research and Development Centers; 2) Local Farm Organizations; and 3) The Cooperative Extension Service. A list of non-institutional sources of information included: 1) Farm Magazines and Newspapers; 2) Television and Radio Programs; and 3) Local Merchants (e.g implement or fertilizer dealers).

While the above list may look comprehensive, it is not exhaustive as other studies indicated more sources of information diffusion in agricultural technology.

Taking a different perspective of classification, Darisme (1984) argued that:

For innovation-diffusion theorists, the most important variable accounting for acceptance and diffusion of new ideas, practices or innovations in the process is communication which occurs through a network of relationships among individuals. Communication in this context is the process by which messages are transferred from a source to a receiver and results in the receiver's changing an existing behavior pattern. (p. 41)

On the basis of this argument Darisme made a distinction between what he called "formal" and "informal" sources of communication. He defined a

formal source of communication as information transmitted by change agents, namely agricultural educators, agronomists, animal scientists, agricultural engineers, agricultural economists, agricultural technicians, and the mass media. Additionally, Darisme defined informal sources of communication as information received through friends, neighbors, relatives and peers. Darisme further clarified that under the category of the formal sources of information, were included all those whose specific task is the transmission of agricultural technologies.

Camboni and Darisme impersonalized their classification of the information sources by referring to them as institutional/non-institutional (Camboni, 1984) and formal/informal (Darisme, 1984). But it was Lindner (1981) who gave a personal touch to his categories of information sources. He named the two major categories, interpersonal (or person to person) channels and mass media channels. He further explained that:

A lot of emphasis has been put on the difference between interpersonal communication between farmers within the agricultural social system, and other forms of interpersonal communication between farmers and members outside this system. Another important basis for classifying types of communication is the source of information, which might be "expert" or lay, vested interest or independent, commercial or non-commercial, localite or cosmopolite. (p. 16)

In their study of the influence of selected factors on numbers of office visits and telephone calls made to a County Extension Office in Lebanon, Tennessee; Arnett, et al. (1974) also underlined the importance of the impersonal contacts as a source of information on new and/or innovative practices in agriculture by stating that:

A general finding of past studies is that impersonal contacts (e.g. Extension bulletins, newsletters, radio and T.V. programs)

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A general finding of past studies is that impersonal contacts (e.g. Extension bulletins, newsletters, radio and T.V. programs)

with Extension Agents reach many more people than do personal contacts; and that personal methods reach an audience that is already contacted in the large part, by other methods. (p. 11)

Interpersonal and mass media can also be looked at on a cosmopolite/localite basis with the cosmopolite channels referring to those from outside the social system being investigated while localite channels are those already available in the social system and covering a narrower audience (Rogers, 1983). According to Rogers:

Researchers categorize communication channels as either (1) interpersonal or mass media in nature, or (2) originating from either localite or cosmopolite sources. Past research studies show that these channels play different roles in creating knowledge or in persuading individuals to change their attitude toward an innovation. The channels also are different for earlier adopters of new ideas than for later adopters. (p. 198)

Rogers elaborated on the capabilities of mass media and interpersonal channels in the adoption/diffusion process by noting that, mass media can: 1) teach a larger audience rapidly; 2) create knowledge and spread information; 3) lead to changes in weakly held attitudes, while interpersonal channels can: 1) provide a two-way exchange of information; and 2) persuade an individual to form or to change a strongly held attitude (Rogers, 1983).

Other studies on the diffusion of innovative practices in agriculture have contended that the relevance of the message contained in a source of information is also an important determinant in the selection of which particular channels to use (Camboni, 1984; Felt, 1974).

Camboni (1984) stated:

Contemporary diffusion/communication researchers (Rogers, 1962; Fry, 1981; Van Leuven, 1981) have proposed that the mass media and interpersonal channel characteristics are not necessarily the most significant influences on receivers. Their research demonstrated that when a receiver is deciding which channel and message to select, the most reliable predictor of the first

decision is the receiver's information environment, especially the availability of communications and the likelihood that they will offer relevant information. (p. 28)

Camboni (1984) further observed that according to his study, people who were less concerned about issues and read newspapers, selected information on the basis of prominent page position. Thus, such individuals were shown to choose information on the basis of physical availability. Other studies have demonstrated that media content selection can be related to people's availability of time (Davidson et al., 1982).

Fett (1974) brought in a different perspective to accessibility of sources of information on new and/or innovative practices in agriculture:

The source of a message can greatly influence how an individual accepts and interprets that message. This source credibility has two main dimensions; expertness and trustworthiness. Expertness refers to the perceived knowledge or intelligence of the source. Trustworthiness refers to the degree of confidence in the communicator's intentions. (p. 21)

While exploring the source credibility issue further, Fett (1974) elaborated that in the case of mass media, source credibility is attached to the channel as well as to the original source of the message.

### Summary

Three schemes had been used by previous researchers to classify information sources. For example, Camboni (1984) used the term Institutional/non-institutional; Darisme (1984) used formal/informal; while Lindner (1981) and Rogers (1983) used the term Interpersonal/Mass media.

However, even though different category names were used, elements of the categories were consistently grouped together. For instance, what Camboni (1984) called institutional sources of information included:

Agricultural Research and Development Centers; Local Farm Organizations; and the Cooperative Extension Service, while non-institutional sources of information included farm magazines and newspapers, television and radio programs, and merchants.

Contrasting this with Darisme's (1984) list of formal/informal sources of information, there are striking similarities although Darisme's list is somewhat more personalized while Camboni's list is not. Formal information sources as given by Darisme (1984) included change agents and informal information sources include friends, neighbors, relatives and peers.

Lindner's (1981) and Rogers' (1983) lists conformed with that of Darisme (1984) as they defined interpersonal sources of information as those sources that involve face-to-face exchange between two or more individuals and mass media were those that involve one or a small audience to many or a much larger group.

Other studies (Rogers, 1983; Fett, 1974) had noted that different information sources can be effectively used at different stages in the adoption/diffusion process. Thus, mass media are effective in 1) creating knowledge and spreading information, 2) leading to changes in weakly held attitudes, and 3) teaching a larger audience rapidly. Interpersonal sources of information are useful in 1) providing a two-way exchange of information and 2) persuading an individual to form or change a strongly held attitude.

Perhaps the most revealing conclusion was given by Camboni (1984) when he stated that the relevance of the message contained in a source of information is an important determinant in the selection of which particular sources or channel to use. He underlined the receiver's

environment, especially the availability of communications and the likelihood of containing relevant information, as the most reliable predictor of the first decision by a receiver to use an information source.

#### Social and Economic Characteristics Attributed to Farmers

Understanding the socioeconomic and/or cultural norms and practices that prevails in an area is necessary in the selection of effective channels employed in disseminating information on improved agricultural technology. Analyzing diffusion of innovation as a multidisciplinary theory of planned social change, Darisme (1984) stated:

Because of their multidisciplinary, innovation-diffusion researchers, mainly rural sociologists, have sought to determine the various factors that explain adoption of new agricultural practices in different socio-cultural environments and diverse economic structures. They have proceeded mainly to determine the relationships between personal characteristics, individual personality characteristics, communication integration, participation levels among client members and adoption of new agricultural technologies. (p. 44)

Darisme listed the following factors as the major socioeconomic variables affecting the diffusion of an identified innovation in a given farming community: 1) Personal characteristics (e.g age of farmers, educational level, and family size); 2) Economic status (e.g. farmers' net worth or wealth measured by farm acreage, by net farm income or by gross income); 3) Attitudinal Factors (e.g the norms in a given social system, socio-psychological traits; ability to deal with abstracts, rationality, attitudes toward change, risk and science; achievement motivation, and education/occupational aspiration); and 4) Formal Social Participation (e.g. the degree of involvement of members of a social system in economic, political, social, and other forms of human activities).

Lindner (1981), in reporting his research grouped the socioeconomic

factors affecting the diffusion of information about agricultural technology in a somewhat different manner although the individual factors still remain the same. He stated:

Whatever the drawbacks of viewing the innovation-diffusion process as a series of stages, one great advantage is that it has helped to focus the attention of social scientists on the phenomena of information flows, and on the channels of communications used to transmit information. (p. 16)

Lindner followed his analysis through the rural sociologists', economists', and spatial geographers' point of view. The three specific variables emphasized in each of the views expressed were; personal characteristics, profitability, and spatial location from an innovation as they relate to the potential adopters of agricultural technology respectively (Lindner, 1981).

The list of other socioeconomic variables which Lindner considered to be important included: 1) farm size as measured by gross value of sales; 2) educational level of a decision maker; and 3) level of available extension service (Lindner, 1981).

While noting the importance of understanding the socioeconomic variables in a farming community in as far as they affect the diffusion of information on agricultural technology, Itharat (1980) stated:

There must be some factors within the farmers that can be identified that affect their behavior as it relates to adoption or rejection of agricultural innovations. . . . These factors may help indicate why an individual adopts more readily or slowly than other members in his social system. In regards to previous research findings, it is firmly believed that farmers who are early, intermediate, and late adopters of new ideas or practices in farming have distinctive characteristics. It also has been indicated that educational programs developed in terms of these characteristics are more likely to be successful than are those that fail to take them into account. (p. 7)

In general, Lindner (1981) was in agreement with Itharat (1980) and examined the factors affecting dissemination of information about

agricultural technology under the following categories: 1) Socioeconomic characteristics; 2) personality variables; and 3) communication behavior.

The following is a list of the independent variables Lindner (1981) studied in relation to the diffusion of agricultural innovations: Age; Level of Education; Farm Income; Total Annual Family Income; Social Status; Farming Experience; Tenure Status; Attitude towards Education; Farm Investment; Traditional Beliefs and Occupational Aspirations; Exposure to Mass Media; Contacts with Extension Agents; Cosmopolitaness; Participation in Agriculture-related activities and Sources of Agricultural Information.

According to Lionberger (1982):

Many things influence the acceptance of change. They vary among individuals and among communities. Before change agents can plan effective communication strategies to help people decide whether or not to accept challenges, they need to recognize those influences and how they are operating in the communities where they work. (p. xi)

Lionberger (1982) listed and described the three main types of influences as: 1) Personal variables; which included factors like education, residence, parents' occupations, management ability, health, age, and attitudes; 2) Situational variables that were mostly external to the individual (e.g. farm size, social groups, habitual way of thinking and acting, and the standard by which people decided what was right and wrong); and 3) Intervening Variables, those factors that appear or occur between the time a person begins to consider making a change and the time he/she finally makes it (e.g. information, government regulations, extension education programs, and people's personal and group goals.

### Summary

Variables previously studied and considered to enhance or inhibit farmers' access to information sources for new and/or innovative farming practices included personal characteristics, formal social participation, economic status, and attitudinal factors (Darisme, 1984).

Lindner (1981) and Itharat (1980) listed three major groups of variables as socioeconomic, personality, and communication behavior.

There were conflicting points of view expressed by rural sociologists, economists, and spatial geographers about the leading variables that influence farmers to seek information on new and/or innovative farming practices. Spatial geographers contended that it was the spatial location (distance) from a new and/or innovative practice that was the most influential variable for farmers in seeking information on new and/or innovative practices. But economists advocated profitability as the leading variable, while rural sociologists advanced personal characteristics to be the principal variable that influence farmers to seek information on new and/or innovative farming practices. It was apparent there were different views and variables believed to be important in influencing farmers to seek information on new and/or innovative farming practices. However, Lionberger (1982) stated the issues most clearly:

Many things influence the acceptance of change. They vary among communities. Before change agents can plan effective communication strategies to help people decide whether or not to accept challenges, they need to recognize those influences and how they are operating in the communities where they work. (p xi)

Lionberger (1982) made a simple distinction between the variables by breaking them into three groups; personal, situational, and intervening.

"Innovativeness" - How Does It Relate to Accessing  
Information On New and/or Innovative Farming Practices

Innovativeness is one aspect in agricultural development that has been extensively researched in recent studies (Blackburn, 1984; Darisme, 1984; Itharat, 1980; Lindner, 1981).

According to Blackburn (1984):

One aspect of the client system that affects the rate of adoption is the distribution of innovativeness in the system. Innovativeness is the degree to which an individual is relatively earlier in adopting new ideas than other members of the system. All individuals in a social system do not adopt an innovation at the same time first only a few adopt. Then, a large number of people try it. And finally the remainder accept the new idea. (p. 38)

In reference to this concept Blackburn characterized farmers in a given community as: 1) Innovators (those who are "venturesome", and eager to try new ideas); 2) Early adopters (are "respected", possess a great deal of opinion leadership, and are people to check with before trying a new idea); 3) Early majority (are described as "deliberate" because of their relatively long innovation-decision period); 4) Late majority (are the "skeptical" - adopting because of economic necessity and increasing social pressure); and 5) Laggards (characterized as "traditional", are oriented to the past; the most difficult to work with).

In another study Lindner (1981) observed:

On the basis of several studies, Rogers and Shoemaker (1971, p. 129) concluded that the rate of diffusion of awareness of knowledge is more rapid than the rate at which the decision to adopt spreads. Hence, not only do early adopters, or innovators generally become aware of the innovation before their peers, but they also take less time to make up their minds to adopt the innovation. (p. 15)

Lindner attributed the early awareness of new and/or innovative practices by innovators and early adopters alike, to the fact that

innovators had a more favorable attitude to new ideas and to change, and consequently the resistance which must be overcome by communication of message was lower.

Darisme (1986), and Itharat (1980) introduced a different perspective to the notion of innovativeness. Rather than view it from the role of an individual person in a given system as an innovator or a laggard, they brought in the perspective of the norms in a society. Darisme (1984) stated:

It is also assumed that a system's norms not only affect the original adoption or rejection of an innovation, but also determine the ways in which new ideas will be integrated into the existing ways of life of an adopter . . . it is thought that individuals in societies with modern norms view change more favorably, show greater dispositions to adopt new ideas and practices than individuals in traditional societies. (p. 48)

While Itharat (1980) largely agreed with the observation above, he emphasized that:

In modern systems with a social climate favorable to the adoption of innovations even individuals lacking much education, mass media exposure, or modern attitudes, acted in an innovative manner. . . . Social groups can usually be expected to facilitate interpersonal communication among members about farming problems and questions. (p. 42)

Previous research (e.g. Lionberger, 1982; Camboni, 1984; Darisme, 1984; Lindner, 1984) had advanced the thesis that the diffusion and adoption of new and/or innovative practices in agriculture is a process in which farmers have to pass through different stages before the final adoption is accomplished. During the various stages in the diffusion process, farmers often select different information sources to consult with. According to Lionberger (1982):

When people arrive at thought-out decisions, they go through a process. First they become aware of the idea, then become informed . . . it, mentally evaluate its suitability, and make a favorable decision before accepting it. (p. 18)

### Summary

Innovativeness in agricultural developments is one subject that has been extensively researched (Blackburn, 1984; Darisme, 1984; Itharat, 1980; Lindner, 1981). The important realization that emerged from these studies was that, in every clientele system, there were always individuals who were more apt to try or adopt new and/or innovative practices than others. Innovativeness as a social and/or scientific quality was more often than not dictated by the collective norms and individual open-mindedness that prevailed in a given society (Itharat, 1980).

The relevance of innovativeness to information dissemination was underscored by the fact that, since early adopters or innovators not only became aware of the innovation before their peers, but also took less time to make up their minds to adopt or reject the innovation; they could be prime targets at the introduction stage in the adoption/diffusion process.

But more importantly, given their intrinsic qualities of being venturesome and possession of opinion-leadership, innovators and early adopters can be expected to spearhead the momentum of change by acting as a showcase and vehicle of information dissemination on new and/or innovative farming practices. In other words, depending on which side they happen to fall, innovators and early adopters stand to impede or facilitate adoption-diffusion and hence, by extension the information dissemination process.

### Summary on Review of Literature

In section 1 of the Review of Literature (Sources of Information on Agricultural Technology) the postulation is that different authors use

different terms to refer to similar sources of information. Three different terms (Camboni, 1984; Lindner, 1981; Darisme, 1984; Rogers, 1983) were variously used to group information source types. Camboni used the terms institutional and non-institutional, while Darisme used the terms formal and informal, but Lindner and Rogers referred to the pair of information types as interpersonal and mass media.

Probably one of the most important ideas derived from the literature on information sources was given by Rogers (1983) when he advocated that mass media as a source and channel of disseminating information was most effective in teaching a larger audience rapidly, creating knowledge and spreading information, and leading to changes in weakly held attitudes. On the opposite side he advocated interpersonal channels to be most effective in providing a two-way exchange of information, and persuading an individual to form or to change a strongly held attitude. Other noteworthy postulations on the literature for sources of information included the contention by Camboni (1984) that the relevance of the message contained in a source of information was an important determinant in the selection of particular sources used by farmers. And also the assertion by Fett (1974) that credibility issue based on accuracy of information (expertness) and reliability (trustworthiness) was a crucial factor that influenced farmers to use a source of information.

On the question of the most important social and economic variables determining farmers access to sources of information on new and/or innovative farming practices, the literature showed that there was a diverse array of variables proposed. For instance, Darisme (1984) listed the major socioeconomic variables influencing farmers' decisions to seek information on new and/or innovative farming practices as personal

characteristics, economic status, attitudinal factors, and formal social participation. In a different perspective, Lindner (1981) explored the question of important variables affecting farmers' access to information sources through the viewpoints of rural sociologists, economists, and spatial geographers. The respective variables representing each viewpoint were personal characteristics, profitability, and spatial location (distance) attributed to new and/or innovative farming practices.

To underline the diversity in thoughts about the issue of important influential variables, Itharat (1980) advanced socioeconomic characteristic, personality, and communication behavior, as the unmistakably powerful determinants in farmers' choice of information sources on new and/or innovative farming practices.

Meaningful as the foregoing analysis of important variables affecting farmers' decision to use a given information source may tend to be, it was Lionberger (1982) who arguably proposed one of the most distinctive analysis of useful variables to study in the information dissemination process. He simply described the variables as personal, situational, and intervening.

Previous studies on innovativeness and its relation to the information dissemination process in the adoption of new and/or innovative farming practices were extensive and thorough by several authors (Itharat, 1980; Lindner, 1981; Darisme, 1984; Blackburn, 1984). Blackburn explained that the degree to which an individual was relatively earlier in adopting new ideas than other members of the same system (innovativeness), was in itself an integral part of an effective information dissemination process. Because of innovators and early adopters, a new and/or innovative farming practice is given a chance to demonstrate its vitality

to the rest of the doubting clientele.

Darisme (1984) was more persuasive on the notion of a society's norms as the principal factor in deciding the fate of a new and/or innovative practice. He elucidated on the fact that in societies with modern norms, view change was more favorable and showed greater dispositions to adopt new ideas and practices than in traditional societies.

However, Lionberger (1982) was more explicit and based the thrust of his contention on the concept that innovativeness was an indispensable factor required for an effective information dissemination system given that people arrived at thought-out decisions by going through a process that included awareness, interest, evaluation and adoption.

## CHAPTER III

### PROCEDURE

The research design of this study is devised to determine perceptions of farmers in Nez Perce County toward sources of information on new and/or innovative farming practices and how they access the various sources of information. This chapter is divided into four major subheadings: 1) Selection of Population; 2) Development of Instrument; 3) Collection of Data; and 4) Coding and Analysis of Data.

#### Selection of Population

The population selected for this study was comprised of farmers in Nez Perce County whose addresses were received from the University of Idaho Nez Perce County Extension Office.

Nez Perce County was selected for the final study after deliberations with the Graduate Degree Committee members and other key informants who recommended the county because of its diverse array of agricultural information sources and channels and a well established cooperative extension service conducive to a study of this nature.

Although the population studied could be representative of farmers' perception of information sources on new and/or innovative farming practices in Nez Perce County, it may not be used as an inference of farmers' perception of agricultural information sources elsewhere, basically because the information was only collected from Nez Perce County farmers. However, the findings of this study could be used to estimate other farmers' perception of information sources on new and/or innovative farming practices outside the area studied.

### Development of Instrument

The instrument used in this study was developed by the researcher in consultation with the Graduate Degree Committee members and in collaboration with the University of Idaho Nez Perce County Extension faculty.

At an initial stage of the development of the study instrument, two separate samples of farmers (one in Jerome County, and the other in Latah County) were selected for field study and as a pretest to assist in designing a more meaningful study instrument that took into consideration farmers' suggestions and assessed whether or not the proposed questions were understood by farmers. Among the suggestions made by farmers were the inclusion of financial banks, and veterinarians as viable alternative sources of information used by farmers in accessing new and/or innovative farming practices.

The final study instrument consisted of a 23-item questionnaire with the first 14 items focused on the sources and/or channels of information and their ranking on the basis of benefit, preference, and credibility. Also included in this part of the study instrument were items designed to reveal which sources and channels of information were used by farmers at the various stages in the adoption/diffusion process.

A 1 to 7 Likert scale was used in determining the extent to which 14 sources and/or channels of information were used by farmers in Nez Perce County. A scale value of "1" indicated the source or channel used daily and a value of "7" indicated the source or channel was never used. Similarly the 14 sources and/or channels were tested on a scale of 1 to 4 with a scale value of "1" indicating beneficial and a value of "4" not beneficial.

The second part in the study instrument consisted of a section designed to evaluate five (5) probable opinions on Cooperative Extension Service as a source of information measured on a Likert scale of 1 to 4 with a scale value of "1" indicating strongly agree and "4" strongly disagree.

The third part of the study instrument sought farmers' preference of nine (9) methods of delivering agricultural information to farmers on a Likert scale of 1 to 4 with a scale value of "1" indicating Most preferable and "4" Least preferable.

The fourth part was designed to collect data on variables believed to influence farmers' access to various sources and channels of information on new and/or innovative farming practices (e.g. personal, situational, intervening, and behavioral variables). A copy of the instrument is provided in Appendix B.

#### Collection of Data

The survey instrument and cover letter (Appendix A) was mailed to 386 farmers in Nez Perce County on October 30, 1986. A follow-up postcard (Appendix A) was mailed on November 6, 1987 to all farmers reminding them of the importance of their response to the study. A second follow-up letter (Appendix A) and instrument was mailed on November 20, 1987 to farmers who had not returned the initial instrument. A third and final follow-up letter (Appendix A) and instrument was mailed on December 18, 1987 to the remaining non-respondents. Response rates are reported in Table 1.

TABLE 1. RESPONSE TO QUESTIONNAIRE BY NEZ PERCE COUNTY FARMERS

Activity	Number	<u>FARMERS</u> Percentage
TOTAL INSTRUMENTS	386	100.0
1ST MAILING RETURN	135	35.0
2ND MAILING RETURN	71	18.4
3RD MAILING RETURN	19	4.9
TOTAL RETURN	225	58.3

The overall response rate for the study was 58.3 percent. Out of the 225 instruments returned, 10 were undeliverable, while 55 instruments had gone to individuals who were no longer farming. Subtracting the undeliverable instruments and those that had gone to non-farmers, the potential pool was reduced from an original 386 to 321 farmers. There were 176 usable instruments returned for a usable return rate of 55 percent. Collection of data was determined sufficient and declared complete on January 18, 1988.

#### Coding and Analysis of Data

Instruments were reviewed for missing data and coded for electronic entry after they were received. One hundred and seventy-six (176) of the 321 instruments were accepted for use. Whenever data was missing on an individual item, it was coded as missing and deleted and not used in statistical computations. Code sheets were developed to ensure accurate interpretation of the data into statistical program format. Data were entered into the University of Idaho IBM main frame computer by the researcher directly from the coded questionnaires. Variable and value labels were identified and entered into the statistical program. Data were analyzed using the Statistical Package for the Social Sciences (SPSSx, Release 2.1), subprograms Frequencies.

SPSSx subprogram Frequencies was used to summarize all variables. Statistics generated included: frequency, percent, and mean rank which were used for organizing the data into groups in order to indicate the importance of individual factors.

Friedman's Two-Way analysis of variance (ANOVA) was used to generate the mean rankings of sources of information, respondents' perceptions, and preferences. Mean-ranks were computed by dividing the sum of the ranks of each category by the number of cases.

Kruskal-Wallis One-Way ANOVA was used to determine whether there were any significant differences in the pattern of responses based on the categories of independent variables studied (farm size, number of years in farming, age, educational status, and income).

The result is determined by finding out if the sums of the ranks for each of its groups differ significantly from each other with an alpha set at  $\leq 0.05$ .

The Mann-Whitney U-Test was then applied to all possible pairs of contrasts. Alpha was set at  $\leq 0.01$  in accordance with postfactum analysis procedures. The analysis is used to determine whether there is a significant difference in the way two groups rate the dependent variables studied (e.g. statements on the cooperative extension service, beneficial/preferable sources of information, and methods of presenting agricultural information).

Mean ranks, Z-scores and Chi-squares were used to organize the data into groups in order to show the significant differences in the relative order of ratings, patterns of responses, and rating patterns within different categories of variables studied.

## CHAPTER IV

### FINDINGS AND DISCUSSION

The purpose of this study was to identify the sources of information on new and/or innovative farming practices used by farmers in Nez Perce County and how these sources are accessed by the farmers. The data presented in this chapter were collected with a survey instrument mailed to farmers in Nez Perce County whose addresses were received through the University of Idaho Nez Perce County Extension Office. The findings are presented under the following subtitles: 1) Sources of Information; 2) Farmers' Opinions and Perceptions; 3) Farmers' Characteristics and their Implications for the Study; and 4) The Effect of Selected Respondent Characteristics.

The tables in the subsequent sections of this chapter will show a variation in total percentages because either particular items were not answered fully by respondents or they were expected to select more than one option.

The first section of this chapter identifies the sources of information farmers use during the awareness, interest, and decision stages of the adoption/diffusion process (Tables 3, 4 and 5). Tables 2 and 6 show farm and/or family magazines or newspapers, and electronic information/data equipments subscribed to or owned by Nez Perce county farmers, respectively.

The second section indicates farmers' opinions and/or perceptions about benefit, usage, credibility, and preference of sources of information and methods of presenting agricultural information (Table 7 through 14). The third section presents farmers' characteristics and their implications for the study. The independent variables and their

proportions in terms of frequency and percentage are shown in Tables 15 through 20. The last section of the chapter deals with the effect of selected respondent characteristics. Included in this section are first the Kruskal-Wallis analysis of: 1) the respondents' ratings of statements on the Cooperative Extension Service; 2) sources of information; and 3) methods of presenting agricultural information based on the independent variables (farmers' characteristics); Kruskal-Wallis tests for differences in the response patterns of the respondents. Secondly included in this section is the Mann-Whitney U-Test which was applied to all possible pairs of contrasts within different categories of independent variables for further investigation of the differences.

#### Sources of Information

A list of farm and/or family magazines subscribed to in Nez Perce county was compiled with the assistance of the Nez Perce County Extension Office. As shown in Table 2, out of the nine farm and/or family magazines received in the county, Farm Journal had the largest circulation with 80 percent of the 175 respondents receiving the magazine, followed by Idaho Farmer Stockman with 78.9 percent. State Wheat Growers' Magazine had a respectable third spot with 72.4 percent circulation among the 175 respondents. Changing Times had the least circulation (8.6 percent) with Family Circle (11.4 percent), State Cattlemen Magazine (12.6 percent), and Better Homes and Gardens (29.7 percent).

TABLE 2. FARM AND/OR FAMILY MAGAZINES SUBSCRIBED TO BY THE RESPONDENTS.

Magazine	Frequency	Percentage
FARM JOURNAL	140	80.0
IDAHO FARMER STOCKMAN	138	78.9
STATE WHEAT GROWERS' MAGAZINE	125	72.4
BEIFER HOMES AND GARDENS	52	29.7
SUNSET	33	18.9
CONSUMER REPORT	25	14.3
STATE CATTLEMEN MAGAZINE	22	12.6
FAMILY CIRCLE	20	11.4
CHANGING TIMES	15	8.6

The postulation in the literature review is that there is a sequence of stages in the innovation/diffusion process that included: awareness; interest; trial; evaluation and decision. Although the innovation diffusion process is characterized with five stages, only three (awareness, interest, and decision) stages were arbitrarily selected to satisfy the scope of this study. Limited time, purpose, objective, and scope of the survey instrument were among important considerations in the decision to study only three stages.

In reference to Tables 3, 4, and 5, sources of information are divided into two groups; group A will be referred to as Interpersonal sources of information, and group B will be referred to as Mass Media sources of information. Examples of group A sources of information are: Cooperative Extension Faculty; Neighbor/Friend/Family Member; Private Dealer or Distributor; Personal Ingenuity; Consultant; and Banker. Examples of group B sources of information are: Agricultural Magazines and/or

Newspapers; Government Sponsored Agencies; College of Agriculture Research and Extension Publications; County and/or State Fair Activity; Commodity Associations; and Social or Political Organizations.

Data on sources of information that farmers were most likely to use during the awareness period of the innovation/diffusion process, Table 3, showed that Agricultural Magazines and/or Newspapers were the most preferred with 64.6 percent of the respondents followed by Neighbor, Friend or Family Member with 58.9 percent of the respondents selecting that category.

TABLE 3. SOURCES OF INFORMATION USED BY RESPONDENTS DURING THE AWARENESS PERIOD OF A NEW AND/OR INNOVATIVE FARMING PRACTICE.

Source	Frequency	Percentage
AGRICULTURAL MAGAZINE AND/OR NEWSPAPER (B)	113	64.6
NEIGHBOR, FRIEND, OR FAMILY MEMBER (A)	103	58.9
COOPERATIVE EXTENSION FACULTY (AGENT) (A)	100	57.1
COMMERCIAL/PRIVATE DEALER AND/OR DISTRIBUTOR (A)	87	49.7
GOVERNMENT SPONSORED AGENCY (A?B)	83	47.4
COLLEGE OF AG RESEARCH OR EXTENSION PUBLICATION (B)	83	47.4
PERSONAL INGENUITY (A)	77	44.0
COMMODITY ASSOCIATION (A/B)	65	37.1
COUNTY AND/OR STATE FAIR ACTIVITY (A/B)	19	10.9
CONSULTANT (A)	17	9.7
SOCIAL OR POLITICAL ORGANIZATIONS (A/B)	8	4.6
BANKER (A)	4	2.3

Over fifty-seven (57) percent of the respondents indicated that they were most likely to use the Cooperative Extension Faculty (during the awareness period) as a source of information on new and/or innovative farming practices. A banker was the least used source of information during the awareness period, with only 2.3 percent of the respondents indicating they were most likely to use it, with Social or Political Organizations (4.6 percent), Consultant (9.7 percent), County and/or State Fair Activity (10.9 percent), and Commodity Association (37.1 percent).

Table 4 illustrates that during the interest (additional information) period, Cooperative Extension Faculty was the source of information which was most likely to be consulted by farmers, with 18.3 percent of the 175 respondents selecting it, followed by College of Agriculture Research or Extension Publications which was selected by 10.9 percent of the respondents and Commercial/Private Dealers and/or Distributors (10.3 percent).

TABLE 4. INFORMATION SOURCES MOST LIKELY TO BE CONSULTED BY NEZ PERCE COUNTY FARMERS FOR ADDITIONAL INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES.

Source	Frequency	Percentage
COOPERATIVE EXTENSION FACULTY (A)	32	18.3
COLLEGE OF AG RESEARCH OR EXTENSION PUBLICATION (B)	19	10.9
COMMERCIAL/PRIVATE DEALER AND/OR DISTRIBUTOR (A)	18	10.3
PERSONAL INGENUITY (A)	15	8.6
NEIGHBOR, FRIEND, OR FAMILY MEMBER (A)	14	8.0
GOVERNMENT SPONSORED AGENCY (A/B)	8	4.6
AG. MAGAZINE AND/OR NEWSPAPER (B)	1	.6
COMMODITY ASSOCIATION (A/B)	1	.6
CONSULTANT (A)	1	.6

Consultants (0.6 percent), Commodity Associations (0.6 percent) and Agricultural Magazines and/or Newspapers (0.6 percent), were the sources of information least likely to be consulted by respondents during the interest period of the innovation/diffusion process.

When asked to select a single source of information on new and/or innovative farming practices they were most likely to use in making the final decision to adopt or reject a new and/or innovative practice, 14.9 percent of the respondents selected Cooperative Extension, 10.9 percent selected Commercial/Private Dealers and/or Distributors and 9.7 percent of the respondents chose College of Agriculture Research or Extension publications (Table 5).

TABLE 5. MOST LIKELY SOURCES OF INFORMATION TO BE USED BY NEZ PERCE COUNTY FARMERS IN DECIDING TO ADOPT A NEW AND/OR INNOVATIVE FARMING PRACTICE.

Source	Frequency	Percentage
COOPERATIVE EXTENSION FACULTY (AGENT) (A)	26	14.9
COMMERCIAL/PRIVATE DEALER AND/OR DISTRIBUTOR (A)	19	10.9
COLLEGE OF AG RESEARCH OR EXTENSION PUBLICATION (B)	17	9.7
GOVERNMENT SPONSORED AGENCIES (A/B)	16	9.1
NEIGHBOR, FRIEND, OR FAMILY MEMBER (A)	11	6.3
PERSONAL INGENUITY (A)	10	5.7
CONSULTANT (A)	2	1.1
COMMODITY ASSOCIATION (A/B)	2	1.1
AG MAGAZINE AND/OR NEWSPAPER (B)	1	.6

Agricultural Magazines and/or Newspapers, (0.6 percent) Commodity Associations (1.1 percent), and Consultants (1.1 percent) were the sources of information least used to make final decisions to adopt or reject a new and/or innovative farming practice.

Data on the latest electronic information/data equipment owned by Nez Perce county farmers showed that 54.3 percent of the 175 respondent possess video cassette recorder/player, followed by 53.7 percent who possessed audio cassette recorder/player (Table 6).

TABLE 6. ELECTRONIC INFORMATION/DATA EQUIPMENT OWNED BY RESPONDENTS.

Equipment	Frequency	Percentage
VIDEO CASSETTE RECORDER/PLAYER	95	54.3
AUDIO CASSETTE RECORDER/PLAYER	94	53.7
PERSONAL DESKTOP COMPUTER	38	21.7
SATELLITE RECEIVER DISH	35	20.0

The electronic device with the smallest percentage possession was the Satellite Receiver Dish with 20.0 percent of the respondents and Personal Desktop Computer with 21.7 percent.

#### Farmers' Opinions and Perceptions

On the question of Private Dealers and Distributors of agricultural supplies as beneficial sources of information on new and/or innovative farming practice, over 88 percent of the 175 respondents either agreed or strongly agreed and the rest either disagreed or were not aware of Private Dealers and Distributors as a source of information on new and/or innovative farming practices (Table 7).

TABLE 7. DEGREE OF AGREEMENT ON PRIVATE DEALERS AND DISTRIBUTORS OF AGRICULTURAL SUPPLIES AS BENEFICIAL INFORMATION SOURCE ON NEW AND/OR INNOVATIVE FARMING PRACTICES.

Degree of Agreement	Frequency	Percentage
AGREE	101	57.7
STRONGLY AGREE	54	30.9
DISAGREE	8	4.6
NOT AWARE	8	4.6

Ninety-two (92) percent of the 175 respondents either disagreed or

strongly disagreed with the statement "Cooperative Extension is only for farmers who have not been to school" and only 3.4 percent of the respondents either agreed or strongly agreed with the statement. Meanwhile, 66.3 percent agreed or strongly agreed that "Cooperative Extension is the most important source of information on new and/or innovative farming practices" and 29.2 percent disagreed or strongly disagreed. The mean ranks of each of the statements, from Friedman's Two-way ANOVA, are an indication of the relative order of the respondents' ratings in descending order (Table 8).

TABLE 8. RESPONDENTS' AGREEMENT WITH FIVE STATEMENTS ABOUT THE COOPERATIVE EXTENSION SERVICE.

Statement	Mean Rank*	Rating Categories			
		Strongly Agree	Agree	Disagree	Strongly Disagree
COOPERATIVE EXTENSION IS THE MOST IMPORTANT SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	1.92	$\frac{27^{**}}{15.4}$	$\frac{89}{50.9}$	$\frac{46}{26.3}$	$\frac{5}{2.9}$
THERE ARE OTHER MORE USEFUL SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES THAN THE COOPERATIVE EXTENSION SERVICE	2.08	$\frac{23}{13.1}$	$\frac{74}{42.3}$	$\frac{52}{29.7}$	$\frac{13}{7.4}$
COOPERATIVE EXTENSION SERVICE IS ONLY USEFUL DURING THE INTRODUCTION PERIOD OF A NEW INNOVATION	3.24	$\frac{4}{2.3}$	$\frac{19}{10.9}$	$\frac{99}{56.6}$	$\frac{40}{22.9}$
COOPERATIVE EXTENSION IS NOT USEFUL AS A SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	3.71	$\frac{4}{2.3}$	$\frac{10}{5.7}$	$\frac{81}{46.3}$	$\frac{67}{38.3}$
COOPERATIVE EXTENSION IS ONLY FOR FARMERS WHO HAVE NOT BEEN TO SCHOOL	4.05	$\frac{3}{1.7}$	$\frac{3}{1.7}$	$\frac{65}{37.7}$	$\frac{95}{54.3}$

\* Based on Friedman's Two-Way Anova; 1= Strongly Agree, 2= Agree, 3= Disagree, 4= Strongly Disagree

\*\* Frequency  
Percent of 175 Respondents

The specific ratings of each of the statements about the cooperative extension service should be viewed in terms of the relationship to each other.

Over 79 percent of the respondents disagreed or strongly disagreed that "Cooperative Extension Service is only useful during the introduction

period of a new innovation" and 13.2 percent agreed or strongly agreed.

Over 84 percent disagreed or strongly disagreed that "Cooperative Extension is not useful as a source of information on new and/or innovative farming practices" and 8 percent agreed or strongly agreed.

However, 54.4 percent of the respondents agreed or strongly agreed that "There are other, more useful sources of information on new and/or innovative farming practices than the Cooperative Extension Service" and 37.1 percent of the respondents disagreed or strongly disagreed with that statement.

Data on the indications of how often respondents used the various information sources for new and/or innovative farming practices showed that Daily Newspapers had the highest daily use with 74.3 percent of the respondents, Farm Magazine had the highest weekly usage (37.1 percent) and Extension Publications had the highest yearly usage with 16.6 percent of the respondents (Table 9).

The lower end of the scale represented by the rating category "Never," offered important revelation about how often the various information sources were used by the respondents. Data collected showed on the one hand that, Bankers and University of Idaho campus faculty were the two information sources not often used by respondents with 41.1 percent and 33.7 percent who reportedly have never used those two information sources respectively.

On the other hand Farm Magazines, Daily Newspapers, and Neighbors/Friends/Family members were the sources of information that registered positive scores under the rating category "Never" with only 1.1 percent of the respondents who never use the former and 2.9 percent who never use the latter two sources of information.

TABLE 9. HOW OFTEN RESPONDENTS USE VARIOUS INFORMATION SOURCES FOR NEW AND/OR INNOVATIVE FARMING PRACTICES.

Sources	Rating Categories						
	Daily	Weekly	Monthly	Yearly	Quarterly	Bi-Yearly	Never
FARM MAGAZINES	$\frac{15^*}{8.6}$	$\frac{65}{37.1}$	$\frac{77}{44.0}$	$\frac{2}{1.1}$	$\frac{5}{2.9}$	$\frac{1}{0.6}$	$\frac{7}{1.1}$
FARM NEWSPAPERS	$\frac{20}{11.4}$	$\frac{55}{31.4}$	$\frac{35}{20.0}$	$\frac{1}{0.6}$	$\frac{9}{5.1}$	$\frac{6}{3.4}$	$\frac{12}{6.9}$
FARM TV PROGRAMS	$\frac{11}{6.3}$	$\frac{29}{16.6}$	$\frac{27}{15.4}$	$\frac{7}{4.0}$	$\frac{10}{5.7}$	$\frac{24}{13.7}$	$\frac{32}{18.3}$
FARM RADIO PROGRAMS	$\frac{39}{22.3}$	$\frac{35}{20.0}$	$\frac{10}{5.7}$	$\frac{5}{2.9}$	$\frac{11}{6.3}$	$\frac{13}{7.4}$	$\frac{30}{17.4}$
DAILY NEWSPAPERS	$\frac{130}{74.3}$	$\frac{21}{12.0}$	$\frac{2}{1.1}$	$\frac{0}{0.0}$	$\frac{1}{0.6}$	$\frac{0}{0.0}$	$\frac{5}{2.9}$
EXTENSION PUBLICATIONS	$\frac{2}{1.1}$	$\frac{14}{8.0}$	$\frac{95}{54.3}$	$\frac{6}{3.4}$	$\frac{22}{12.6}$	$\frac{6}{3.4}$	$\frac{7}{4.0}$
COOP EXTENSION FACULTY (AGENT)	$\frac{0}{0.0}$	$\frac{9}{5.1}$	$\frac{61}{34.9}$	$\frac{23}{13.1}$	$\frac{27}{15.4}$	$\frac{17}{9.7}$	$\frac{15}{8.6}$
UI CAMPUS FACULTY	$\frac{1}{0.6}$	$\frac{0}{0.0}$	$\frac{20}{11.4}$	$\frac{29}{16.6}$	$\frac{11}{6.3}$	$\frac{23}{13.1}$	$\frac{59}{33.7}$
GOVT. SPONSORED AGENCIES	$\frac{1}{0.6}$	$\frac{4}{2.3}$	$\frac{50}{28.6}$	$\frac{22}{12.6}$	$\frac{27}{15.4}$	$\frac{21}{12.0}$	$\frac{23}{13.1}$
COMMODITY ASSOC.	$\frac{2}{1.1}$	$\frac{10}{5.7}$	$\frac{32}{18.3}$	$\frac{23}{13.1}$	$\frac{26}{14.9}$	$\frac{10}{5.7}$	$\frac{35}{20.0}$
BANKER	$\frac{0}{0.0}$	$\frac{2}{1.1}$	$\frac{19}{10.9}$	$\frac{17}{9.7}$	$\frac{15}{8.6}$	$\frac{14}{8.0}$	$\frac{72}{41.1}$
NEIGHBOR/FRIEND/FAMILY MEMBER	$\frac{21}{12.0}$	$\frac{56}{32.0}$	$\frac{37}{21.1}$	$\frac{8}{4.6}$	$\frac{12}{6.9}$	$\frac{9}{5.1}$	$\frac{5}{2.9}$
PRIVATE DEALER OR DISTRIBUTOR	$\frac{4}{2.3}$	$\frac{27}{15.4}$	$\frac{57}{32.6}$	$\frac{18}{10.3}$	$\frac{20}{11.4}$	$\frac{14}{8.0}$	$\frac{10}{5.7}$

\* Frequency  
Percent of 175 Respondents

Respondents' rating of perceived benefits from different information sources showed (Table 10) that Extension Publications had the highest rating with 79.4 percent of respondents indicating it as somewhat beneficial to extremely beneficial. The second spot was held by Neighbor/Friend/Family Member with 77.1 percent of respondents indicating it as somewhat beneficial to extremely beneficial. Private Dealers or Distributors were third with 73.8 percent of the respondents rating them as somewhat beneficial to extremely beneficial. The mean ranks of each of the information sources, from Friedman's Two-way ANOVA, are an indication of the relative order of the respondents' ratings in descending order (Table 10).

The specific ratings of each of the information sources should be viewed in terms of the relationship to each other.

A banker, as an information source, had the highest number of responses in the slightly to not beneficial categories with 62.9 percent of the respondents, while Farm Television Programs had 57.1 percent of the respondents rating it as either not beneficial and slightly beneficial. Over 47 percent of respondents rated Farm Radio Programs as not beneficial or slightly beneficial.

However, the Friedman's Two-way ANOVA indicated Cooperative Extension Faculty, Extension Publication, Neighbor/Friend/Family Member, received the best mean rank for perceived benefits by respondents in that order. Bankers and Farm TV Programs had the lowest mean rank for perceived benefits out of the thirteen (13) sources of information considered by the respondents.

TABLE 10. RESPONDENTS' RATINGS OF THE PERCEIVED BENEFITS FROM DIFFERENT INFORMATION SOURCES.

Information Sources	Mean Rank*	Rating Categories			
		Extremely Beneficial	Somewhat Beneficial	Slightly Beneficial	Not Beneficial
COOP EXTENSION FACULTY (AGENT)	4.78	$\frac{74^{**}}{42.3}$	$\frac{50}{28.6}$	$\frac{26}{14.9}$	$\frac{6}{3.4}$
EXTENSION PUBLICATIONS	4.88	$\frac{65}{37.1}$	$\frac{74}{42.3}$	$\frac{21}{12.0}$	$\frac{5}{2.9}$
NEIGHBOR/FRIEND/FAMILY MEMBER	4.98	$\frac{76}{43.4}$	$\frac{59}{33.7}$	$\frac{22}{12.6}$	$\frac{6}{3.4}$
PRIVATE DEALER OR DISTRIBUTOR	5.65	$\frac{54}{30.9}$	$\frac{75}{42.9}$	$\frac{22}{12.6}$	$\frac{5}{2.9}$
DAILY NEWSPAPERS	6.42	$\frac{49}{28.0}$	$\frac{61}{34.9}$	$\frac{42}{24.0}$	$\frac{15}{8.6}$
FARM MAGAZINES	6.63	$\frac{31}{17.7}$	$\frac{87}{49.7}$	$\frac{46}{26.3}$	$\frac{4}{2.3}$
FARM NEWSPAPERS	7.03	$\frac{24}{13.7}$	$\frac{78}{44.6}$	$\frac{46}{26.3}$	$\frac{12}{6.9}$
UI CAMPUS FACULTY	7.35	$\frac{33}{18.9}$	$\frac{57}{32.6}$	$\frac{33}{18.9}$	$\frac{27}{15.4}$
COMMODITY ASSOCIATION	7.41	$\frac{25}{14.3}$	$\frac{62}{35.4}$	$\frac{36}{20.6}$	$\frac{23}{13.1}$
GOVT. SPONSORED AGENCIES	7.66	$\frac{28}{16.0}$	$\frac{65}{37.1}$	$\frac{48}{27.4}$	$\frac{17}{9.7}$
FARM RADIO PROGRAMS	8.52	$\frac{20}{11.4}$	$\frac{54}{30.9}$	$\frac{50}{28.6}$	$\frac{33}{18.9}$
FARM TV PROGRAMS	9.41	$\frac{8}{4.6}$	$\frac{51}{29.1}$	$\frac{66}{37.7}$	$\frac{34}{19.4}$
BANKERS	10.29	$\frac{11}{6.3}$	$\frac{29}{16.6}$	$\frac{42}{24.0}$	$\frac{68}{38.9}$

\* Based on Friedman's Two-Way Anova; 1= Extremely Beneficial, 2= Somewhat Beneficial, 3= Slightly Beneficial, 4= Not Beneficial

\*\* Frequency  
Percent of 175 Respondents

Table 11 shows that, on the issue of credibility based on expertness (accuracy of information) Cooperative Extension Service was the leading information source with 42.9 percent of the respondents, followed by Private Dealers and/or Distributors which had 37.7 percent of the respondents.

TABLE 11. RESPONDENTS' PERCEPTION OF INFORMATION SOURCE CREDIBILITY BASED ON EXPERTNESS (ACCURACY OF INFORMATION).

Source	Frequency	Percentage
THE COOPERATIVE EXTENSION SERVICE	75	42.9
PRIVATE DEALERS AND/OR DISTRIBUTORS	66	37.7
PRIVATE AGRICULTURE CONSULTANTS	7	4.0
AGRICULTURAL NEWSPAPERS AND/OR MAGAZINES	7	4.0
GOVERNMENT SPONSORED AGENCIES	5	2.9
COMMODITY ASSOCIATIONS	3	1.7
AGRICULTURAL RADIO/TV PROGRAMS	0	0.0
BANKERS	0	0.0

On the issue of credibility based on trustworthiness (reliability), the Cooperative Extension Service again had the highest rating with 52.6 percent of the respondents holding that perception. Similarly, Private Dealers and Distributors were ranked second again with 26.3 percent (Table 12).

TABLE 12. RESPONDENTS' PERCEPTION OF INFORMATION SOURCE CREDIBILITY BASED ON TRUSTWORTHINESS (RELIABILITY).

Source	Frequency	Percentage
THE COOPERATIVE EXTENSION SERVICE	92	52.6
PRIVATE DEALERS AND/OR DISTRIBUTORS	46	26.3
PRIVATE AGRICULTURE CONSULTANTS	9	5.1
AGRICULTURAL NEWSPAPERS AND/OR MAGAZINES	4	2.3
GOVERNMENT SPONSORED AGENCIES	6	3.4
COMMODITY ASSOCIATIONS	2	1.1
BANKERS	2	1.1
AGRICULTURE RADIO AND/OR TV PROGRAMS	1	.6

In reference to Table 13, Mass Media methods of presenting agricultural information include: Publications/Journals and/or Other Bulletins; Computer Programs/Computer Assisted Instruction; and Home Study/Fact Sheets/Video Cassettes. Interpersonal methods of presentations include: On-Farm Demonstrations; Tour/Field Trips; Group Discussion/Idea Sharing, Guest Speakers/Consultants, Workshops, and Practical Shortcourses. The interpersonal methods of presenting agricultural information will be represented by A and Mass Media methods will be represented by B.

Data on respondents' preference of methods of presenting information on new and/or innovative farming practices indicated that, the most preferred method is On-farm Demonstration with 54.3 percent of the respondents, while Tour/Field Trips had 48.6 percent of respondents indicating most preferred method. The mean ranks of each of the methods of presentations, from Friedman's Two-way ANOVA, are an indication of the

relative order of the respondents' ratings in descending order (Table 13).

The specific ratings of each of the methods of presentation should be viewed in terms of the relationship to each other.

Home Study/Fact Sheets/Video Cassettes as a method of disseminating information on new and/or innovative farming practices was the least preferred with 47.4 percent of respondents rating it as least preferred. Computer Programs/Computer Assisted Instruction was rated least preferred by 36.0 percent of the respondents.

The relative order of the respondents' rating in descending order as determined by the Friedman's Two-way ANOVA indicated that On-farm Demonstrations scored the highest mean rank by respondents as a preferred method of presentation of information on new and/or innovative farming practices. Other sources of information that received better mean rank scores were; Tours/Field Trips, Publications/Journals/Other Bulletins, and Group Discussion/Idea Sharing.

TABLE 13. RESPONDENTS' PREFERENCE OF METHODS OF PRESENTING INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES.

Method	Mean* Rank	Rating Categories			
		Most Preferred	Somewhat Preferred	Slightly Preferred	Least Preferred
ON-FARM DEMONSTRATIONS (A)	3.10	$\frac{95^{**}}{54.3}$	$\frac{50}{28.6}$	$\frac{13}{7.4}$	$\frac{2}{1.1}$
TOUR/FIELD TRIPS (A)	3.44	$\frac{85}{48.6}$	$\frac{65}{37.1}$	$\frac{9}{5.1}$	$\frac{6}{3.4}$
PUBLICATIONS/JOURNALS AND/OR OTHER BULLETINS (B)	4.53	$\frac{34}{19.4}$	$\frac{83}{47.4}$	$\frac{33}{18.9}$	$\frac{9}{5.1}$
GROUP DISCUSSION/IDEA SHARING (A)	4.55	$\frac{43}{24.6}$	$\frac{86}{49.1}$	$\frac{20}{11.4}$	$\frac{9}{5.1}$
GUEST SPEAKERS/CONSULTANTS (A)	4.61	$\frac{36}{20.6}$	$\frac{87}{49.7}$	$\frac{24}{13.7}$	$\frac{13}{7.4}$
WORKSHOPS (A/B)	4.86	$\frac{37}{21.1}$	$\frac{74}{42.3}$	$\frac{35}{20.0}$	$\frac{12}{6.9}$
PRACTICAL SHORT COURSES (A)	5.02	$\frac{35}{20.0}$	$\frac{71}{40.6}$	$\frac{35}{20.0}$	$\frac{12}{6.9}$
COMPUTER PROGRAMS/COMPUTER ASSISTED INSTRUCTION (B)	7.08	$\frac{8}{4.6}$	$\frac{32}{18.3}$	$\frac{51}{29.1}$	$\frac{63}{36.0}$
HOME STUDY/FACT SHEETS/VIDEO CASSETTES (B)	7.32	$\frac{3}{1.7}$	$\frac{16}{9.1}$	$\frac{48}{27.4}$	$\frac{83}{47.4}$

\* Based on Friedman's Two-Way Anova; 1= Most Preferred, 2= Somewhat Preferred, 3= Slightly Preferred, 4= Least Preferred

\*\* Frequency  
Percent of 175 Respondents

Home Study/Fact Sheets/Video Cassettes, Computer Programs/Computer Assisted Instruction, and Practical Short Courses received the lowest mean rank scores of presentation of new and/or innovative farming practices.

The data in Table 14 suggests "Prices, Profits, and Productivity as they relate to survival" as the factor that most influences farmers' decisions to seek more information on new and/or innovative farming

practices with 74.3 percent of the respondents citing the factor.

TABLE 14. RESPONDENTS' OPINION OF WHAT FACTOR MOST INFLUENCES THEIR DECISIONS TO SEEK MORE INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES.

Factor	Frequency	Percentage
PRICES/PROFITS/PRODUCTIVITY AS THEY RELATE TO SURVIVAL	130	74.3
REDUCTION OF LABOR REQUIREMENTS	9	5.1
COMPETITIVENESS AS IT RELATES TO FOREIGN MARKETS	8	4.6
SKILLS AS IT RELATES TO THE LEVEL OF TECHNOLOGY REQUIRED BY THE INNOVATION	7	4.0
COMPETITIVENESS AS IT RELATES TO LOCAL MARKETS	5	2.9

#### Farmers' Characteristics and their Implications for the Study

This section includes data concerning personal, situational, and intervening variables that may influence farmers' access to information sources on new and/or innovative farming practices.

Data on farm size shows the majority of farms in the county (26.3 percent) are more than 1300 acres in size. The second largest single group of farms were in the size class of 501 to 1000 acres with 25.7 percent of the reported farms (Table 15).

Farms that fall between 1001 to 1300 acres in size were the smallest single group with only 11.4 percent of the total number reported. The group that were between 250 to 500 acres represented 14.8 percent of the farms while those less than 250 acres represented 16.6 percent.

TABLE 15. FARM SIZE OF THE RESPONDENTS.

Farm Size	Frequency	Percentage
LESS THAN 250 ACRES	29	16.6
250 TO 500 ACRES	25	14.3
501 TO 1000 ACRES	45	25.7
1001 TO 1300 ACRES	20	11.4
MORE THAN 1300 ACRES	46	26.3

Almost 25 percent of the respondents had farmed 41 or more years, and 21.6 percent of the respondents had farmed 31 to 40 years. Those who had farmed 11 to 20 years represented 21.2 percent of the respondents (Table 16).

TABLE 16. RESPONDENTS' NUMBER OF YEARS IN FARMING.

Number of Years	Frequency	Percentage
1 TO 10	25	14.3
11 TO 20	37	21.2
21 TO 30	24	13.6
31 TO 40	38	21.6
41 OR MORE	43	24.9

Data on age distribution show the 52 to 65 age group included the highest number of respondents (30.3 percent). The second single largest age group (28.6 percent) included the respondents with ages of 36 to 51 years. Respondents of the age 66 or more years represented 25.1 percent of the group (Table 17).

TABLE 17. AGE DISTRIBUTION OF THE RESPONDENTS.

Age	Frequency	Percentage
20 TO 35	24	13.7
36 TO 51	50	28.6
52 TO 65	53	30.3
65 OR MORE	44	25.1

Table 18 showed that the level of education with the largest representation of the respondents was in the category of graduates of high school or those who completed GED (General Education Development) (42.9 percent). Respondents who attended or graduated from a four-year college or university with a major in agriculture represented 25.7 percent while those who attended or graduated from a four-year college or university but did not major in agriculture represented 17.7 percent of the total (Table 18).

TABLE 18. RESPONDENTS' LEVEL OF EDUCATION.

Level of Education	Frequency	Percentage
ATTENDED OR GRADUATED FROM HIGH SCHOOL OR COMPLETED THE GED	75	42.9
ATTENDED OR GRADUATED FROM A POST-SECONDARY VOCATIONAL/TECHNICAL PROGRAM	22	12.6
ATTENDED OR GRADUATED FROM A FOUR-YEAR COLLEGE OR UNIVERSITY WITH A MAJOR IN AGRICULTURE	45	25.7
ATTENDED OR GRADUATED FROM A FOUR-YEAR COLLEGE OR UNIVERSITY BUT DID NOT MAJOR IN AGRICULTURE	31	17.7

The level of education with the smallest representation was that of respondents who attended or graduated from a post-secondary vocational

technical program (12.6 percent).

Data on income distribution showed the majority of the respondents (33.7 percent) earned a gross farming income in 1986 of more than \$100,000. The next two large income groups (20.0 percent of respondents each) earned between \$20,000 to \$49,999 and \$50,000 to \$99,999 gross farming income (Table 19). The less than \$20,000 income bracket included 18.9 percent of the respondents.

TABLE 19. RESPONDENTS' 1986 GROSS INCOME FROM FARMING.

Level of Income	Frequency	Percentage
LESS THAN 20,000	33	18.9
20,000 TO 49,999	35	20.0
50,000 TO 99,999	35	20.0
MORE THAN 100,000	59	33.7

Table 20 shows that the majority of respondents (44.6 percent) had previously participated in college short courses and/or workshops in agriculture. The second largest previous agricultural program experience was in private company short courses and/or workshops in agriculture (42.3 percent).

Over 36.5 percent of the respondents had previously participated in a 4-H program. Vocational agriculture/FFA (high school) had the smallest representation in previous participation by respondents (24.0 percent). Adult education in agriculture had 25.1 percent and on-the-farm job training working for another farmer was represented by 27.4 percent of the respondents.

TABLE 20. RESPONDENTS' PREVIOUS PARTICIPATION IN AGRICULTURAL EDUCATION PROGRAMS.

Program	Frequency	Percentage
COLLEGE SHORTCOURSE AND/OR WORKSHOPS IN AGRICULTURE	78	44.6
PRIVATE COMPANY SHORTCOURSES AND/OR WORKSHOPS IN AGRICULTURE	74	42.3
4-H	64	36.6
A FORM OF ON-THE-JOB TRAINING WORKING FOR ANOTHER FARMER	48	27.4
ADULT EDUCATION IN AGRICULTURE	44	25.1
VOCATIONAL AGRICULTURE/FFA (HIGH SCHOOL)	42	24.0

Table 21 shows that over eighty percent of the respondents viewed the future value and availability of information sources optimistically or very optimistically. While 11.4 percent of the respondents had a pessimistic or very pessimistic view of the future value and availability of information sources on new and/or innovative farming practices.

TABLE 21. RESPONDENTS' VIEWS ON FUTURE VALUE AND AVAILABILITY OF SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES

View	Frequency	Percentage
VERY OPTIMISTIC	29	16.6
OPTIMISTIC	112	64.0
PESSIMISTIC	16	9.1
VERY PESSIMISTIC	4	2.3

When respondents were asked whether they have an additional source of income other than farming, 50.9 percent of the respondents answered in

the positive while 48 percent answered in the negative.

According to the literature reviewed, cosmopolitanism was believed to influence a person's attitude and makes one become more open-minded and receptive to new and/or innovative practices. Thirty (30) out of the 175 respondents indicated they had been to Boise more than once in a year to receive and/or deliver information on agriculture. Ninety eight respondents had been to Spokane more than once in a year, while 18 respondents had been to Seattle and 19 respondents had been to Portland more than once in a year to receive or deliver information on agriculture. Data collected on cosmopolitanism as a variable was not adequate to warrant analysis. In their order of importance, wheat, barley, peas, and cattle were the four farm enterprises mostly mentioned in that order by the respondents.

#### The Effect of Selected Respondent Characteristics

To test for differences in the response patterns to five statements about the Cooperative Extension Service based on income, the Kruskal-Wallis statistical test was applied to the responses. Table 22 lists the Chi-square values and the statistical significance generated for each statement.

TABLE 22. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATINGS OF FIVE STATEMENTS ON COOPERATIVE EXTENSION SERVICE BY INCOME GROUP.

Statement	Chi-Square	Significance
COOPERATIVE EXTENSION IS ONLY FOR FARMERS WHO HAVE NOT BEEN TO SCHOOL	12.6384	0.0055 *
COOPERATIVE EXTENSION IS NOT USEFUL AS A SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	10.6880	0.0135 *
THERE ARE OTHER MORE USEFUL SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES THAN COOPERATIVE EXTENSION SERVICE	4.2564	0.2351
COOPERATIVE EXTENSION SERVICE IS THE MOST IMPORTANT SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	3.8244	0.2811
COOPERATIVE EXTENSION IS ONLY USEFUL DURING THE INTRODUCTION PERIOD OF A NEW INNOVATION	0.5726	0.9027

\* Significant difference in response pattern.

Using alpha of  $\leq 0.05$ , no disagreement among income groups was found for the statements; "There are other more useful sources of information on new and/or innovative farming practices than the Cooperative Extension Service", "Cooperative Extension Service is the most important source of new and/or innovative farming practices," and "Cooperative Extension is only useful during the introduction period of a new innovation".

However, the respondents differed significantly, by income group, in their responses to the other two statements about the Cooperative Extension Service.

In order to investigate these differences further, Mann-Whitney-U test was applied to all possible pairs of contrasts. Alpha was set at  $\leq 0.01$  in accordance with postfactum analysis procedures. The results of the analysis are shown in Table 23.

TABLE 23. PAIRWISE CONTRASTS OF RESPONDENTS' RATING OF FIVE STATEMENTS ON COOPERATIVE EXTENSION SERVICE BY INCOME GROUP.\*

Cooperative Extension Service Is Only For the Farmers Who Have Not Been to School

\$50,000 to 99,999	<\$20,000	\$20,000 to 49,999	>\$100,000
64.98**	69.08	75.90	92.04
<u>X</u>	<u>X</u>	<u>X</u>	X

Cooperative Extension Is Not The Most Useful Source of Information

\$50,000 to 99,999	<\$20,000	\$20,000 to 49,999	>\$100,000
59.02	72.90	74.50	86.88
<u>X</u>	<u>X</u>	<u>X</u>	X
X	<u>X</u>	<u>X</u>	<u>X</u>

\* The income groups with common underlines did not differ significantly in their response patterns with alpha set at  $\leq 0.01$ .

\*\* Kruskal-Wallis mean rank.

There were differences between the pattern of responses by income groups \$50,000 to 99,999 and >\$100,000 with the first group agreeing with the statement "Cooperative Extension Service is only for the uneducated farmers" more than the latter group.

Differences in pattern of responses were also apparent between \$50,000 to \$99,999 income group and >\$100,000 over the statement "Cooperative Extension is not the most useful source" with the former agreeing with it more than the latter.

Table 24 shows Kruskal-Wallis One-way ANOVA of the respondents' rating of sources of information based on income groups.

There were no significant differences in the pattern of the respondents' rating of perceived benefits of the various information sources, based on income group.

TABLE 24. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF SOURCES OF INFORMATION BY INCOME GROUP.

Source of Information	Chi-Square	Significance
COMMODITY ASSOCIATIONS	5.6193	0.1317
COOPERATIVE EXTENSION FACULTY	5.1720	0.1596
FARM RADIO PROGRAMS	4.3213	0.2288
PRIVATE DEALERS AND DISTRIBUTORS OF AGRICULTURE SUPPLIES	3.542	0.3453
EXTENSION PUBLICATIONS	3.3170	0.3453
FARM MAGAZINES	2.5488	0.4665
DAILY NEWSPAPERS	1.9830	0.5759
GOVERNMENT SPONSORED AGENCIES	1.7121	0.6343
LOCAL FARM NEWSPAPERS	1.3931	0.7072
U OF I CAMPUS FACULTY	1.1214	0.7719
FARM TV PROGRAMS	0.9072	0.8237
NEIGHBORS, FRIENDS, FAMILY MEMBERS	0.7460	0.8623

When income group was used as the basis for Kruskal-Wallis analysis of the respondents' rating of methods of presenting agricultural information, the Chi-square values and the statistical significance generated for each method of presenting information on new and/or innovative farming practices indicated that the Chi-square values were not large enough and therefore no significant difference was illustrated in the response patterns of the farmers, based on income group, for the nine methods of agricultural information presentation considered using alpha of  $\leq 0.05$  (Table 25).

TABLE 25. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF METHODS OF PRESENTING AGRICULTURAL INFORMATION BY INCOME GROUP.

Method	Chi-Square	Significance
PRACTICAL SHORT COURSES	5.3225	0.1496
WORKSHOPS	4.9598	0.1748
ON-FARM DEMONSTRATIONS	3.8680	0.2761
PUBLICATIONS/JOURNALS/AND/OR OTHER BULLETINS	2.8992	0.4074
GUEST SPEAKERS/CONSULTANTS	2.5004	0.4752
HOME STUDY/FACT SHEETS/VIDEO CASSETTES	2.1548	0.5409
TOUR/FIELD TRIPS	1.7926	0.7107
COMPUTER PROGRAMS/COMPUTER ASSISTED INSTRUCTION	1.0292	0.7942

Table 26 shows Extension Publications had a large enough Chi-square value to merit a significant difference in the pattern of responses on the rating of perceived benefits of sources of information based on the number of years' experience in farming. The rest of the sources of information considered did not register any significant differences.

TABLE 26. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF PERCEIVED BENEFITS OF SOURCES OF INFORMATION BY NUMBER OF YEARS OF EXPERIENCE IN FARMING.

Source of Information	Chi-Square	Significance
EXTENSION PUBLICATIONS	10.8318	0.0285*
DAILY NEWSPAPERS	7.7673	0.1005
FARM RADIO PROGRAMS	6.8250	0.1454
FARM TV PROGRAMS	6.4803	0.1660
BANKERS	6.1518	0.1881
COOPERATIVE EXTENSION FACULTY	5.4842	0.2411
U OF I CAMPUS FACULTY	4.4657	0.3466
FARM MAGAZINES	3.9875	0.4077
COMMODITY ASSOCIATIONS	3.6980	0.4484
PRIVATE DEALERS AND DISTRIBUTORS OF AGRICULTURAL SUPPLIES	3.1916	0.5263
FARM NEWSPAPERS	2.9911	0.5593
NEIGHBORS/FRIENDS/FAMILY MEMBERS	1.7126	0.7884
GOVERNMENT SPONSORED AGENCIES	1.0048	0.9091

\* Significant difference in the pattern of response.

The Mann-Whitney-U test was applied to investigate the differences in response on the Extension Publications to all possible pairs of contrast. Alpha was set at  $\leq 0.01$  in accordance with postfactum procedures. The results of the analysis are shown in Table 27.

TABLE 27. PAIRWISE CONTRASTS OF RESPONDENTS' RATINGS OF THE PERCEIVED BENEFITS OF SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES BY NUMBER OF YEARS' IN FARMING.\*

Extension Publications

11 to 20 Years	31 to 40 Years	21 to 30 Years	>40 Years	1 to 10 Years
63.65**	73.56	87.90	90.17	90.18
<u>X</u>	<u>X</u>			
	<u>X</u>	<u>X</u>		
		<u>X</u>	<u>X</u>	<u>X</u>

\* The Number of Years In Farming with common underlines did not differ significantly in their response patterns.

\*\* Kurskal-Wallis mean rank

There were significant differences in the rating patterns by number of years' experience of 11 to 20 years and 1 to 10 years indicating the former perceived the benefits from Extension Publications more favorably than the latter.

The other categories of years' of experience in farming did not indicate any significant differences in the pattern of responses among themselves. However, it is important to point out that the less experienced farmers (the 1 to 10 years group) and the more experienced farmers (>40 years in farming) together rated Extension Publications less strongly on the issue of perceived benefits.

Kruskal-Wallis analysis of the respondents' rating of five statements on Cooperative Extension Service based on number of years' experience in farming did not show any significant difference in pattern of the responses on each of the statements (Table 28).

TABLE 28. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF FIVE STATEMENTS ON COOPERATIVE EXTENSION SERVICE BY NUMBER OF YEARS' EXPERIENCE IN FARMING.

Statements	Chi-Square	Significance
COOPERATIVE EXTENSION IS ONLY FOR FARMERS WHO HAVE NOT BEEN TO SCHOOL	6.0160	0.1980
COOPERATIVE EXTENSION IS NOT USEFUL AS A SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	5.4635	0.2430
COOPERATIVE EXTENSION IS THE MOST IMPORTANT SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	3.6195	0.4599
THERE ARE OTHER MORE USEFUL SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES THAN THE COOPERATIVE EXTENSION SERVICE	3.3362	0.5032
COOPERATIVE EXTENSION IS ONLY USEFUL DURING THE INTRODUCTION PERIOD OF A NEW INNOVATION	2.6084	0.5904

Table 29 listed the Chi-square values of methods of presenting agricultural information and the statistical significance generated for each method of presentation.

TABLE 29. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATINGS OF PREFERRED METHODS OF PRESENTING AGRICULTURAL INFORMATION BY NUMBER OF YEARS' EXPERIENCE IN FARMING.

Method	Chi-Square	Significance
GROUP DISCUSSION/IDEA SHARING	15.3190	0.0041 *
GUEST SPEAKER/CONSULTANT	13.6904	0.0084 *
TOURS/FIELD TRIPS	11.0616	0.0259 *
ON-FARM DEMONSTRATION	9.2826	0.0544
HOME STUDY/FACT SHEET/VIDEO CASSETTE	9.1661	0.0571
COMPUTER PROGRAM/COMPUTER ASSISTED INSTRUCTION	7.1724	0.1271
PRACTICAL SHORT COURSES	4.0732	0.3962
PUBLICATIONS/JOURNALS AND/OR OTHER BULLETINS	2.7296	0.6041
WORKSHOPS	1.0519	0.9018

\* Significant difference in response pattern

Using alpha of  $\leq 0.05$ , the following methods of presentation; Group Discussion/Idea Sharing, Guest Speaker/Consultant and Tours/Field Trips yielded significant differences.

The remaining methods of presentation did not yield Chi-square values large enough to indicate any differences in the response patterns by farmers based on their experience in farming.

When the Mann-Whitney-U test was applied to all possible pairs of contrasts in order to investigate any further differences, alpha was set at  $\leq 0.01$  in accordance with postfactum analysis procedures. The results of the analysis were as shown in Table 30.

TABLE 30. PAIRWISE CONTRASTS OF RESPONDENTS' RATINGS OF PREFERENCE OF METHODS OF PRESENTING AGRICULTURAL INFORMATION BY NUMBER OF YEARS IN FARMING.\*

Group Discussion/Idea Sharing

31 to 40 Years	>41	21 to 30	11 to 20	1 to 10 Years
67.11**	71.93	73.38	77.91	107.48
<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	X

Guest Speaker/Consultant

11 to 20 Years	31 to 40	21 to 30	>41	1 to 10 Years
61.46	68.98	86.13	86.67	93.33
<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>

Tour/Field Trips

>41 Years	31 to 40	11 to 20	1 to 10	21 to 30 Years
69.50	71.26	81.71	95.44	96.02
<u>X</u>	<u>X</u>	<u>X</u>		
	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>

\* The Number of Years in Farming with common underlines did not differ significantly in their response patterns with alpha at  $\leq 0.01$ /  
 \*\* Kruskal-Wallis mean rank.

A significant difference in the degree of preference was evident between respondents who have been farming for 1 to 10 years and those who have been farming for 11 or more years. The more experienced group rated Group Discussion/Idea Sharing as more preferable than did the less experienced respondents.

Respondents who had 1 to 10 years experience differed significantly from those who had 11 to 20 years experience on their preference of Guest Speaker/Consultant as a method of presenting agricultural information. The first group preferred that method more than the second group did.

Two groups, one >41 years experience and the other 21 to 30 years of experience differed significantly on the preference of Tours/Field Trips as a method of presentation of agricultural information.

Table 31 showed that all five statements did not yield any significant differences in the pattern of responses based on age groups. The alpha value used was  $\leq 0.05$ .

TABLE 31. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF FIVE STATEMENTS ON COOPERATIVE EXTENSION SERVICE BY AGE GROUPS.

Statement	Chi-Square	Significance
COOPERATIVE EXTENSION IS ONLY FOR FARMERS WHO HAVE NOT BEEN TO SCHOOL	6.4150	0.0931
COOPERATIVE EXTENSION IS NOT USEFUL AS A SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	5.8844	0.1174
THERE ARE OTHER MORE USEFUL SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES THAN THE COOPERATIVE EXTENSION SERVICE	3.4287	0.3301
COOPERATIVE EXTENSION SERVICE IS THE MOST IMPORTANT SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	2.7762	0.4274
COOPERATIVE EXTENSION IS ONLY USEFUL DURING THE INTRODUCTION PERIOD OF A NEW INNOVATION	2.4666	0.4814

Kruskal-Wallis analysis of the respondent's rating of perceived benefits of sources of information based on age group, determined that, Neighbor/Friend/Family Member was the only source of information that registered a large enough Chi-square value to show significant differences in response patterns based on age group (Table 32).

TABLE 32. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF PERCEIVED BENEFITS OF SOURCES OF INFORMATION BY AGE GROUPS

Source of Information	Chi-Square	Significance
NEIGHBOR/FRIEND/FAMILY MEMBER	8.9323	0.0302 *
PRIVATE DEALERS & DISTRIBUTORS	6.1961	0.1024
FARM RADIO PROGRAMS	5.8053	0.1215
EXTENSION PUBLICATIONS	5.5879	0.1335
GOVERNMENT SPONSORED AGENCIES	4.2022	0.2404
FARM NEWSPAPERS	3.4212	0.3311
FARM MAGAZINES	2.1123	0.5494
COOPERATIVE EXTENSION FACULTY	1.9634	0.5800
BANKERS	1.5169	0.6784
U. OF I. CAMPUS FACULTY	1.1436	0.7666
DAILY NEWSPAPERS	1.1401	0.7674
COMMODITY ASSOCIATIONS	1.0935	0.7786
FARM TV PROGRAMS	0.6502	0.8848

\* Significant difference in response pattern

In order to investigate the differences further, Mann-Whitney-U test was applied to all possible pairs of contrasts. Alpha was set at  $\leq 0.01$  in accordance with postfactum analysis procedures. The results of the analysis are shown in Table 33.

TABLE 33. PAIRWISE CONTRASTS OF RESPONDENTS' RATINGS OF THE PERCEIVED BENEFITS OF SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES BY AGE GROUP.\*

Neighbors/Friends/Family Members

52 to 65 Years	20 to 35 Years	36 to 51 Years	>66 Years
71.22**	79.23	79.47	98.93
<u>X</u>	<u>X</u>	<u>X</u>	
	<u>X</u>	<u>X</u>	<u>X</u>

\* The Age Group with the common underlines did not differ significantly in their response pattern with alpha at  $\leq 0.01$ .

\*\* Kruskal-Wallis mean rank.

There was a significant difference in the pattern of rating based on age groups 52 to 65 years and >66 years with the former rating Neighbor/Friend/Family Member more strongly than the latter.

Other age groups rated the source of information without any distinctive pattern.

In Table 34, the following presentation methods: 1) Computer Programs/Computer Assisted Instruction; 2) Home Study/Fact Sheet/Video Cassette; and 3) Publications/Journals and other Bulletins were the top sources (in that order) which were determined to have generated Chi-square values large enough to indicate significant differences in the response patterns of the farmers, based on age groups.

The rest of the sources of information did not yield Chi-square values large enough to warrant significant differences in the pattern of response based on age group.

TABLE 34. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF METHODS OF PRESENTING AGRICULTURAL INFORMATION BY AGE GROUPS

Method	Chi-Square	Significance
COMPUTER PROGRAMS/COMPUTER ASSISTED INSTRUCTION	12.8615	0.0049 *
HOME STUDY/FACT SHEET/VIDEO CASSETTE	9.8586	0.0198 *
PUBLICATIONS/JOURNALS & OTHER BULLETINS	8.7009	0.0335 *
GROUP DISCUSSION/IDEA SHARING	6.5205	0.0889
TOURS/FIELD TRIPS	5.7649	0.1236
ON-FARM DEMONSTRATION	2.4810	0.4787
GUEST SPEAKER/CONSULTANTS	1.8765	0.5984
WORKSHOPS	1.4228	0.7002
PRACTICAL SHORT COURSES	0.6210	0.8916

\* Significant difference in response pattern

In order to investigate these differences further, Mann-Whitney-U test was applied to all possible pairs of contrasts. Alpha was set at  $\leq 0.01$  in accordance with postfactum analysis procedures. The results were as shown in Table 35.

TABLE 35. PAIRWISE CONTRASTS OF RESPONDENTS' RATINGS OF PREFERENCE OF METHODS OF PRESENTING AGRICULTURAL INFORMATION BY AGE GROUP.\*

<u>Computer Programs/Computer Assisted Instruction</u>			
20 to 35 Years	36 to 51	52 to 65	>66 Years
62.70**	67.60	79.45	96.34
<u>X</u>	<u>X</u>	<u>X</u>	
		<u>X</u>	<u>X</u>
<u>Home Study/Fact Sheet/Video Cassette</u>			
20 to 35 Years	36 to 51	52 to 65	>66 Years
68.20	66.71	73.99	92.74
<u>X</u>	<u>X</u>	<u>X</u>	
		<u>X</u>	<u>X</u>
<u>Publications/Journals and Other Bulletins</u>			
20 to 35 Years	36 to 51	52 to 65	>66 Years
66.61	73.86	78.32	95.38
<u>X</u>	<u>X</u>	<u>X</u>	
	<u>X</u>	<u>X</u>	<u>X</u>

\* The Age Group with the common underlines did not differ significantly in their response patterns with alpha at  $\leq 0.01$ .

\*\* Kruskal-Wallis mean rank.

There was a significant difference in the response pattern between the 20 to 35 years of age group and the >66 years age group indicating the first group preferred Computer Programs/Computer Assisted Instruction more than the second group.

Similarly a significant difference in the response pattern on Home Study/Fact Sheet/Video Cassette as a method of presenting agricultural information was exhibited between age groups 20 to 35 years and >66 years. Again the younger age group had more preference for that method of

presenting agricultural information than did the older age group.

A significant difference in the pattern of response was also noted between the 20 to 35 years age group and the >66 years age group in their preference of Publications/Journals and other Bulletins as a method of presenting agricultural information. The method received more preference among the younger respondents than the older ones.

It is illustrated in Table 36 that Cooperative Extension Faculty, University of Idaho Campus Faculty, and Extension Publications were the sources of information that had adequate Chi-square values and generated significant statistical differences in the pattern of responses by farmers, based on educational status.

Using alpha of  $\leq 0.05$ , it was determined that the other information sources did not have Chi-square values large enough to indicate any significant differences in the response patterns, on the basis of educational status.

TABLE 36. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF SOURCES OF INFORMATION BY EDUCATIONAL STATUS.

Method	Chi-Square	Significance
COOPERATIVE EXTENSION FACULTY	15.1504	0.0017 *
U OF I CAMPUS FACULTY	13.7112	0.0033 *
EXTENSION PUBLICATIONS	9.5991	0.0223 *
COMMODITY ASSOCIATIONS	5.2179	0.1565
PRIVATE DEALERS & DISTRIBUTORS	5.0205	0.1703
NEIGHBORS/FRIENDS/FAMILY MEMBERS	4.6288	0.2011
FARM MAGAZINES	2.5382	0.4684
FARM NEWSPAPERS	2.3670	0.4998
DAILY NEWSPAPERS	1.7622	0.6232
GOVERNMENT SPONSORED AGENCIES	0.8711	0.8324
FARM TV PROGRAMS	0.6076	0.8947
FARM RADIO PROGRAMS	0.3134	0.9563
BANKERS	0.3096	0.9583

\* Significant difference in response pattern

The Mann-Whitney-U test was applied to all possible pairs of contrasts to investigate any further differences. Alpha was set at  $\leq 0.01$  in accordance with the postfactum analysis procedure. The results are shown in Table 37.

TABLE 37. PAIRWISE CONTRASTS OF RESPONDENTS' RATINGS OF THE PERCEIVED BENEFITS OF SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES EDUCATIONAL STATUS.\*

Cooperative Extension Faculty

Four-Year College (Major in Agric)	Post-Secondary Vo/Tech Program	Four-Year College (Not Major in Ag)	High School or GED
57.77**	84.07	86.50	86.96
X	X	X	X

University Of Idaho Campus Faculty

Four-Year College (Major In Agric)	Four-Year College Not Major in Ag)	High School or GED	Post Secondary Vo/Tech Program
65.48	82.19	83.10	85.86
X	X	X	
	X	X	X

Extension Publications

Four-Year College (Major in Agric)	Post Secondary Vo/Tech Programs	Four-Year College (Not Major in Ag)	High School or GED
65.48	85.77	88.82	90.03
X	X	X	
	X	X	X

\* The Educational Status with common underlines did not differ significantly in their response pattern with alpha at  $\leq 0.01$ .

\*\* Kruskal-Wallis mean rank.

Respondents who attended or graduated From a Four-Year College and majored in Agriculture differed significantly from the other categories of educational status in their perceptions of benefits of Cooperative Extension faculty as a source of information on new and/or innovative farming practices.

Those who attended or graduated from a Four-Year College with a major in Agriculture perceived the Cooperative Extension Service as more beneficial than did the respondents in the other three categories of educational status.

There was a significant difference in the response pattern on perceived benefits of University of Idaho Campus Faculty between respondents who attended or graduated from a Four-Year College with a major in agriculture and those who attended or graduated from a Post Secondary Vocational/Technical Program. The former perceived University of Idaho Campus Faculty as a more beneficial source of information on new and/or innovative farming practices than did the latter.

There was an apparent significant difference in the perception of Extension Publications as a beneficial source of information between respondents who attended or graduated from a Four-Year College and majored in Agriculture and those who graduated from High School or completed a GED. The first group perceived Extension Publications as more beneficial than did the second group.

Presented in Table 38 is the Chi-square measuring the strength of the relationship of the five statements about cooperative extension service and generated statistical significance for the degree of agreement on each statement.

TABLE 38. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF FIVE STATEMENTS ON COOPERATIVE EXTENSION BY EDUCATIONAL STATUS

Statement	Chi-Square	Significance
COOPERATIVE EXTENSION IS NOT USEFUL AS A SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	14.1052	0.0028 *
COOPERATIVE EXTENSION IS ONLY FOR FARMERS WHO HAVE NOT BEEN TO SCHOOL	8.1111	0.0438 *
COOPERATIVE EXTENSION SERVICE IS THE MOST IMPORTANT SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	7.6346	0.0542
COOPERATIVE EXTENSION IS ONLY USEFUL DURING THE INTRODUCTION PERIOD OF A NEW INNOVATION	6.7117	0.0817
THERE ARE OTHER MORE USEFUL SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	1.7300	0.6303

\* Significant difference in response pattern.

Using alpha of  $\leq 0.05$ , the last three statements did not have large enough Chi-square values. Therefore, it was determined through Kruskal-Wallis one-way ANOVA that there were no significant differences in the response patterns by the farmers, based on educational status.

However, there were significant differences in the pattern of responses as illustrated by the Chi-square values and levels of significance for the first two statements.

When the Mann-Whitney-U test was applied to investigate the differences further, and alpha set at  $\leq 0.01$  in accordance with the postfactum analysis procedure, the results of the analysis were as shown in Table 39.

TABLE 39. PAIRWISE CONTRASTS OF RESPONDENTS' RATING OF FIVE STATEMENTS ON COOPERATIVE EXTENSION SERVICE BY EDUCATIONAL STATUS.\*

Cooperative Extension Is Not The Most Useful Source

High School Or GED	Four-Year College (Non Agric Major)	Post-Secondary Vo-Tech Program	Four Year College (Major in Agric)
68.68**	80.09	88.64	98.23
<u>X</u>	<u>X</u>	<u>X</u>	
	<u>X</u>	<u>X</u>	<u>X</u>

Cooperative Extension is only for Farmers who have not been to School

Four-Year College (Non-Agric Major)	High School or GED	Post-Secondary Vo-Tech Program	Four-Year College (Major in Agric)
75.78	77.73	85.36	98.53
<u>X</u>	<u>X</u>	<u>X</u>	
		<u>X</u>	<u>X</u>

\* The Educational Status with common underlines did not differ significantly in their response patterns with alpha at  $\leq 0.01$ .

\*\* Kruskal-Wallis mean rank.

Significant differences in the response pattern on the statement "Cooperative Extension is the most useful source of information" was observed between respondents who graduated from High School or completed GED and those who attended or graduated from a Four-year College with a major in Agriculture.

Those who graduated from High School or Completed GED agreed with that statement more than respondents who attended or graduated from a Four-Year College with a major in agriculture.

It was also observed that respondents who graduated from a Four-Year College but did not major in Agriculture differed significantly with those who attended or graduated from a Four-Year College with a major in Agriculture in their agreement with the statement; "Cooperative Extension is only for farmers who have not been to school". The first group

agreed with the statement more than the second group did.

Kruskal-Wallis analysis of the respondents' rating of methods of presenting agricultural information based on educational status (Table 40) determined that there were no significant differences in the pattern of responses by educational status for the last six methods of presenting agricultural information.

TABLE 40. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF METHODS OF PRESENTING AGRICULTURAL INFORMATION BY EDUCATIONAL STATUS.

Method	Chi-Square	Significance
PUBLICATIONS/JOURNALS AND OTHER BULLETINS	11.8608	0.0079 *
COMPUTER PROGRAMS/COMPUTER ASSISTED INSTRUCTION	8.2527	0.0411 *
HOME STUDY/FACT SHEET/VIDEO CASSETTE	7.9305	0.0475 *
PRACTICAL SHORT COURSES	5.8746	0.1179
GUEST SPEAKER/CONSULTANT	4.0404	0.2571
GROUP DISCUSSION/IDEA SHARING	4.0185	0.2595
ON-FARM DEMONSTRATION	3.3390	0.3425
TOURS/FIELD TRIPS	3.0685	0.3819
WORKSHOPS	2.9068	0.4063

\* Significant difference in response pattern

Using alpha of  $\leq 0.05$ , Publications/Journals and Other Bulletins, Computer Programs/Computer Assisted Instruction and Home Study/Fact Sheet/Video Cassette had significant differences in pattern of responses concerning farmer's preference of methods of presenting agricultural information, based on educational status.

The Mann-Whitney-U test, with alpha at  $\leq 0.01$ , indicated no differences by educational status on the rating patterns over

Publications/Journals or other Bulletins, Computer Programs/Computer Assisted Instruction, and Home Study/Fact Sheet/Video Cassette as methods of presenting agricultural information.

In Table 41, Kruskal-Wallis analysis of the respondent's rating of five statements on Cooperative Extension Service by size of farm indicates that only one statement "Cooperative extension is only for farmers who have not been to school" had a large enough Chi-square value generating a statistical significance. Thus it showed that there was a significant difference in the pattern of responses by farmers on that particular statement, based on the size of farm.

TABLE 41. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF FIVE STATEMENTS ON COOPERATIVE EXTENSION SERVICE BY SIZE OF FARM

Statement	Chi-Square	Significance
COOPERATIVE EXTENSION IS ONLY FOR FARMERS WHO HAVE NOT BEEN TO SCHOOL	19.2243	0.0001 *
COOPERATIVE EXTENSION IS THE MOST IMPORTANT SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES.	5.9123	0.2058
COOPERATIVE EXTENSION IS NOT USEFUL AS A SOURCE OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES	5.4977	0.2399
THERE ARE OTHER MORE USEFUL SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES THAN THE COOPERATIVE EXTENSION SERVICE.	4.3545	0.3601
COOPERATIVE EXTENSION SERVICE IS ONLY USEFUL DURING THE INTRODUCTION PERIOD OF A NEW INNOVATION	4.0101	0.4040

\* Significant difference in response pattern

In order to investigate these differences further, Mann-Whitney-U test was applied to all possible pairs of contrasts. Alpha was set at  $\leq 0.01$

in accordance with postfactum analysis procedure. The results are shown in Table 42.

TABLE 42. PAIRWISE CONTRASTS OF RESPONDENTS' RATING OF FIVE STATEMENTS ON COOPERATIVE EXTENSION SERVICE BY FARM SIZE.\*

<u>Cooperative Extension Is Only Farmers who have not been to School</u>				
<250 Acres	501 to 1000	250 to 500	1001 to 1300	>1300 Acres
55.86**	73.85	79.40	93.86	93.92
X	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>

\* The Farm Size with common underlines did not differ significantly in their response patterns with alpha at  $\leq 0.01$ .

\*\* Kruskal-Wallis mean rank.

The differences in the response pattern on the statement "Cooperative Extension Service is only for farmers who have not been to school" by size of farm indicated two distinct patterns, 1) <250 acres farm size differed significantly with 1001 acres and above farm size groups with the former agreeing with the statement more than the latter and 2) the <250 acre farm size also significantly differed from the 250 to 1000 acre of farm size with the latter in less agreement with the statement than the former.

Chi-square values for the other four statements on Cooperative Extension Service did not generate any statistical significance on the differences in the pattern of responses by farmers, based on farm size.

On the issue of rating perceived benefits of information sources on the basis of farm size, Kruskal-Wallis one-way ANOVA illustrated in Table 43 that the rest of the information sources did not generate Chi-square values large enough to indicate any significant differences in the pattern of responses, based on farm size, except for three sources of information.

Using alpha of  $\leq 0.05$ , Farm Radio Programs had the largest Chi-square

value that generated a statistical significance indicating that there were significant differences in the pattern of responses by farmers, on the basis of farm size.

TABLE 43. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF PERCEIVED BENEFITS OF INFORMATION SOURCES BY SIZE OF FARM.

Source of Information	Chi-Square	Significance
FARM RADIO PROGRAMS	10.0317	0.0367 *
BANKERS	8.7572	0.0675
COOPERATIVE EXTENSION FACULTY	8.3130	0.0808
COMMODITY ASSOCIATIONS	7.3112	0.1203
EXTENSION PUBLICATIONS	7.0366	0.1340
FARM TV PROGRAMS	5.9321	0.2043
DAILY NEWSPAPERS	5.7379	0.2196
FARM NEWS PAPERS	5.1739	0.2699
GOVERNMENT SPONSORED AGENCIES	4.9848	0.2889
U OF I CAMPUS FACULTY	4.3149	0.3651
FARM MAGAZINE	3.7308	0.4437
PRIVATE DEALERS AND DISTRIBUTORS	3.5534	0.4698
NEIGHBORS/FRIENDS/FAMILY MEMBERS	0.9099	0.9231

\* Significant difference in response pattern

In order to investigate the differences further, Mann-Whitney-U test was applied to all possible pairs of contrasts. With alpha at  $\leq 0.01$ , no significant differences was found in the pattern of ratings by farm size.

Table 44 lists the Chi-square values of methods of presenting agricultural information and perceived preferences of the statistical significance for each method.

TABLE 44. KRUSKAL-WALLIS ANALYSIS OF THE RESPONDENTS' RATING OF METHODS OF PRESENTING AGRICULTURAL INFORMATION BY SIZE OF FARM

Method	Chi-Square	Significance
PUBLICATIONS/JOURNALS AND OTHER BULLETINS	13.3740	0.0096 *
WORKSHOPS	8.1986	0.0846
GROUP DISCUSSION/IDEA SHARING	6.6871	0.1534
COMPUTER PROGRAMS/COMPUTER ASSISTED INSTRUCTION	5.3696	0.2514
ON-FARM DEMONSTRATION	5.1115	0.2760
HOME STUDY/FACT SHEET/VIDEO CASSETTE	4.0537	0.3988
PRACTICAL SHORT COURSES	3.8440	0.4275
GUEST SPEAKER/CONSULTANT	2.7141	0.6067
TOURS/FIELD TRIPS	2.3970	0.6632

\* Significant difference in response pattern

Eight methods of presentation did not yield large enough Chi-square values and therefore, it was determined that no significant difference existed in the response patterns of the farmers based on size of farm, for the last eight methods of presenting agricultural information.

The respondents differed significantly, by size of farm, in their response on Publications/Journals and other Bulletins as a method of presenting agricultural information.

In order to investigate these differences further, the Mann-Whitney-U test was applied to all possible pairs of contrasts. Alpha was set at  $\leq 0.01$  in accordance with the postfactum analysis procedure. The results are shown in Table 45.

Table 45. PAIRWISE CONTRASTS OF RESPONDENTS' RATINGS OF PREFERENCE OF METHODS OF PRESENTING AGRICULTURAL INFORMATION BY FARM SIZE.\*

<u>Publications/Journals and Other Bulletins</u>				
501 to 1000 Acres	1001 to 1300	250 to 500	>1300	<250 Acres
59.38**	73.45	78.42	84.63	91.93
<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>

\* The farm size with the common underlines did not differ significantly in their response patterns with alpha at  $\leq 0.01$ .

\*\* Kruskal-Wallis mean rank.

Significant differences in the perception of benefits of Publications/Journals and other Bulletins as a source of information were evident between farm size 501 to 1000 acres group and the <250 acres group. The larger farm size category perceived Publications/Journals and Other Bulletins as more beneficial than did the small farm size group.

CHAPTER V  
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The concern for the apparent gap in communication between researchers, extension personnel, and farmers could be greatly ameliorated with the identification of effective sources of information on new and/or innovative farming practices and increase in the availability and usage of these sources of information at appropriate stages in the adoption diffusion process of new farming practices and innovations.

This study was designed to identify and describe the sources of information which are considered to be credible, beneficial, or preferable by farmers and how the identified sources and channels can be used effectively in disseminating information on new and/or innovative farming practices. Specific objectives were: 1) to identify sources of information on new and/or innovative farming practices available in Nez Perce County; 2) describe how farmers in Nez Perce County access the available sources of information; 3) identify the personal, situational, and intervening variables that influence farmers in seeking information on new and/or innovative farming practices; and 4) determine the agricultural information dissemination system in Nez Perce County, Idaho.

The original pool of respondents was reduced from a potential of 386 to 321 farmers due to reasons such as undeliverability, retirement, deceased potential respondents, and others who were no longer in the farming business. The overall response rate was 58 percent. There were 176 usable instruments returned for a rate of 55 percent.

The mailed instrument was developed by the researcher in consultation with the Graduate Degree Committee members and in collaboration with the

University of Idaho Nez Perce County Extension Faculty.

### Conclusions

Based on the findings of this study, the following conclusions concerning sources of information on new and/or innovative farming practices and how they are accessed by farmers in Nez Perce County were drawn. Conclusions are grouped in four sections by the objectives of the study.

1. Literature reviewed suggested that different information sources can be effectively used at different stages in the adoption/diffusion process. Thus mass media were supposedly effective in creating knowledge and spreading information; leading to changes in weakly held attitudes; and teaching a larger audience rapidly, on the one hand. On the other hand, interpersonal sources of information were considered effective in providing a two-way exchange of information; and persuading individuals to form or change a strongly held attitude.

However, when farmers were asked to select sources of information they were most like to use during the three stages of the adoption/diffusion process considered in the study (Awareness, Interest, and Decision), there were no discernible trend of either using mass media or interpersonal sources exclusively at any particular stage in the adoption/diffusion process. For instance, basing our criteria on the first three sources, at the awareness stage 64.6 percent of the respondents were most likely to use Agricultural Magazines and/or Newspapers (Mass Media), while nearly 59 percent and over 57 percent of the respondents were most likely to use Neighbor/Friend/Family Member and Cooperative Extension Faculty (Interpersonal information sources) respectively.

Similarly both categories of information sources (Mass media and interpersonal sources of information) were used together at the interest and decision stages of the adoption/diffusion process.

2. Farmers in Nez Perce County indicated a stronger preference of interpersonal methods of presenting agricultural information (On-Farm Demonstrations, Tours/Field Trips, Group Discussions/Idea Sharing, and Guest Speakers/Consultants). With the exception of Publications/Journals and/or Other Bulletins, the mass media methods of presenting agricultural information were the least preferred by a majority of the respondents.
3. Although the Cooperative Extension Service was highly rated by respondents, they also indicated that there are other equally useful sources of information on new and/or innovative farming practices. Hence, it is imperative that for the sake of efficiency and for the benefit of the farmers, Cooperative Extension Faculty should assist farmers in identifying and encourage the use of other perceived beneficial and/or credible sources and methods of presenting agricultural information.
4. The following sources of information were concluded to be available in Nez Perce County either because respondents indicated they often use them or possess them:

Impersonal Sources of Information - Agricultural Magazines and/or Newspapers, College of Agriculture Research and Extension Publications, Agricultural Radio and/or TV Programs.

Interpersonal Sources of Information - Cooperative Extension Faculty, Neighbors/Friends/Family Members, Private Dealers and Distributors of Agricultural Supplies, University of Idaho Campus

Faculty, Bankers, Private Agricultural Consultants, and Personal Ingenuity.

Institutional Sources of Information - Government Sponsored Agencies, Commodity Associations, County and/or State Fair Activity, Social or Political Organizations.

Electronic Information/Data Equipments - Video Cassette Recorders/ Players, Audio Cassette Recorder/Players, Personal Desktop Computers, and Satellite Receiver Dish.

5. Nearly 90 percent of the respondents either agreed or strongly agreed that Private Dealers and Distributors are beneficial sources of information on new and/or innovative farming practices.

Meanwhile, most of the respondents disagreed or strongly disagreed with the statement "Cooperative Extension Service is not useful as a source of information on new and/or innovative farming practices". Also, most of the respondents either disagreed or strongly disagreed with the statement "Cooperative Extension Service is only for farmers who have not been to school". Similarly, most of the respondents agreed or strongly agreed that "Cooperative Extension is the most important source of information on new and/or innovative farming practices".

6. In order to identify how farmers access various sources of information available in Nez Perce County, questions were asked pertaining to how often the farmers use various information sources, which information sources they considered beneficial or credible, and which methods of presenting agricultural information were considered preferable.

Bankers and University of Idaho campus faculty were the two

information sources not often used by respondents. Farm Magazines, Daily Newspapers, and Neighbors/Friends/Family Members were rated much higher because very few of the respondents have never used those two sources of information.

Extension Publications, Neighbor/Friend/Family Member, and Private Dealers and/or Distributors were the leading sources of information that were perceived by farmers as somewhat to extremely beneficial sources of information. However, the Cooperative Extension Faculty, Extension Publications, and Neighbor/Friend/Family Member received the best mean rank for perceived benefits by the respondents, respectively.

The sources of information perceived by respondents as credible, based on expertness (accuracy of information) and trustworthiness (reliability) were Cooperative Extension Service, and Private Dealers and/or Distributors.

7. The effect of selected respondents' characteristics in their response patterns to five statements about the Cooperative Extension Service showed that there was no disagreement among income groups over the statement "There are other more useful sources of information on new and/or innovative farming practices than the Cooperative Extension Service" and that "Cooperative Extension Service is the most important source of information on new and/or innovative farming practices." However, there were differences between the pattern of responses by income groups \$50,000 to 99,999 and  $\geq$ \$100,000 with the first group agreeing with the statement "Cooperative Extension Service is only for farmers that have not been to school" more than did the latter income group.

8. Farmers who had been in the business for between 11 to 20 years perceived Extension Publications more favorably than those who had been farming for 1 to 10 years. However, the less experienced farmers (1 to 10 years group) and the more experienced farmers (140 years group) were together in their perception of benefits from Extension Publications as an information source by rating it less strongly on that issue.
9. Based on the background (socioeconomic) data gathered on respondents, a typical profile of a Nez Perce County farmer would fit the following description:

Attended or graduated from High School or Completed the GED, is 52 to 65 years old, has been farming for over 41 years, farms more than 1300 acres, is most likely to be influenced by prices, profits, and productivity to seek more information on new and/or innovative farming practices, earned a 1986 gross farm income of more than \$100,000 and view the future availability of information sources on new and/or innovative farming practices optimistically or very optimistically.
10. As expected there was a significant statistical difference in the response pattern between respondents who attended a Four-Year College or University (with a major in agriculture) and those in the other categories of educational status. The first group perceived Cooperative Extension Faculty, University of Idaho Campus Faculty, and Extension Publications more favorably as beneficial sources of information on new and/or innovative farming practices than did the other groups of educational status.
11. Younger farmers tended to differ significantly with older farmers

in their response pattern about the degree of preference of Mass Media (impersonal channels) methods of presenting agricultural information on new and/or innovative farming practices. The younger group indicated a stronger preference of that method of presenting information than did the older group.

12. In the personal comments compiled from the respondents, it is evident that the University of Idaho Nez Perce County Extension Faculty are doing a commendable job in their obligations to the farmers in the area. This is also supported by the high rankings that the Cooperative Extension Service as a source of information received in the findings of the study.

#### Recommendations

The findings of this research identified the following useful information: 1) several sources of information on new and/or innovative farming practices available in Nez Perce County; 2) the perceived credibility and benefits of different sources of information; 3) preferred methods of presenting agricultural information; and 4) the influence of farmers' socioeconomic characteristics on the pattern of their responses.

The following recommendations, based on the findings, should be given consideration by those involved in the information dissemination process in agriculture at the University of Idaho and in Nez Perce County.

1. Although the Cooperative Extension Service in general and the Cooperative Extension faculty in particular were ranked very highly by farmers on issues such as credibility, benefits, or preferences, the data also indicated that most farmers contend that they usually use other sources of information in addition to the Cooperative Extension

Service. Thus for the sake of efficiency for the Extension Faculty and for the benefit of farmers, those other sources should be identified and farmers encouraged to use them where they have not been used.

2. Practitioners and planners involved in designing and/or disseminating agricultural information should recognize the current stronger preferences shown by farmers towards interpersonal sources and channels of presenting agricultural information. The recognition is warranted by the fact that the more one moves from the interpersonal to the impersonal sources and methods of presentation, the less the preference by the receivers (farmers) as supported by the data.
3. Because the University of Idaho, Nez Perce County Extension Faculty were singled out and highly commended in the personal comments by several farmers, they must be doing something right, hence there is a need for the faculty to identify some of the positive programs they have been working on and promote them further. They also need to identify the weak areas that may exist and seek to improve them.
4. Since the study was confined to farmers in Nez Perce County the findings are only representative of farmers' perceptions and opinions in the county. However, it could be reproduced elsewhere with a few modifications on the details of the study instrument mostly due to apparent variations in the socioeconomic characteristics of different communities or areas of study.

#### Recommendations For Further Research

1. The findings of this study indicated that the socioeconomic

characteristics of farmers do make significant differences in their pattern of responses. Further research is recommended to investigate both the social science underlying human communications and the most effective means of adopting the written, interpersonal, audio, and visual communication to particular audiences.

2. Research should be conducted to survey agricultural communication specialists, extension personnel, and other change agents involved in the design, planning, and dissemination of agricultural information with the aim of reconciling their perception, opinions, and/or interests with those of farmers.

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APPENDIX A  
Correspondence

## (Cover Letter )

224 Morrill Hall  
(208) 885-6358  
October 30, 1987

Dear :

Today, more than ever, farmers are turning to a wider range of sources of information, such as the cooperative extension services, commodity associations, agricultural publications (journals, bulletins, and newspapers), and many other agencies, for new and/or innovative farming practices. The purpose of this survey is to identify and describe those major sources of information and how they are accessed by farmers.

This study is being conducted by the Department of Agricultural and Extension Education in cooperation with the University of Idaho Cooperative Extension Faculty in Nez Perce County. You are one of the farmers in Nez Perce County who is being asked to give your opinion on what sources of information you use today and which sources you consider credible, preferable, and beneficial. Your response will help us to design appropriate strategies for the dissemination of information in the state of Idaho and beyond. For the validity and ultimate success of this study your individual response is vital.

The information generated from this survey will be held in strictest confidence and will not be identifiable in any way. The number on the questionnaire is used for mailing purposes only.

A summary of this survey will be made available through the Department of Agricultural and Extension Education to the College of Agriculture at the University of Idaho, the University of Idaho Cooperative Extension Faculty, and all interested citizens. You may receive a summary of results by writing "copy of results requested" on the back of the return envelope along with your name and address. Please do not put this information on the questionnaire itself.

It will be our pleasure to answer any questions you might have. Please write or call. The telephone is (208) 885-6358. Thank you for your assistance.

Sincerely,

Christopher Obel Gor  
Graduate Assistant

Lou E. Riesenber  
Associate Professor and Head

## (Follow-up Postcard)

November 6, 1987

Last week a survey questionnaire was sent to you asking your opinion on sources of information for new and/or innovative farming practices. If you have already completed and returned the questionnaire, please accept our "Sincere Thanks". If not, please do so today.

It is extremely important that your questionnaire be included in the study if the results are to accurately represent the opinions of Nez Perce County farmers.

If by some chance you did not receive a survey, or it got misplaced, please call me right away. Call collect (208) 885-6358 and I will get another one in the mail to you today.

Sincerely,

Christopher Obel Gor  
Graduate Assistant

## (Follow-up Letter)

224 Morrill Hall  
(208) 885-6358  
November 20, 1987

Dear :

Several weeks ago a questionnaire was mailed to you by the Department of Agricultural and Extension Education at the University of Idaho. The study is being conducted in cooperation with the Nez Perce County Extension Faculty to determine the opinion of farmers on what sources of information on new and/or innovative farming practices are being used and which ones are considered credible, preferable, and beneficial by farmers.

It is our strong belief that by seeking farmers' opinions and analyzing their perceptions on what sources of information they consider credible and beneficial, better strategies will be devised by practitioners to meet farmers' needs for new and/or innovative farming practices.

Since our data collection is now nearing completion, we would appreciate receiving the questionnaire from you as soon as possible. If you have already returned the questionnaire, please accept our thanks and ignore this mailing.

If, however, you have not returned the questionnaire, please find another copy and a self addressed stamped envelope enclosed.

The information you are able to supply us through the questionnaire is important to assure meaningful results for this study.

Thank you for your time and cooperation.

Sincerely,

Christopher Obel Gor  
Graduate Assistant

Lou E. Riesenber  
Associate Professor and Head

## (Reminder Letter)

225 Morrill Hall  
(208) 885-6358  
December 18, 1987

Dear :

We are writing to you about our study of sources of information on new and/or innovative farming practices and how they are perceived to be credible, beneficial, and preferable by farmers in Nez Perce County. We have not yet received your completed questionnaire.

We are quite encouraged by the number of questionnaires that have been returned. However, our ability to describe accurately the feelings of Nez Perce County farmers on these important issues depends on you and others who have not yet responded. Studies done elsewhere suggest that those of you who have not yet sent in your questionnaire may hold quite different opinions and/or perceptions about sources of information and how they are rated and accessed by farmers.

This is the first county-wide study done on sources of information related to new and/or innovative farming practices in the State of Idaho. Therefore it has a state-wide implication as a model that will be used to serve farmers more effectively. The usefulness of this study depends on how accurately we are able to describe the perceptions and/or feelings of Nez Perce County farmers on this issue.

We are enclosing a replacement questionnaire in case our other correspondence did not reach you or got misplaced. May we urge you to complete and return it as soon as possible.

We'll be happy to send you a copy of the results if you want one. Simply put your name, address, and "copy of results requested" on the back of the return envelope. We expect to have the results by April, 1988.

Your contribution to the success of this study will be highly appreciated.

Sincerely,

Christopher Obel Gor  
Graduate Assistant

Dr. Lou E. Riesenber  
Associate Professor and Head

APPENDIX B  
Survey Instrument

Q-1. Which of the following farm and/or family magazines do you receive?  
(Circle the number of each magazine you receive)

1. FARM JOURNAL
2. IDAHO FARMER STOCKMAN
3. STATE WHEAT GROWERS MAGAZINE
4. STATE CATTLEMEN MAGAZINE
5. FAMILY CIRCLE
6. CONSUMER REPORT
7. BETTER HOMES AND GARDENS
8. CHANGING TIMES
9. SUNSET
10. OTHER, PLEASE SPECIFY: \_\_\_\_\_

The following questions deal with new and/or innovative farming practices you may have become aware of during the past three (3) years.

Q-2. Through which of the following sources did you first become aware of new and/or innovative farming practices?

(Circle the number of each of the following sources that apply)

1. PERSONAL INGENUITY
2. COOPERATIVE EXTENSION FACULTY (AGENT)
3. COLLEGE OF AGRICULTURE RESEARCH OR EXTENSION PUBLICATION
4. CONSULTANT
5. BANKER
6. AGRICULTURAL MAGAZINE AND/OR NEWSPAPER
7. SOCIAL AND/OR POLITICAL ORGANIZATION
8. COMMODITY ASSOCIATION (e.g. WHEAT GROWERS, CATTLEMEN ASSOCIATION)
9. GOVERNMENT SPONSORED AGENCY (e.g. SOIL CONSERVATION SERVICE)
10. NEIGHBOR, FRIEND, OR FAMILY MEMBER
11. COMMERCIAL/PRIVATE DEALER AND/OR DISTRIBUTOR
12. COUNTY AND/OR STATE FAIR ACTIVITY
13. OTHER, PLEASE SPECIFY: \_\_\_\_\_

Q-3. If you were or are interested in accessing more information about new and/or innovative farming practices in order to decide whether to adopt a particular practice, which of the following sources would you most likely use?  
(Circle only one number)

1. PERSONAL INGENUITY
2. COOPERATIVE EXTENSION FACULTY (AGENT)
3. COLLEGE OF AGRICULTURE RESEARCH OR EXTENSION PUBLICATION
4. CONSULTANT
5. BANKER
6. AGRICULTURAL MAGAZINE AND/OR NEWSPAPER
7. SOCIAL AND/OR POLITICAL ORGANIZATION
8. COMMODITY ASSOCIATION (e.g. WHEAT GROWERS, CATTLEMEN ASSOCIATION)
9. GOVERNMENT SPONSORED AGENCIES (e.g. SOIL CONSERVATION SERVICE)
10. NEIGHBOR, FRIEND, OR FAMILY MEMBER
11. COMMERCIAL/PRIVATE DEALER AND/OR DISTRIBUTOR
12. COUNTY AND/OR STATE FAIR ACTIVITY
13. OTHER, PLEASE SPECIFY: \_\_\_\_\_

Q-4. When you have decided to use or adopt a particular new and/or innovative farming practice and need more information, which of the following sources would you most likely use?  
(Circle only one number)

1. PERSONAL INGENUITY
2. COOPERATIVE EXTENSION FACULTY (AGENT)
3. COLLEGE OF AGRICULTURE RESEARCH OR EXTENSION PUBLICATION
4. CONSULTANT
5. BANKER
6. AGRICULTURAL MAGAZINE AND/OR NEWSPAPER
7. SOCIAL AND/OR POLITICAL ORGANIZATION
8. COMMODITY ASSOCIATION (e.g. WHEAT GROWERS, CATTLEMEN ASSOCIATION)
9. GOVERNMENT SPONSORED AGENCIES (e.g. SOIL CONSERVATION SERVICES)
10. NEIGHBOR, FRIEND, OR FAMILY MEMBER
11. COMMERCIAL/PRIVATE DEALER AND/OR DISTRIBUTOR
12. COUNTY AND/OR STATE FAIR ACTIVITY
13. OTHER, PLEASE SPECIFY: \_\_\_\_\_

The following questions are designed to identify the sources, methods and/or habits used by farmers in accessing information about new and/or innovative farming practices.

- Q-5. Listed below are several sources of information about new and/or innovative farming practices.  
(Circle the number on the scale that best represents how often you use each source. For example, if you read a FARM MAGAZINE daily you would circle "1" or if you never read a FARM MAGAZINE you would circle "7".)

	DAILY	WEEKLY	MONTHLY	YEARLY	QUARTERLY	TWICE A YEAR	NEVER
1. FARM MAGAZINES	1	2	3	4	5	6	7
2. FARM NEWSPAPERS	1	2	3	4	5	6	7
3. FARM TV PROGRAMS	1	2	3	4	5	6	7
4. FARM RADIO PROGRAMS	1	2	3	4	5	6	7
5. DAILY NEWSPAPERS	1	2	3	4	5	6	7
6. EXTENSION PUBLICATIONS	1	2	3	4	5	6	7
7. COOPERATIVE EXTENSION FACULTY (AGENT)	1	2	3	4	5	6	7
8. UNIVERSITY OF IDAHO CAMPUS FACULTY	1	2	3	4	5	6	7
9. GOVERNMENT SPONSORED AGENCIES	1	2	3	4	5	6	7
10. COMMODITY ASSOCIATIONS	1	2	3	4	5	6	7
11. BANKER	1	2	3	4	5	6	7
12. NEIGHBOR, FRIEND, OR FAMILY MEMBER	1	2	3	4	5	6	7
13. PRIVATE DEALER OR DISTRIBUTOR	1	2	3	4	5	6	7
14. OTHER, PLEASE SPECIFY: _____	1	2	3	4	5	6	7

Q-6. Please indicate how beneficial you perceive the following sources of information to be to you as they relate to your farming operation.  
(Circle a number for each source)

	EXTREMELY BENEFICIAL	SOMEWHAT BENEFICIAL	SLIGHTLY BENEFICIAL	NOT BENEFICIAL
1. FARM MAGAZINES	1	2	3	4
2. LOCAL FARM NEWSPAPERS	1	2	3	4
3. FARM TV PROGRAMS	1	2	3	4
4. FARM RADIO PROGRAMS	1	2	3	4
5. DAILY NEWSPAPERS	1	2	3	4
6. EXTENSION BULLETINS	1	2	3	4
7. COOPERATIVE EXTENSION FACULTY (AGENT)	1	2	3	4
8. UNIVERSITY OF IDAHO CAMPUS FACULTY	1	2	3	4
9. GOVERNMENT SPONSORED AGENCIES	1	2	3	4
10. COMMODITY ASSOCIATIONS	1	2	3	4
11. BANKERS	1	2	3	4
12. NEIGHBORS, FRIENDS, FAMILY MEMBERS	1	2	3	4
13. PRIVATE DEALERS/DISTRIBUTORS	1	2	3	4
14. OTHER, PLEASE SPECIFY:  _____	1	2	3	4

Q-7. Do you have any of the following electronic devices in your home?  
(Circle the number of each item you have)

1. VIDEO CASSETTE RECORDER/PLAYER
2. SATELLITE RECEIVER DISH
3. PERSONAL DESKTOP COMPUTER
4. AUDIO CASSETTE RECORDER/PLAYER

Q-8. In your opinion, which of the following sources of information on new and/or innovative farming practices would you rank the highest on the issue of credibility based on expertness (accuracy of information)?  
(Circle only a single number that corresponds to your choice)

1. PRIVATE AGRICULTURAL CONSULTANTS
2. THE COOPERATIVE EXTENSION SERVICE
3. PRIVATE DEALERS AND/OR DISTRIBUTORS OF CHEMICALS, IMPLEMENTS, ANIMAL NUTRITION SUPPLIES, ETC.
4. AGRICULTURAL NEWSPAPERS AND/OR MAGAZINES
5. AGRICULTURAL RADIO AND/OR TELEVISION PROGRAMS
6. GOVERNMENT SPONSORED AGENCIES
7. COMMODITY ASSOCIATIONS
8. BANKERS

Q-9. In your opinion, which of the following sources of information on new and/or innovative farming practices would you rank the highest on the issue of credibility based on trustworthiness (reliability)?  
(Circle only a single number that corresponds to your choice)

1. PRIVATE AGRICULTURAL CONSULTANTS
2. THE COOPERATIVE EXTENSION SERVICE
3. PRIVATE DEALERS AND/OR DISTRIBUTORS OF CHEMICALS, IMPLEMENTS, ANIMAL NUTRITION SUPPLIES, ETC.
4. AGRICULTURAL NEWSPAPERS AND/OR MAGAZINES
5. AGRICULTURAL RADIO AND/OR TELEVISION PROGRAMS
6. GOVERNMENT SPONSORED AGENCIES
7. COMMODITY ASSOCIATIONS
8. BANKERS

Q-10. In your opinion, which of the following factors MOST influences your decisions to seek more information on new and/or innovative farming practices?  
(Circle only a single number that corresponds to your choice)

1. COMPETITIVENESS AS IT RELATES TO FOREIGN MARKETS
2. COMPETITIVENESS AS IT RELATES TO LOCAL MARKETS
3. PRICES/PROFITS/PRODUCTIVITY AS THEY RELATE TO SURVIVAL
4. DISTANCE AS IT RELATES TO THE SOURCE OF NEW INNOVATIONS
5. SKILL AS IT RELATES TO THE LEVEL OF TECHNOLOGY REQUIRED BY THE INNOVATION.
6. REDUCTION OF LABOR REQUIREMENT
7. OTHER, PLEASE SPECIFY: \_\_\_\_\_

Q-11. The Private Dealers and Distributors of agriculturally related chemicals, implements, and animal nutrition are beneficial sources of information on new and/or innovative farming practices.  
(Circle a number)

1. I STRONGLY AGREE
2. I AGREE
3. I DISAGREE
4. I STRONGLY DISAGREE
5. I AM NOT AWARE OF PRIVATE DEALERS AND/OR DISTRIBUTORS AS SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES.

Q-12. Please indicate your agreement or disagreement with the following statements about The Cooperative Extension Service by using the scale provided.  
(Circle a number for each statement)

	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
1. COOPERATIVE EXTENSION SERVICE IS ONLY FOR FARMERS WHO HAVE NOT BEEN TO SCHOOL.	1	2	3	4
2. COOPERATIVE EXTENSION SERVICE IS THE MOST IMPORTANT SOURCE OF INFORMATION ON A NEW AND/OR INNOVATIVE FARMING PRACTICE.	1	2	3	4
3. COOPERATIVE EXTENSION SERVICE IS ONLY USEFUL DURING THE <u>INTRODUCTORY PERIOD</u> OF A NEW INNOVATION.	1	2	3	4
4. COOPERATIVE EXTENSION SERVICE IS NOT USEFUL AS A SOURCE OF INFORMATION ON A NEW AND/OR INNOVATIVE FARMING PRACTICE.	1	2	3	4
5. THERE ARE OTHER MORE USEFUL SOURCES OF INFORMATION ON NEW AND/OR INNOVATIVE FARMING PRACTICES THAN JUST THE COOPERATIVE EXTENSION SERVICES.	1	2	3	4

PLEASE SPECIFY ANOTHER MORE USEFUL SOURCE: \_\_\_\_\_

Q-13. The following is a list of different methods by which information on new and/or innovative farming practices can be presented.  
(Please indicate your preference by circling a number for each method)

	MOST PREFERABLE	SOMEWHAT PREFERABLE	SLIGHTLY PREFERABLE	LEAST PREFERABLE
1. TOUR/FIELD TRIPS	1	2	3	4
2. GUEST SPEAKERS/CONSULTANTS	1	2	3	4
3. GROUP DISCUSSION/IDEA SHARING	1	2	3	4
4. PRACTICAL SHORT COURSES	1	2	3	4
5. WORKSHOPS	1	2	3	4
6. ON-FARM DEMONSTRATION	1	2	3	4
7. HOME STUDY/FACT SHEET/VIDEO CASSETTES 1	2	3	4	
8. PUBLICATIONS/JOURNALS AND/OR OTHER BULLETINS	1	2	3	4
9. COMPUTER PROGRAMS/COMPUTER ASSISTED INSTRUCTION	1	2	3	4

Q-14. Below are listed some regional cities. How often do you travel to these cities to receive and/or deliver information on agriculture?  
(Place a number in the blanks)

1. BOISE \_\_\_\_\_times/year
2. SPOKANE \_\_\_\_\_times/year
3. SEATTLE \_\_\_\_\_times/year
4. PORTLAND \_\_\_\_\_times/year
5. SALT LAKE CITY \_\_\_\_\_times/year
6. OTHER, SPECIFY: \_\_\_\_\_times/year

Q-15. How much land are you farming this year?  
(circle a number)

1. LESS THAN 250 ACRES
2. 250 TO 500 ACRES
3. 501 TO 1000 ACRES
4. 1001 TO 1300 ACRES
5. MORE THAN 1300 ACRES

Q-16. For how many years have you been farming?

\_\_\_\_\_ YEARS

Q-17. What is your age?

\_\_\_\_\_ YEARS

Q-18. Please indicate your educational status.  
(Circle the number of the highest education level completed)

1. ATTENDED ELEMENTARY SCHOOL
2. ATTENDED HIGH SCHOOL
3. GRADUATED FROM HIGH SCHOOL OR COMPLETED THE GED
4. ATTENDED A POST-SECONDARY VOCATIONAL/TECHNICAL PROGRAM IN AGRICULTURE
5. ATTENDED A POST-SECONDARY VOCATIONAL/TECHNICAL PROGRAM NOT RELATED TO AGRICULTURE
6. GRADUATED FROM A POST-SECONDARY VOCATIONAL/TECHNICAL PROGRAM IN AGRICULTURE
7. GRADUATED FROM A POST-SECONDARY VOCATIONAL/TECHNICAL PROGRAM NOT RELATED TO AGRICULTURE
8. ATTENDED A FOUR-YEAR COLLEGE OR UNIVERSITY WITH A MAJOR IN AGRICULTURE
9. ATTENDED A FOUR-YEAR COLLEGE OR UNIVERSITY BUT DID NOT MAJOR IN AGRICULTURE
10. GRADUATED FROM A FOUR-YEAR COLLEGE OR UNIVERSITY WITH A MAJOR IN AGRICULTURE
11. GRADUATED FROM A FOUR-YEAR COLLEGE OR UNIVERSITY BUT DID NOT MAJOR IN AGRICULTURE
12. MASTERS DEGREE OR HIGHER

Q-19. Into which of the following groups does your 1986 gross income from farming fall?  
(circle a number)

- |                      |                      |
|----------------------|----------------------|
| 1. LESS THAN \$5,000 | 6. 30,000 TO 49,999  |
| 2. 5,000 TO 9,999    | 7. 50,000 TO 74,999  |
| 3. 10,000 TO 14,999  | 8. 75,000 TO 99,999  |
| 4. 15,000 TO 19,999  | 9. MORE THAN 100,000 |
| 5. 20,000 TO 29,999  |                      |

Q-20. Do you have an additional source of income other than farming?  
(circle a number)

1. YES

2. NO

Q-20A. If yes, what is the source \_\_\_\_\_ and  
approximately what percent of your total income does the  
additional source represent?

\_\_\_\_\_ PERCENT

Q-21. In which of the following agricultural education programs have you  
participated?  
(Circle a number)

1. 4-H

2. VOCATIONAL AGRICULTURE/FFA (HIGH SCHOOL)

3. ADULT EDUCATION IN AGRICULTURE

4. COLLEGE SHORT COURSES AND/OR WORKSHOPS IN AGRICULTURE

5. PRIVATE COMPANY SHORT COURSES AND/OR WORKSHOPS IN AGRICULTURE

6. A FORM OF ON-THE-JOB TRAINING WORKING FOR ANOTHER FARMER

7. OTHER, PLEASE SPECIFY: \_\_\_\_\_

Q-22. Please list your four (4) most important crops or livestock enterprises  
on the following blanks. Rank the crops or livestock enterprises in  
order of their importance to your farming operation.  
(Please indicate the scope of the enterprise in terms of acres or number  
of livestock.)

	Approximate Acres or Number
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

Q-23. And finally, we are interested in how you view the future value,  
availability, and sources of information for new and/or innovative  
farming practices and your ability to access them?  
(Circle a number)

1. VERY OPTIMISTICALLY

2. OPTIMISTICALLY

3. PESSIMISTICALLY

4. VERY PESSIMISTICALLY

PLEASE USE THE ENCLOSED, SELF-ADDRESSED ENVELOPE TO RETURN THIS QUESTIONNAIRE TO:

DEPARTMENT OF AGRICULTURAL AND EXTENSION EDUCATION  
COLLEGE OF AGRICULTURE  
224 MORRILL HALL  
UNIVERSITY OF IDAHO  
MOSCOW, IDAHO 83843

\*\*\*\*\*

IF YOU HAVE ANY ADDITIONAL COMMENTS, PLEASE USE THE REMAINING SPACE TO LIST THOSE COMMENTS.

\*\*\*\*\*

THANK YOU

YOUR CONTRIBUTION TO THIS EFFORT IS GREATLY APPRECIATED.

APPENDIX C

Comments

## COMMENTS

Not all counties have a good agent like Nez Perce. Other county farmers would answer these questions different. They would have to rely on university or private sources.

I look forward to each issue of STEEP and feel it is worth the time, effort and money involved to fund this program. It is a very valuable tool for us to farm with today.

I believe that ag research and development is very critical to the economic stability of agriculture. However, that basic research is only 25% useable without applied research or extension. I firmly believe that extension is vital to a strong agriculture and we definitely need more "Larry Smiths". He is excellent. All of the sources of information are important that you've listed in this questionnaire. It really depends on the specific problem that one is dealing with, as to which he may pick as his first source.

I often find that much information is slanted to promote a new or innovative practice. The pro and con are not given equal emphasis. This has been especially true in extension the last 7 or 8 years. Credibility suffers. Also soil conservation service efforts to promote certain tillage practices with the threat of withholding essential government payment vis-aids 1985 farm bill provisions destroys confidence in any information from this source.

The greatest threat to U.S. agriculture is the E.P.A. in its present form.

We feel the University of Idaho is a very important part of our farming need for valuable information to help us keep up with new information on farming and cattle practices.

I like information in concise written reports. I often use extension service publications on fertilizer rates, weed sprays, new crops, insect sprays. I have written a computer program for fertilizer rates, based on your publications. I do like demonstration plots and field tours.

Star thistle took all my pasture so I don't have any cows or do any farming but 5 acres of hay.

I feel the College of Agriculture should be more concerned with the economics of farming in these lean farming years. The information they distribute should be to keep the farmer in business; as they are concerned with keeping their own source of revenue flowing. I realize this is an impossibility with the structure of our society; but it would be much more helpful to its business of farming and to the people of the country on a whole.

I feel the university needs to continue research in areas where most suited as funds allow...Likewise and most importantly, work with private enterprise in research and development especially if they (private industry) is footing the bill.

I rented my farm to my sons in 1986. I get 1/3 of the crop and pay 1/3 of the chemical expenses. One of my son's own an IBM Personal Computer, which is used for record keeping. All information for each individual field will also be recorded from 1987 on.

We are pleased with the effort by the University of Idaho to find alternate crops for us to grow. I think the budget cutbacks by the Federal Government may hamper some of the research, and the ability of the University to dispense information in the future.

There is a wide divergence among agricultural experts at the present time depending on where they work and with what. For instance one says plant wheat early, avoid foot rot, another says seed late, avoid another foot rot, one says leave trash on the surface, avoid erosion, another says buy it avoid various plant diseases and so it goes. Each to be successful must weigh the material presented and decide what to do on the overall basis of what was presented and is applicable to his farm.

The reason I circled pessimistically for new or innovative farming practices is because we have been rotating alfalfa on our crop ground and feel it has been doing a very good job of building up our ground and controlling erosion very well. With our heavier soil in our area, I feel that no till drilling is going to give us a fungus and disease problem in our crops. The acres done this way in trials seems to bear this out.

I graduated from the University of Idaho and am proud of it. But, developing new techniques is only a portion of the answer to the farm crisis. Yes..the farm crisis still exists. I may want to implement a new farming technique but the dollar and cents involved stop me. Most of the answer to the farm crisis lies with the federal government. They have taken away my foreign market and in return now subsidize my wheat and barley. The sad truth is..I am not making it. I produce 70-80 bushels of wheat, 1-1/2 -2-1/2 tons barley, receive government subsidies, and after the "production costs" bills are paid there isn't enough money to cover machinery depreciation and repair. I borrow money each year to cover the expenses that my farm doesn't. How long can this go on? Am I to take an off farm job on a night shift?

Surely university economists can develop fair and adequate farm subsidy programs. Reagan economics didn't work for the nation or the farmer. I hope you can do something to help.

We are in the nursery Christmas Tree business, as noted, but retain old interests in general ag, having farmed and been in the dairy business prior to 1968.

I am currently not actively farming but have been involved with my fathers' farm in Gifford, Id. We farm approximately 8-9000 acres and I do keep up some what on what's going on. I plan in the future to be involved again like I have in the past and also in the hedging of crops. Thought I would at least give you this little bit of input.

My acreage is 12 acres of which about 8 acres is tillable and it is generally pasture and some hay for my horses and a cow or two right now. The hay and pasture is plowed and was in grain last summer and will be in wheat for next year, after that possibly back to hay and pasture.

Get Soil Conservation out of practice of tilling low lands. Send them to grass. This would help keep sediment from stream beds.

Conditions vary so much no rules can be followed.

University of Idaho and Extension personnel are very helpful, especially since they are spread so thin.

I retired this fall and these comments are of my own. My son David is running the farm now so any further questionnaires should be addressed to him at the Keubens, Idaho farm. I was happy to participate in filling out the questionnaires.

I use a number of sources of Ag information to come up with an idea or solution to my ag problems. I had a hard time pinpointing just one source of information. However, I feel that alot of the information that comes from our extension service is good but sometimes it works better on paper than on the farm, so I find myself being very careful with this information. Examples are Rape, no-till, etc. Most new and innovative farming practices are to expensive to implement for my size farm. It seems most new ideas are invented for the larger farms.

Farmers need information from all sources. I am willing to say some are more useful than others but I also am willing to say I would not see any source dry up.

The information and cooperation of the Nez Perce Agents has been very helpful.

I am concerned about noxious weeds, in particular Star thistle, it is going at alarming rate and nothing is being done to stop it. Ground I've know where it first started is still completely covered and there isn't anything else can grow there. Let's get on the ball and do something.

I have been working with a private company for the past 6 years. During this time I have cut my costs by over 40% and have maintained production above normal for the area. I have cut down erosion on my ground. I have improved soil PH and soil structure. I have documented material that the products I am using cut down on soil compaction and improve soil structure and private company evidence that it will cut down on erosion. We know we can control pythium with better management practices. We know where a healthy plant gets its nitrogen from. We know we can conserve moisture. We know we can improve crop quality. We know we haven't even begun because every year we find new things that happen that we did not expect to happen. We hope some day, in the not to distant future, our Land Grant Universities will promote our philosophy because we are all farmers helping farmers and most all of the products we use are natural.