

PERCEPTIONS OF VOCATIONAL AGRICULTURE TEACHERS  
AND COUNTY EXTENSION AGENTS AS TO THE  
IMPORTANCE AND FEASIBILITY OF  
ALTERNATIVE APPROACHES TO  
FARMING IN SOUTHEAST  
OKLAHOMA

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## CHAPTER I

### INTRODUCTION

Productivity of the American farmer allows this to be not only the best fed nation in the world at a low cost for the consumer, but one of the leading nations in the export of food and fiber. Agricultural products rank first in value among the U.S. exports. In addition, labor efficiency in agriculture has freed vast numbers of people for other activities permitting the United States to become a giant industrial nation. One of the entities responsible for this miracle of agricultural productivity is the research system operated by land-grant universities which has provided a steady stream of new knowledge and technologies needed to overcome problems and to enhance efficiency (Chalamira and Lawrence, 1984, p. 3).

The agricultural economic level in Oklahoma over the past few years, however, has been low and has raised concern among agricultural and political leaders about this condition. Southeast Oklahoma, in particular, has been greatly affected compared to other parts of the State as evidenced by the high rate of unemployment and low economy. (Williams and Badger, 1982).

Traditionally, the South has had poor economic conditions tied to the agricultural industry. Part of this condition has been due to the historic use of tenant farmers and part-time farmer-owners. During the 1930's, many government agencies were formed to help alleviate the economic plight of farmers and residents of poor farming areas of the South (Mertz, 1978). Then, as today, federal policies affected the direction of the economics of agriculture.

Farm employment accounted for 14 percent of total employment in

Southeast Oklahoma in 1979. This compares to 7.7 percent for the entire state. Fifty-three percent of all proprietor's net income for the region has consistently lagged behind that for the State. In March 1982, out of seven counties experiencing unemployment rates higher than the national average of nine percent, six of these counties were located in the region. An additional five counties exceeded eight percent (Williams and Badger, 1982).

Because of the economic level, a longitudinal study for Southeast Oklahoma was proposed in conjunction with the establishment of the Wes Watkins Agricultural Research and Extension Center at Lane, Oklahoma. The study would survey farmers and ranchers in Southeast Oklahoma about their perceptions and opinions of current farming practices and the adoption of alternatives or supplemental approaches to help their economic situation.

As part of the longitudinal study, in order to establish a baseline of information, there was a need for data about the alternative agriculture approaches from the actual disseminators of agricultural information, vocational agriculture teachers and county agriculture extension agents. The opinions and perceptions of vocational agriculture teachers and county agriculture extension agents could give some insight into agricultural alternatives that might be used by farmers and those who would engage in farming in the future. The possibility of the success of the adoption process might be enhanced by obtaining information about possible alternatives from those change agents who are charged with the mission of change. The survey of the vocational agriculture (vo-ag) teachers and county agriculture extension agents was planned before the survey of farmers, so questions for the farmers

could be formulated from information that reflected the current thinking of the professionals in agriculture.

#### Statement of the Problem

What perceptions do vocational agriculture teachers and county agriculture extension agents have about the feasibility and importance of alternative and supplemental approaches as possible ways to alleviate the economic stress they are experiencing? The problem directly affects the adoption of the alternative farming concept. In addition, what are the vocational agriculture teachers' and county agriculture extension agents' perceptions about their needs as educators to aid in the dissemination of the information on alternatives.

#### Purpose

The purpose was to survey the perceptions and opinions of vocational agriculture teachers and county agriculture extension agents in Southeast Oklahoma about the current economic conditions as they related to the feasibility and importance of alternatives that could be adopted by farmers and ranchers to help raise their economic level. Additionally, the purpose was to survey the vocational agriculture teachers and county agriculture extension agents about their needs for information as educators to aid dissemination to adults and youth who are engaged in or will be engaged in farming.

#### Objectives

In order to achieve the purpose, the following objectives had to

be accomplished:

1. To determine what alternatives were perceived by vocational agriculture teachers and county agriculture extension agents as being the most important and feasible for adoption by adult farmers.

2. To determine what alternatives were perceived by vocational agriculture teachers and county agriculture and 4-H extension agents as being the most important and feasible for adoption by agricultural youth.

3. To determine what alternatives were perceived by vocational agriculture teachers and county agriculture extension agents as being the most important and feasible for adoption by agricultural youth and adult farmers with animals, poultry, wildlife, field crops, pasture and range, vegetables, fruit and nuts, forestry, marketing, record keeping, and management.

4. To determine the resource needs of the vocational agriculture teachers and county agriculture extension agents in helping to diffuse information to farmers and ranchers so that adoption of alternative approaches may take place.

#### Scope and Limitations

1. The 22 counties in the study were in Southeast Oklahoma.

2. The vocational agriculture teachers surveyed were currently teaching in high schools in the study area.

3. The county agricultural extension agents were located in 20 counties of the 22 county region.

4. The survey was conducted over a one year period from October 1985 to October 1986.

5. Selection of suggested alternatives for rating were limited to the ones gathered from the population surveyed.

6. Suggested alternatives were edited for clarity and repetition while maintaining content and context.

#### Definitions

Perceptions - insights, intuitions (Webster, 1984) e.g. in this study, those perceptions of the county agents and vocational agriculture teachers.

Feasibility - capability of being done (Webster, 1984) e.g. the practical and likely outcome of suggested solutions.

Alternatives - a choice between things (Webster, 1984) e.g. the selection of various managerial techniques and/or enterprises for increased economic stability.

Importance - having much significance or value (Webster, 1984) e.g. the value of the statement in comparison to other statements of solutions based on perceptions.

Resources - something that lies ready for use or can be drawn upon for aid (Webster, 1984) e.g. the output of researchers, scientists, educators, etc. for use in agriculture.



## CHAPTER II

### REVIEW OF LITERATURE

The purpose of this section is to review literature related to the perceptions of agriculture teachers, county agents and farmers on the feasibility and importance of alternatives to current farming practices to help ease a difficult economic situation. A brief look was taken at the historical conditions that had been similar and how they were related to the current situation, as well as the prospects for the future. The trends and adjustments of the past and their importance and feasibility compared to the current situation were presented. The perceptions of residents, farmers, and ranchers about extension, experiment stations and research were surveyed. The diffusion of information and adoption of innovations were reviewed as they related to the change agent's role toward the farmer and agriculture. Information about the type of survey instrument needed for this study was reviewed.

#### Historical Outlook

The agricultural economy has been in poor condition from time to time in the United States. The South has been economically poor, with regard to agriculture, especially during the Great Depression of the 1930's. As pointed out by Mertz (1978), the government created new policies, such as the Agriculture Adjustment Act (AAA), to help the

poor and tenant farmers during that decade. Although some of the structures of agriculture have changed and the economic situation was caused by different reasons, it was pointed out that the Federal government has attempted to make adjustments to policy for the benefit of the farmer down through the years.

Efforts in the 1930's were made primarily by sociologists and politicians, not agriculturists. It was suggested by Heady and Burchinal (1961) that the major problem lies not in the ability of agriculturists and economists to understand and solve the problems, but in the farm and nonfarm publics agreement on policies because of the different values and goals of these two groups. Because government has taken, or has been asked to take, a hand in developing policy and legislation to help agriculture in the past, it is reasonable to view the continuance of that type of government action as the solution to the problem. Here, the concern is only that government acts or does not act. The repetition in history is commonplace knowledge. The problem lies in not heeding the warnings of history or to be able to draw upon historic analogies. Is the current economic situation of the 1980's similar to the 1930's as to the ability of farmers to stay in farming? It is evident that political and economic impacts to agriculture are again at work in Southeastern Oklahoma as well as in the rest of the nation. The historians would tell us about the outcomes and moral values of such actions. Action by government to help agriculture is again being taken. The challenge to improve current economic conditions today is viewed to be a job for agriculturists based on principles of economics and education.

In 1982, a study by Badger and Williams overviewed the "big

picture" in Southeast Oklahoma to determine potentials, barriers and future actions as part of a thrust by Congressman Wes Watkins for economic development in the Third Congressional District. That study surveyed a wide variety of people, including many nonfarmers or agribusinessmen. Southeast Oklahoma had been reflective of past and current low economic conditions. Causes for the low economy in the farm and nonfarm sector had been varied. The issue of values and goals on economic problems may well have been the perceptions of the farmers, and indeed, of the vocational agriculture teachers and county agriculture teachers and county agriculture agents in the study area. The consequence of changes in the agriculture sector today were not the same as in the past. The effects of microeconomics on the market in the past are now created by macroeconomic policies in the complex markets of the modern world.

There were indications in Southeast Oklahoma that the economic outlook in the 1930's, or any other decade, seem to have repeated themselves. A move to industrialization during the 1930's, to revive the economy, only muddied the water by suggesting using already unskilled farm labor as potential factory workers. Thus the poor farmer continued to eke out a meager existence which was occasionally called to public attention by political observers (Mertz, 1978). The suggestion that alternatives of one kind or another would solve economic problems lacked one essential ingredient, the ability and willingness of the participants. The thrust in Southeast Oklahoma with the Wes Watkins Research and Extension Center would be able to demonstrate to farmers that alternative approaches could solve economic problems.

## Future Outlook

The new Wes Watkins Research and Extension Center at Lane, Oklahoma would be the source of information and innovations for farmers in Southeast Oklahoma. Education was a key factor to solutions for economic problems.

The most valuable of all assets is the limitless possibilities available through the development of the human mind and spirit. Changes and/or advancements in agricultural technology will depend almost entirely on the future mind sets, attitudes, creativity, and accomplishments of people--many of them in the educational and research system (Agriculture 2000, p. 56).

The delivery of information to the grass-roots level by educators at that level is essential in maintaining the credibility and effectiveness of the research provided by scientists at the land-grant universities. Heady (1980) reported the farmer of the future would be highly educated in financial and farm management, but would need to hire private consultants as specialists because of the large volume and size of farming operation. These "future farmers" would rely on advanced information in their decisions which would be aided by computers. Much of this information would undoubtedly come from research. Research in agriculture comes from many sources within a system designed to aid agriculture.

The Agriculture Experiment Stations and Oklahoma State University provided the research for solutions to problems in agriculture (Holley, 1980). County agriculture agents, 4-H agents and vocational agriculture teachers provided information from the research to the clientele. The perceptions not only of clientele, but the public in general had always been the evaluative form of measuring the work of extension.

Cosner (1980) surveyed the opinions of the public about the Extension Service to show the awareness of the general population toward the Extension Service of the Oklahoma State University College of Agriculture. Holley (1980) provided the views and opinions of residents toward the Oklahoma Experiment Station. Randle (1979) provided the perceptions of Oklahoma Residents toward OSU instruction in agriculture. The perceived value of an experiment station, research center or demonstration farm in Oklahoma was necessary according to the Holley study. A study by Johnson (1982) pointed out the need for establishment of a research and education center in Southeast Oklahoma. The opening of the first phase of the center in 1985 was the commitment to the Southeast Oklahoma area for improved agricultural practices or approaches. In connection with an experiment station and education center, Hooks (1983, p. 309) stated "The basic premise of the traditional diffusion model is that access to information through education or agents is the principal factor of farmers in adopting an innovation."

Change agents would be able to show farmers innovations being developed at the Southeast Oklahoma Center and provide information on these new alternatives or approaches in the farmer's counties. Farmers could then adopt those innovations fitting their particular needs.

#### Diffusion, Adoption and Innovations

Diffusion is the dissemination of information about an innovation to those most likely to benefit directly from the use of it, known as adoptors. Rogers (1983) pointed out characteristics of adoptors of innovations and the process of decision making required for adoption to

take place. An innovation could be a new piece of equipment, a new way of performing a task or a new way of making decisions. There were several stages which potential adoptors or users of the innovation go through to reach complete adoption of the innovation. Diffusion was part of the process of change and change required diffusion of innovations to develop new practices which inspire change. The adoption of an innovation was change. The personnel in the delivery system in society are concerned with economic, technological change. Social change also took place in a more subtle way. Social change could also occur as planned change. Change agents or educators linked research, innovators and adoptors in the change process. Stewart (1980) maintained the process of change took place when a client system (individuals, small groups, large organizations, and communities) desired a better state of affairs and realized help was available and was available even before they wanted help. This discovery was the first phase in the experiment process.

In Oklahoma agriculture, the Agriculture Experiment Station and Oklahoma State University, provided the research to create new innovations. Generally, the research was linked to a current problem in agriculture. The researchers were not the disseminators of the information directly to the general farming public. This mission was charged to county agricultural agents and vocational agriculture teachers. Information about agriculture problems come to county agents and vocational agriculture teachers and was reported to administrators and researchers for solution on an informal basis. Advisory committees also served as a source of information about problems to be directed to research. In Southeast Oklahoma, the need for research directly related

to the uniqueness of the area was evident. The addition of a research and education center to demonstrate and disseminate new information and approaches was needed by the change agents to effectively deal with economic problems of agriculture in the region. Research on a regional basis was a necessity in those areas where constraints of land, water and other resources were particularly different than the rest of the state. New programs could be designed and implemented from the addition of the Center at Lane, Oklahoma.

Many extension programs focused on farm technologies and were not designed to accelerate the adoption of innovations according to Hooks (1983), but to encourage practices in existence for many years. Diffusion was access to information associated with an innovation of a particular technology that affected the adoption decision. There are also psychological considerations that affected adoption. Hooks (1983) researched the issue of economic constraints and the effect on adoption. The findings of their study showed correlations with the economic constraints as well as psychological variables.

Brown, Maxson, and Brown (1977) did research in connection with the Eastern Ohio Resource Development Center (EORDC) which was a research farm and part of the Cooperative Extension Service and the Ohio State University. The study was conducted to determine the strategies used in the diffusion of innovations. It was interesting to note the historical dominance of agriculture in the 28 county region of Southeast Ohio and the likeness to the Southeast region of Oklahoma. The environs of both areas were similar also. The EORDC method of diffusion relied on promotional communication to induce adoption of innovation. Demonstration at field days and farm tours were two important methods used. Talks at

vocational agriculture classes and farm organization meetings when requested was another method of diffusion. There were six practices recommended for use in the ERODC area. The promotion of the practices fell upon area and local agricultural extension agents and vocational agriculture teachers. The EORDC also was involved in the dissemination of information. The EORDC used the least resistance ordered strategy in dissemination of information where the most motivated of the farmers were given the information first and the least motivated second. Information from county to county differed due to different perceptions of agents. Much of this study was related to the Agriculture Research and Education Center at Lane, Oklahoma operation because of the similarity of farmland and farmers in both states.

Another factor involved with the dissemination of information was the ability of the agencies to continue to function in the political arena for funding. McDowell (1985) concluded that agencies must reach large audiences to generate support for their programs and must take the support into account when deciding on the design and packaging of information. The role of the educator is greatly affected by the delivery system used. The intervention of governmental agencies in the farming community in many cases was a constraint because of the choices a farmer has in the marketplace where government and private institutions control the constraints. Policies and control of constraints by means of funding had an effect on the adoption process. To promote innovation, a delivery system was necessary and the funds for the operation of that delivery system was constrained by government policy.

The need for an educational system to deliver the information was emphasized by Williams and Badger (1982) in their report "An Action



Plan for Southeastern Oklahoma Agriculture". As stated in the executive summary, one of the barriers is the ". . . lack of an educational and delivery system for these alternatives (for example, vegetables, fruit and nut crops lack sufficient personnel to deliver existing information" (p. 12).

The need for research and education to help farmers in Southeast Oklahoma is known. The lack of funding to move swiftly enough was one of the outside factors beyond the control of the local area. The willingness of potential adoptors to adopt depended largely on the contact received from the propagators of the innovation or their change agents.

There had been a great deal of skepticism by those presenting information to users as to the practicality of the research. Most users thought that the research from scientists and educators was of little value in the field. The process innovations gone through to be of value to clients sometimes took a long period of time before it was refined into a useable idea or product. Rogers (1983) identified five stages in the adoption process as awareness, interest, evaluation, trial, and adoption. The process started with basic research, progressed to applied research, to development, and finally to commercialization. Clinical trials occurred as part of the process. Evidence by Schroeder, Van de Ven, Scudder, and Polley (1980) suggested that innovation took a multiple path in adoption and was not quite as linear as the Rogers model. Not all innovations were adopted by clients and in some cases they should not have been adopted. What disseminators in organizations were seeking were instant solutions to an immediate and highly impacted economic conditions.

One unfortunate effect of the great impact of the agricultural extension model, and of the fact that diffusion research began with the study of farming innovations, was to limit our thinking about the types of diffusion systems that might be possible. Much agricultural diffusion is relatively centralized, in that key decisions about which innovations to diffuse, how to diffuse them, and to whom, are made by a small number of technically expert officials near the top of a diffusion system (Rogers, 1983, pp. 160-161).

The present system for delivery of innovations to the public was questioned by Brown (1981) as possibly being targeted at only one type of audience. Brown (1981) stated that the authors of A Time to Choose favored the smaller and medium sized farm. The Extension Service had traditionally been accused of dealing with the larger farmer. In fact, the answer was not simple. Farms that were effective in agriculture and produced most of the agricultural products were large enough to be efficient. The problems of farmers required the input from many disciplines. A team approach to solving the complexities of today's problems was suggested by Brown (1981). The fact that many of the Ph.D.'s trained in research were too research-oriented to be able to meet the responsibilities of area specialists was evident. The Ph.D.'s also lacked the skill to communicate to clients at the grass-roots level.

The new developments in electronic communication, individualized learning, data storage, retrieval, and analysis offer the potential of greatly increasing the capacity of the county agent to assist the commercial farmer with more complex and sophisticated problems (Brown, 1981, p. 862).

The present study investigated a different type of diffusion system where the solutions or innovations were the perceptions of local diffusion experts and the clients themselves. These innovations may then be diffused in a horizontal network to other areas where users

were experiencing similar problems. Such a decentralized system had both advantages and disadvantages over a more centralized organization. To maximize efforts, a combination of both systems may be appropriate.

An awareness of research needs felt at the grass-roots level should enable agricultural scientists and administrators' to more thoroughly evaluate present research programs and plan appropriate future undertakings (Chalamira and Lawrence, 1984, p. 4).

Agriculture requires both technical and managerial abilities of those engaged in it. Vocational agriculture teachers and county extension agents help provide farmers with these basic skills. It is imperative that research institutions continue to develop new technologies that agricultural educators can take to farmers (Chalamira and Lawrence, 1984, p. 42).

Support for continuance of diffusion of innovations must come from those who use it and need it; the farmers, both large and small. The problem with relying solely on this support is the political impact of farmers, as a group, lack clout in our social system. It is incongruous for the public, in the effort to cut public spending, to bite the hand that feeds it with reduced support to farmers. Just as there is lack of support from the public for research of new innovations, there is also a lack of support by some researchers of the present model for diffusing innovations.

Hooks (1980) told us of the new challenges to the classical model of diffusion of innovations as used in agriculture. Conflict theorists did not conclusively repute the diffusion paradigm, but provided questions about some of the validity of the assumptions made by the diffusionists. It was in this light that questions were raised about the rationale for diffusion of alternative approaches in agriculture in Southeast Oklahoma as being beneficial. Regardless, the need for diffusion of innovations is necessary. The diffusion of innovations

came from the perception of the user that adoption of an innovation was useful. Later, others joined the group as adoptors. It can therefore be concluded that in Southeast Oklahoma, the need for both innovation research and diffusion research for the area was necessary for the benefit of the economic level of clientele. The major objective of an increase in the economy of Southeast Oklahoma indicated the need for research for innovations and research for diffusion methodology.

From the past the policy and legislation has been reactive to the economic problems in agriculture. There have also been technological changes that have been developed to solve economic problems, and because of the innovative changes, new policies have been enacted. The present and future outlook is toward change in policy as well as change in technology and application of technology. The view was different from each group involved in agriculture. Perceptions of each group affected the other.

#### Perception Studies

There have been many studies (Holley, 1980; Cosner, 1980; Holberg and Swope, 1979; Jennings, 1983; Young and Cunningham, 1977; Hofstrand and Anderson, 1970) on perceptions of various groups. The studies presented perceptions of clientele, advisory committees, the general public, and administrators. The perceptions, in the above studies, were in regard to various segments of Experiment Stations, the Cooperative Extension Service, County Extension workers, and the programs offered. Some of the perception studies have concentrated on demographics as well as the opinions of farmers or special groups of

farmers in connection with questions about specific or general problems in agriculture. These studies also asked clientele of extension about the services rendered. When perception studies of the extension service were done internally, they were usually done by area specialists, administrators or advisory committees. Few studies have been conducted on the perceptions of the county extension agents or vocational agriculture teachers as to the importance or feasibility of various programs in their immediate county, area or state. In this section a look at the various types of perception studies and their purpose will be taken.

Three studies were conducted in East Central Oklahoma concerning the farmers of that area. The series of studies by Russell, Tweeten and Rogers (1984) provided information about the perceived quality of life, economic characteristics, needs and opportunities, origins, current situation and future plans of farmers as perceived by themselves. In this series it was suggested that means to raise farm income might be hindered by the lack of motivation of the farmers and that the educational agencies seeking to raise farm incomes needed to intensify their efforts in that direction. The educational level of farmers was closely related to the motivational behavior of the farmers as well as age. Programs directed toward change seldom took place with the application of educational methodology in mind, but with technological advancement as the only major goal. Focusing on economic appeals, the extension service had advanced technology as the only viable solution to agricultural problems. Some of the more recent thinking is that a careful decision regarding the amount of technology to apply is based on the amount of gain in profit one

receives as the criterion in technological application. The continued push in technology is evident. Wilson and Newcomb (1979) implied that the marketing of motivational appeals to sell educational programs is essential to the adoption of innovations. In other words, the selling of innovations or diffusion of innovations needed to be done with the same approach as anyone selling a product. Just as advertisers market a product, the extension service would have to market its programs and technologies. In addition to motivation, it appeared that another ingredient, the "way of life on the family farm" and its sociological implications, were still missing. Technology in one area might have provided efficiency in farming, but to what end, when outside forces such as worldwide marketing and weather were brought into play.

The perception of farmers toward policy and/or efforts to raise the economic level of agriculture was often measured in surveys about their attitude or orientation. This information was needed by educators and other agriculture leaders who attempted to increase farmers' understanding of the current economic problems in agriculture (Hatesohl, 1966). The conflict between policy makers and farmers was evidenced by the different values and goals each perceived as necessary for agriculture (Heady, 1961). The differences between sociologists, economists and agriculturists came from the perspective each had toward agriculture, the economy and government. Educators, as change agents, also interjected values into the delivery system either consciously or unconsciously.

Perception studies often measured the output of organizations such as an agricultural experiment station or cooperative extension service.

Questionnaires presented questions or statements to the clientele on the current problems, previous or ongoing problems. Thus, clientele were responding to statements, thoughts or ideas in context not of their own choosing. One study of extension output did use a different approach. According to Young and Cunningham (1977), the use of an unstructured form of interview with open-ended and probing questions for data gathering was a nontraditional approach. The Young and Cunningham study was conducted to measure the output of extension programs. This was a form of evaluation of extension programs by the user.

A perception study by Jennings (1983) used a telephone survey to collect data on residents of Arkansas. This study revealed not only how the residents viewed the cooperative extension service, but identified factors about the residents themselves. Holley (1980), Cosner (1980) and Hofstrand and Anderson (1970) did perception studies in much the same manner, with different data gathering instruments, but exhibiting the same type of information about clientele or residents in relation to age, sex, and other factors. The studies presented to the respondents closed-ended statements for rating. The studies were conducted utilizing residents in Oklahoma and Kansas, respectively.

In Holberg's (1979) study of Iowa farmers, several variables regarding demographics of the group were measured in relation to their perception of the effectiveness of the extension service. Some farmers, due to age, educational level and race failed to accept innovations readily, accept them slowly or refuse to accept them, according to Hunte (1981). It was suggested by that study that future studies

focus on the amount of extension contact and the perception of effectiveness of the clientele.

Gross (1969) surveyed attitudes toward extension programs as a basis for the effectiveness of the programs. The identification of output measures as perceived by extension clientele was conducted by Young and Cunningham; their study (1977) which served as a basis for further study by Wilson (1979).

The beliefs of farmers about what innovations will work or not work was surveyed by Musser, Wetzstein, Reece, Varca, Edwards, and Keith (1986); Key, Finley and Mortensen (1985); and Hunte (1981). The Musser study led the research toward determining the avoidance encountered in the adoption process. The perceptions of farmers, and indeed extension agents and vocational agriculture teachers, not only included the belief that an innovation would work, but included the natural tendency of most individuals to avoid risk. The perceptions were varied due to the age, educational level, size of operation, and other demographic factors of the three groups mentioned above. The prominence of risk aversion in economic adoption literature reflected an attempt to explain behavior inconsistent with neoclassical microeconomics under certainty with an alternative economic theory (Musser, et al., 1986). Not all departure from profit could be blamed on risk aversion.

The study of farmers regarding Intergrated Pest Management (IPM) as an advanced technology promoted several studies about the rate of adoption and beliefs. Musser, et al. (1986) stated the concept of beliefs as information one holds about a particular object, policy or process, and they are different from attitudes which are affective or



emotional responses toward an object. The fact that pest control does affect risk does not explain the avoidance of risk not affecting pest control. Risk and behavior are being confused. The avoidance of pest control is a behavior. The use or nonuse of pest control to any degree is a risk. Two psychological theories advanced by Musser et al. (1986) showed the relationship between beliefs and behavior. Learning theories viewed beliefs as the underpinnings of attitudes and they motivate a response or behavior. Cognitive dissonance states that attitudes inconsistent with behavior are stressful. The study showed that the use of psychometric methodology may have some use in understanding farm management decisions other than IPM. The study also showed that assessment of beliefs about adoption provided a view of the relevance to the economic information and the form it takes when planning research and extension programs. To inform a farmer about the IPM program and the economic impacts caused the farmer to form beliefs and consequently display certain behaviors. The adoption or nonadoption was seemingly based on the belief of the farmer which was based on the information received on the subject. This, in turn, impacted the client community in one direction or another; to adopt or not adopt.

The complementarity of impacts of risk, scale and credit was explored by Feder (1982). The study proposed a model for adoption decisions and was based on two interrelated innovations. Two factors, scale of operation and credit, acted as variables to risk. Feder assumed that farmers were risk-averse. The belief of the farmer which might make him risk-averse was not explored. The impacts of policies, such as price supports, credit availability and various methods affected the adoption of complementary innovations. Feder (1982)

went on to state that the introduction of agricultural innovations was done by some official agency. Such agencies used a number of tools to promote the innovations and their speedy adoption. Therefore, beliefs and attitudes of farmers, their own perceptions, are changed by, not only the introduction of an innovation, but also the method of dissemination for adoption. In measuring the outcomes of innovations, the assumption that the adoption, or nonadoption, by farmers was a straight line would be overlooking many variables that affect beliefs and perceptions. Bias from the diffusion system could have a tremendous effect. Is the bias calculated as part of the method of introduction of innovation or is it part of the personal character of the change agent, or both? The type of solutions to economic risk or aversion to any risk may be in the hands of the agricultural educator.

Only recently have studies (Chalamira and Lawrence, 1984 and Burcalow, 1985) used the perceptions of county agents and vocational agriculture teachers to determine strategies, solutions or innovations that could be effective in solving problems. Respondents in the two studies identified areas important to their localities where additional research or information were needed. The information needed was not necessarily new, but presented in a different manner or medium. For example, in Chalamira and Lawrence's (1984) study, coping with high production costs and interest rates were identified as the second highest problem in the state. The Chalamira and Lawrence study did not explore fully the beliefs of the vocational agriculture teachers and county extension agents in regard to how information should be presented but only what information should be presented. That study should next pursue the farmer's beliefs to determine if vocational

agriculture teachers and county extension agents were indeed reflecting the expressed concerns of farmers as to important problems or were they the biased perception of the two groups?

The problem of finding solutions, through research or otherwise, was not new and was also a problem in the 1930's as evidenced by Mertz (1978). New approaches to problems, such as the ones listed by Chalamire and Lawrence (1984), were pointed out as being the goals of the Joint Council on the Food and Agricultural Sciences (1984) where farm management was improved through the use of microcomputers and satellites. The computer was often perceived as a solution to problems when, in fact, it was only a tool used to speed up the decision making process. The collection of information into a computer, or even the use of a computer, was part of the process of adopting an innovation. The improvement of farm management was accepted as a solution to problematic economic conditions. To use a computer to enhance that procedure was the adoption of an innovation. It was an innovation that only aids and not makes better decisions. The diffusion and adoption of the microcomputer in agriculture was examined by Audirac and Beaulieu (1986) in a study that developed a model to study the diffusion/adoption process. The information needed to make decisions came from many sources in the decision making process. Diffusion of the information was the first step in the adoption process. From diffusion of information on innovation came the perception of the user to adopt or not adopt based on various exogenous constraints that affected the user.

## Challenges, Problems and Barriers

The literature reviewed to this point has been directed at perceptions, diffusion, economics, and history of farmers and the Cooperative Extension Service. What roadblocks get in the way between diffusionists and adoptors in the achievement of overcoming agricultural problems and challenges? Bias on the part of agents, vocational agriculture teachers and farmers as part of their personal values cannot be ignored. Williams and Badger (1982) reported, "Some producers would rather lose money in cattle than to raise hogs and sheep--it's more glamorous and they just like cows." Gross (1969) stated that an agent did not leave his values behind when he went to work. Brown, et al. (1977) alluded to the bias when speaking of the different emphasis placed on various segments of the job by the agricultural agent. Reconciliation of values had to be overcome.

Another problem related to this study and perceptions were criticisms of diffusion regarding consequences. By definition, planned change required that the change agency interfere with the client system (Goss, 1979). Consequences were the result of diffusion whether the innovation was adopted, rejected or not adopted due to other constraints. Therefore, the clientele participating in the diffusion of innovations as potential adoptors may react in different ways from each other because of differing beliefs, as in not choosing sheep as an alternative, thus resulting in various consequences. Rogers' (1983) definition of adoption did not take into consideration those values nor economic ability. Some potential adoptors may be prevented from adopting merely by economic reasons. The potential adoptors who accepted the innovation, but failed to adopt for economic

reasons were also a consequence, or outcome, of the innovation and should have been considered as another variable just as adoptors practicing the innovation were an outcome, or consequence, of the process of adoption. Schroeder, et al. (1986) suggested more research into the area of how innovations came about and have grown, because they have not been studied near as much as consequences and acceptance of innovations. The problems facing farmers are complex and so are the methods used to get solutions to farmers and ranchers who need them.

The studies presented here were concerned about the clientele, residents, advisory committees, area specialists, and administrators in extension perceptions about the programs and effectiveness of the extension service. The characteristics about clientele were presented in most studies as well as their perceptions about the effectiveness of existing programs and extension personnel. Few, if any, studies have asked clientele how they perceived the problems and what the solutions were. Very few studies have determined how the diffusionists viewed their effectiveness as determined by increased adoption of innovations. An objective of this study was to determine the perceptions about resource needs for use by local diffusionists and disseminators.

#### Delphi Studies

The purpose of the delphi method of gathering data is to allow respondents to establish the parameters about a particular problem by proposing statements about the problem. Few studies in agriculture or extension have used this method of gathering data in relation to

research or economic problems on farming. The perceptions of vocational agriculture teachers and county agriculture extension agents in West Virginia were surveyed using this method by Chalamira and Lawrence (1984). Burcalow (1985) also used the delphi method to conduct studies about the perception of clientele toward the extension service in Minnesota. The Oklahoma State Department of Vocational-Technical Education used the method to forecast areas of concentration for the next decade (Hopkins, Ritter, and Stevenson, 1972).

Few agriculture studies have used the delphi method since its inception in 1965 at the Rand Corporation in California. The use of this method was more often reported in industry and business than in agriculture. Most studies presented annually at the National Agricultural Education Research Meeting used structured questionnaires with closed ended questions. The lack of use of open-ended questions has been one of the criticisms of authors of research papers. The Delphi technique was used extensively by Burcalow (1985) in his study forecasting agriculture in the year 2000 in Minnesota. The Delphi technique was originally designed to help in forecasting in the highly technical aircraft industry in Southern California during the heyday of that industry in the late 1950's and 1960's. Since then, the delphi has been used as a data gathering tool where consensus is needed without face to face conflict between equally prominent experts in various fields.

The continued use of the delphi was evident by authors such as Parker (1980) in adult education, etc. Burcalow (1985) used the delphi in its fullest form with six rounds in the process. The first round is always the data gathering round. Subsequent rounds add refinement

and validity to the results by allowing the respondents to rate each item, add items or modify items independently. As the items came back to the respondents, they were able to critically evaluate the importance of the item in relation to other items and to consequences in the future. Burcalow's use of many rounds in the Delphi produced a thorough refinement of the concepts presented. The one drawback was the tremendous amount of time needed to complete the process.

The use of the Delphi has been sporadic as well as sparse with many modifications designed to give researchers the necessary results for their study. The utility and importance of the Delphi was borne out by this ability to be modified and yet perform with empirically stable results as to the main intent of the original design. The usefulness in the forecasting of perceived ideas as well as the ability to obtain consensus is the prominent feature of the Delphi.

The selection of a method to develop questions for the first round of the Delphi technique sent the researcher a look at several techniques to eliminate as much bias as possible. The use of the Nominal Group Technique was reported by Martin (1986) as a tool which gathered data without rejecting any ideas from the group. In the 1970's this process was used by vocational educators in the Ventura County Schools Office, California, and was called "Brainstorming." Brainstorming was also used in 1985 by Gail Christensen, Coordinator of Staff Training and Development, Oklahoma State University, as a demonstration tool for gathering ideas. Although the method was similar to the Delphi it did involve face to face meetings of respondents and could be dominated by stronger individuals. The difference in procedure of the two techniques, Delphi and Nominal Group Technique,

was significant enough to reject the use of the Nominal Group Technique as a tool for this study. The use of brainstorming to construct open-ended questions for the first round of the Delphi technique in this study was adopted by the researchers. The informality of Brainstorming was the reason it was used over the Nominal Group Technique as well as the adaptability for use by two individuals.

### Summary

The literature reviewed pointed out the need for research in the diffusion of innovations by agricultural educators, scientists and others. Providing baseline data for use by diffusionists was essential to the continuance of this longitudinal study. The literature provided techniques and possible solutions for use in this study for the gathering of the baseline information. The type of information to seek, the technique used to solicit it and the group to gather it from was unique to this study and yet related to the studies reviewed. More often the studies reviewed related the demographic differences in the subjects and the differences in responses based on demographic variables. These variables were not a factor in this study due to the homogeneity of the two groups.

There were many ways to use the Delphi technique and those studies reviewed used it differently from each other as well as from the original model. This was the flexibility of the Delphi technique and one of the reasons for selecting it to be the instrument for this study.

Perception studies, like the diffusion/adoption studies, were reported after the consequences of the innovation were known. Few



studies sought the input for innovation from users or disseminators. Those that did may have only used the information for forecasting and not for short range solutions. The rapidity of dissemination of information or an innovation and the consequences of that amount of time has not been studied. The need for research using Delphi techniques with farmers was clearly shown by the many studies that used closed-ended or forced choice questions. By soliciting and ranking the respondents' statements by themselves, the actual perceptions for acceptance and implementation of innovations of farmers was likely to be known. The importance of the perceptions of vocational agriculture teachers and county extension agents provided a sound basis for asking farmers and agribusinessmen if they also thought those areas were important or if they had different ideas not yet presented.

## CHAPTER III

### METHODOLOGY

#### Introduction

The purpose of this chapter is to address the methodology used and procedures followed in conducting the study. The specific population and instruments were determined in order to collect data which related to the purposes and objectives of the study. Statistics for analysis of the data collected were selected for the study. Information was gathered during the Fall of 1985, and the Spring and Fall of 1986.

This study was the first part of a longitudinal study that would include farmers and ranchers at a later date. In order to be able to establish a baseline of information for additional study, the data collected in this study were obtained to formulate questions for the later study. The data collected consisted of responses to open-ended questions about the alternative approaches feasible for current economic conditions and the rating of the responses as to importance. The research also collected data on the resources perceived as needed for diffusion by vocational agriculture teachers and county extension agents and the importance of those resources. The research described the perceptions of vocational agriculture teachers and county agriculture extension agents and the perceived importance of alternatives

in rank order by means. The consensus of each group was noted by the amount deviation of the observations from the means of the various statements.

### Population

The population of the study consisted of all of the vocational agriculture teachers and county agricultural extension agents within the boundaries of 22 selected counties in Southeast Oklahoma. The population was divided into two distinct groups consisting of vocational agriculture teachers and county agriculture extension agents. There were 143 vocational agriculture teachers and 20 county agriculture extension agents. The extension agents actually functioning as agriculture extension agents in the 22 counties numbered 20, with three counties listed by the Cooperative Extension Service Personnel Department as having vacant positions and no immediate plans to replace the agents. The number of each group responding is shown in Table I.

The counties listed in Table II were 22 counties in Southeast Oklahoma. Vocational agriculture teachers surveyed did not include those teachers of Farm Management in area vocational-technical schools in the region. Only county agriculture extension agents were used in the first data gathering survey but county 4-H extension agents were also questioned in the second survey where responses were rated. The inclusion of 4-H agents in the second round was to give input about agricultural youth from those who work with them in the extension program.

TABLE I  
RESPONDENTS TO DELPHI ROUNDS

	<u>Population</u>	<u>First Round Respondents</u>		<u>Second Round Respondents</u>	
	N	N	%	N	%
Vo Ag Teachers	143	123	86	129	90.2
County Ag Extension Agents	20	15	75	20	100

TABLE II  
COUNTIES IN STUDY

LeFlore	McCurtain
Haskell	Latimer
Pushmataha	Choctaw
Pittsburg	Atoka
Bryan	Hughes
Coal	Marshall
Johnston	Pontotoc
Seminole	Love
Carter	Murray
Garvin	Pottawatamie
Lincoln	Payne

### Instrumentation

In order to accomplish the purpose and objectives of the study, the following procedures were proposed. After a review of literature on procedures and instruments, two similar studies (Chalamira and Lawrence, 1984; Burcalow, 1985) provided information relating to the type of instrument needed to gather information needed to meet the objectives of the study. Based upon these studies, the Delphi technique was determined to be appropriate for this study. The Delphi technique has been used as a forecasting tool by other researchers such as Helmer (1967) in business. The Oklahoma State Department of Vocational-Technical Education used the technique as a forecasting tool (Hopkins, et al., 1972). The use of the delphi in this study was to provide information for future direction of research and education. The Delphi technique (Cyphert and Gant, 1971) consists of one or more rounds of open-ended questionnaires to poll original statements from respondents, with follow-up rounds of questionnaires directing the respondents to rate their statements for importance in relation to each other. The rating provides consensus of the group without face to face meeting.

The geographical area was selected for study in conjunction with the objectives of obtaining baseline information for use by the Wes Watkins Agriculture Research and Extension Center (AREC) located at Lane, Oklahoma. Since the AREC was implemented to serve a region which included Southeast Oklahoma, and information was needed to give direction for the AREC, the geographical area for this study was pre-determined.

The Delphi technique was used to gather information from the population because it was an instrument that did allow the maximum amount of freedom in solicitation of ideas from the respondents. Several factors helped in the selection of the Delphi technique. The first was the objective of the survey in seeking information from individuals without bias. Second, was the lack of opportunity to gather the respondents together for a discussion session for consensus. Third, was the difficulty or unlikeliness of obtaining consensus in a group of that size. Cyphert and Gant (1971) noted that in groups the individual with the most supposed authority or even the loudest voice would often influence the decision of the group on various issues. The ability to construct an instrument aimed at a specific group, in a given location, for the type of information needed made the choice of the Delphi technique a high priority.

The Delphi technique uses several rounds of open-ended questions or category statements to gather and refine opinions by individuals in the group as a basis for reaching a compromise on the issue. For this study a modified Delphi technique was used; it consisted of only two rounds. The questions and categories of the first round were formulated from the literature review and a brainstorming session among researchers. From the extensive list compiled, the final broad questions and specific categories were used to obtain as much information as possible from the respondents (Appendixes A and C). The initial round of open-ended questions was to gather possible alternatives from the respondents. The second round asked the respondents to rate those alternatives as to importance and feasibility (see Appendixes B and D).

The first round used questions to gather possible alternatives

from the respondents. The first question asked vocational agriculture teachers was "In what way(s) do you feel you can best aid adult farmers and ranchers in your school district to develop a more profitable operation?" For county agriculture extension agents, the same question was asked about their county instead of school district (Questionnaire, Appendix B and C). The second question asked vocational agriculture teachers was "In what way(s) do you feel you can best aid your Vo-Ag students to prepare to operate a profitable farm or ranch?" and county agriculture extension agents were asked on aid to agricultural youth. From these two questions a general solicitation of statements was gathered. A variety of issues deemed important by each group was edited for inclusion in the second round.

Questions three and four, respectively, asked "What alternative or improved approaches do you feel would most help young and adult farmers and ranchers in your local school district develop a more profitable operation?" and "What alternative or improved approaches do you think you should teach Vo-Ag students to best prepare them to operate a profitable farm or ranch?" The county agriculture extension and 4-H extension agents were asked the same question for their respective county and for agricultural youth. Each respondent was asked to list their responses in the following categories: livestock and dairy; poultry and eggs; wildlife; field crops; pasture and range; vegetables; fruits or nuts; forestry marketing; recording keeping; management; and write-in (respondents could add anything they felt important and not covered under another heading).

Questions five and six asked "What resource persons, research or information sources from OSU would you need to help you make this

information about these alternatives or improved approaches available to the young and adult farmers and ranchers in your local school district?" and "What information, research, or training would you need from OSU to adequately teach these alternatives or improved approaches to your Vo-Ag students?" in the categories listed above. For county agriculture and 4-H extension agents the county area was used and agricultural youth in place of school district and Vo-Ag students, respectively.

In addition, for the county agriculture extension agents, a summary of the most commonly occurring suggested alternatives from all questions in round one was developed for the round two questionnaire. This was to enable the respondents to give an overall opinion and to provide a general summary of the entire questionnaire to the researcher. The placement of this section at the end of the second round questionnaire was to give the respondents the opportunity to rate the items in summary after they had rated more specific alternatives.

Surveys were conducted in October 1985, initially to gather opinions, and again in February 1986 to rank the opinions. Surveys of vocational agriculture teachers were given at Professional Improvement (PI) Group meetings since the entire population was used. The meetings were held during the first week in October of 1985 and the first week in February of 1986. Surveys of county agriculture extension agents were given at a district meeting in December of 1985. County agriculture extension agents not attending the meeting or who could not fill it out due to time constraints were mailed a copy.

After the alternatives were received by the researcher, the opinions were edited and combined into statements for rating. For



purposes of rating the following scale was used: 1 (unimportant), to 99 (extremely important). Respondents were given directions to rate each alternative individually choosing any number from 1 to 99. The scale of 1 to 99 was used for the respondents to rate the importance and feasibility of each alternative. As a way to indicate the degree of certainty to responses, the scale from 1 to 99 spreads the negative and positive responses out to both ends of the scale with those left in the middle being less committed either way.

The use of this method of measurement from 1 to 99 answered many questions regarding measurement errors in sociological research. Individuals either tend to use scale extremes or avoid scale extremes. By using a scale from 1 to 99 respondents who have a tendency to avoid the extremes may be more discriminatory when given the wide choice of responses (Liu, 1979).

The responses were rated on a scale from 1 to 99 so that means of the ratings could be developed for ranking. The second round of questionnaires given to vocational agriculture teachers was administered at PI Group meetings in February, 1986. The second questionnaire consisted of alternatives suggested in response to six open-ended questions. The alternatives were maintained as close in content and context to the original responses from the first questionnaire as possible. The second round for the county agents was mailed to each agent due to the lack of a common meeting where the round would have been administered. The small number of 20 county agriculture and 4-H extension agents made this feasible as compared to the larger group of 143 vocational agriculture teachers. The 4-H extension agents were asked to respond in the second round only because questions two,

four, five, and six dealt with youth. In the second round of the vocational agriculture teachers, 123 attended the meetings. All 20 county agriculture and nine 4-H extension agents were mailed a questionnaire (Appendix D) and cover letter (Appendix E) and through mail and telephone follow-up responded.

The statements for each original round one question and the various categories are shown in Appendix B. In the questionnaire for vocational agriculture teachers, 122 alternatives were suggested for rating. For county agriculture extension agents, 213 alternatives were suggested for rating.

For the vocational agriculture teachers, the edited responses submitted for rating for each question and category are shown in the instrument in Appendix B. Responses submitted for rating to county agriculture and 4-H extension agents are shown in the instrument in Appendixes A and C. The questions and categories were the same for each group except to reflect the geographical sphere of influence by respondents and the youth organization with which each is associated. After the questionnaires were returned the ratings were summed, the mean scores were determined, and the standard deviation was determined.

#### Statistical Procedures

Means were derived for the vocational agriculture teachers after entering the raw scores into the Appleworks Spreadsheet program. Standard deviations were calculated on the spreadsheet using the formula from Van Dalen (1979, p. 484). The formula  $\sigma = \sqrt{Ex2/N}$  was entered into spreadsheet cells for calculation step by step from the formula. At this point, the means could be ranked by the researcher. Ranking of

means produced a list of statements in order of importance as perceived by the respondents. The county agriculture extension agents' responses were entered on the IBM 3081 mainframe at Oklahoma State University using the SAS statistical program. The data were sorted using the Proc Sort command. Then using the Proc Means command in place of Proc Sort, descriptive statistics were given and included means, standard deviations, minimum/maximum values, and N.

Means were ranked in order of importance on the same scale as the ratings, from 1 "not important" to 99 "extremely important." The scores of respondents of 0 changed to 1 and 100 to 99 to stay within the boundaries of the scale assigned. Blanks were left as no score and not calculated in the means. Standard deviations were included with each statement ranked.

## CHAPTER IV

### FINDINGS AND PRESENTATION OF DATA

#### Introduction

The purpose of this chapter is to present data which were collected to describe the importance and feasibility of alternative approaches to farming and ranching as perceived by vocational agriculture teachers and county agriculture extension agents in Southeast Oklahoma. In addition, the research and resource needs of vocational agriculture teachers and county agriculture extension agents are presented. The data are presented as they represent Southeast Oklahoma and will be used as baseline data for future research among farmers and ranchers in Southeast Oklahoma.

The data were collected with a modified Delphi technique instrument surveying 143 vocational agriculture teachers and 20 county agriculture extension agents in 22 counties of Southeast Oklahoma. The first round collected suggested alternatives from respondents of their perceptions of aid to farmers, ranchers and youth to help raise the current low economic level of agriculture. The suggestions collected were edited and compiled for rating by the respondents. The first section presents the results of the second and final questionnaire for vocational agriculture teachers where the rank, mean and standard deviations were given based on the rating by the teachers of suggested

alternatives generated through the first questionnaire. The second section presents the results of the second and final questionnaire for county agriculture and 4-H extension agents where the rank, mean and standard deviations were given based on the ratings of the responses generated through the first questionnaire. The 4-H extension agent ratings were combined with those of the agriculture extension agents for those questions involving agricultural youth. Only the agriculture agents' ratings were used for the questions dealing with the adult farmers and ranchers.

#### The Population

The first round questionnaire was responded to by 123 of the 143, or 86 percent of the vocational agriculture teachers listed in the 1985-86 Directory of Vocational Agriculture Teachers and State Staff and who attended Professional Improvement Group (PI) meetings during the FFA Interscholastic Contests in October 1985. The meetings were held in the respondents' respective Professional Improvement Groups at various locations in Southeast Oklahoma and the questionnaire was administered on site by the investigators. The vocational agriculture teachers produced 122 suggested alternatives to be used for rating as to importance and feasibility. The second round questionnaire was responded to by 129 vocational agriculture teachers at PI Group meetings resulting in a 90.2 percent return.

The first round questionnaire was mailed to the 20 county extension agriculture agents due to lack of time for administering the instrument at a Southeast Oklahoma District meeting. Follow-up letters (Appendix E) and telephone calls resulted in a total of 15, or 75

percent, of the questionnaires being returned. The questionnaires generated 213 suggested alternatives to be used for rating. The second round questionnaires for county agriculture extension agents were mailed to the 20 counties and all, or 100 percent, of the agents responded after two follow-up letters and telephone calls. All questionnaires returned were useable. Blank spaces left on some alternatives were treated as a nonresponse and were not calculated in the mean for that statement.

The second round was also given to nine 4-H extension agents for rating. These agents were included to obtain their perceptions on the youth questions since they deal directly with youth more than county agriculture extension agents. All nine 4-H agents responded to the questionnaire. The nine are the total 4-H agents in the study area.

#### Importance and Feasibility Ratings of Vocational Agriculture Teachers

Vocational agriculture teachers, in the first round, in response to the first question "In what way(s) do you feel you can best aid adult farmers and ranchers in your school district to develop a more profitable operation?" produced 11 suggested alternatives for rating in the second round. The second round ratings were made on a scale from 1 to 99, with 1 being "unimportant" and 99 being "extremely important". Mean ratings were given means among respondents were calculated to show the group average rating and then ranked. Standard deviations were calculated for each response statement to show consensus of agreement among respondents for the rating of each

suggested alternative. This procedure of ranking and calculating a standard deviation for each mean was repeated for each alternative in all questionnaires. The means, standard deviations, and ranks for responses to the first question are shown in Table III.

The highest mean for the first question was 74.41 and the lowest was 54.45 for a range of 19.16. Standard deviations ranged from a low of 24.78 to 33.82. The two highest ranked means, 76.41 and 74.22 had differences of only two (2) points and the lowest standard deviations of 24.78, 25.46, and 26.81 had differences of slightly over two (2) points. The two highest ranked response statements were: "Educate farmers and ranchers to use record keeping and farm management more efficiently" and, "Help the farmers find better markets." The lowest ranked alternative was: "Help them contact government officials to help resolve such problems as the national debt, Fm Hm Administration, foreign trade, international trade dollar value, and marketing and tax credits."

The second question, in the first round, resulted in 12 statements in response to the question "In what way(s) do you feel you can best aid your Vo-Ag students prepare to operate a profitable farm or ranch?" for rating in the second round. Results are given in Table IV.

The mean scores, in Table IV, ranged from a high of 80.53 to a low of 45.58 and standard deviations varied from a low of 18.76 to a high of 39.65. The three highest ranked responses varied less than two points in means and standard deviations differed just under three points. The highest ranked response: "Encourage better record keeping and market analysis", was closely followed by, "Teach students HOW to ask questions about profitable farming and where and how they can

TABLE III

IMPORTANCE RATINGS BY VO-AG TEACHERS OF SUGGESTED  
ALTERNATIVES TO AID FARMERS AND RANCHERS  
DEVELOP MORE PROFITABLE OPERATIONS

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
74.41	26.81	1	Educate farmers and ranchers to use record keeping and farm management more efficiently.
74.22	29.65	2	Help the farmers find better markets.
71.46	24.78	3	Provide programs to make farmers and ranchers more aware of new methods and technology.
69.53	27.57	4	Advise on methods to cut costs and work more efficiently.
68.76	25.46	5	Provide more adult education programs utilizing available outside resource people.
67.44	26.94	6	Encourage more diversification or more specialization as needed.
67.39	27.03	7	Teach effective enterprise management, that is, how to know when to switch from livestock to crops or to some other enterprise to maximize profits.
67.05	27.39	8	Help develop cooperative selling of commodities.
66.32	33.82	9	Help farmers obtain financing with lower interest rates.
57.77	29.75	10	Provide more research in agricultural technology.
54.56	30.89	11	Help them contact government officials to help resolve such problems as the national debt, Fm Hm Admin., foreign trade, international trade dollar value, and marketing and tax credits.



TABLE IV

IMPORTANCE RATINGS BY VO-AG TEACHERS OF SUGGESTED  
ALTERNATIVES TO AID VOCATIONAL AGRICULTURE  
STUDENTS DEVELOP PROFITABLE FARM OR  
RANCH

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
80.53	19.09	1	Encourage better record keeping and market analysis.
79.38	18.76	2	Teach students HOW to ask questions about profitable farming and where and how they can find the answers WHEN they need those answers.
78.97	21.84	3	Teach fundamentals of sound money management.
78.16	23.37	4	Use examples of present farming situations, both profitable and non-profitable, to make students aware of the economic situation of farming.
77.41	23.25	5	Help students to have better SOEP's.
77.11	19.62	6	Teach students to be more diversified in their operations.
77.05	22.80	7	Encourage students to look into ag related careers and not so much at production farming.
76.45	19.50	8	Teach farm management as a broad based subject which includes marketing, production costs and financing of the total farm operation.
74.64	22.19	9	Teach students management of time and money so they can explore alternatives before making commitments.
74.45	24.29	10	Teach students to upgrade their thinking on more economical, productive and efficient ways. (e.g., livestock and forage utilization)
59.86	29.11	11	Encourage students to change from cattle business to vegeable or fruit production. (Where conditions permit.)

find answers WHEN they need those answers."

The lowest ranked two alternatives were over 10 points lower than the highest ten suggested alternatives. The lowest two alternatives were: "Eliminate jackpot shows and the high prices of show projects" and, "Encourage them to change from cattle to vegetables or fruit (Where conditions permit.)" The highest standard deviation 39.65 was 10 points above the next score of 29.11. Differences in the three highest means was less than two (2) points and the three lowest standard deviations differed less than one (1) point.

Suggested alternatives to questions three and four in the first round were combined for the eight categories listed under each question, for specific alternatives to those areas. The categories and number of responses were: Livestock and Dairy, seven; Poultry and Eggs, six; Wildlife, six; Field Crops, six; Pasture and Range, four; Vegetables, ten; Fruit and Nuts, three; Forestry, six; Marketing, six; Record Keeping, seven; Management, five; and Write In, six. Results for questions three and four are given in Tables V through XI.

The highest mean for the third and fourth questions, in all categories, was 81.58 in Table VII and the lowest was 54.10 in Table VI for a range of 27.48 points. Standard deviations ranged from a low of 25.24 to a high of 36.44. The highest ranked mean, 81.58, in the Pasture and Range category also had the lowest standard deviation of 25.54. The highest ranked alternative in all categories was: "Rotate pastures and control grazing." The highest standard deviation was in the Wildlife category, from Table VI, and the lowest mean was also in the Wildlife category. The overall lowest ranked alternative was: "Provide guide services to protect the land." and

TABLE V

IMPORTANCE RATINGS BY VO-AG TEACHERS OF SUGGESTED  
ALTERNATIVES TO AID VO AG STUDENTS, FARMERS  
AND RANCHERS DEVELOP MORE PROFITABLE  
AGRICULTURAL ANIMAL ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES BY ENTERPRISE
<u>LIVESTOCK AND DAIRY</u>			
76.77	27.53	1	Create a production-to-market system that cuts out the middleman.
75.57	27.74	2	Have long term goals, starting small, working part time and avoiding high interest rates to get started.
74.70	23.60	3	Management programs and information in such areas as animal health , A. I. programs, selection and feeding, and keep and cull.
65.22	27.74	4	More technical programs in animal science.
60.12	30.06	5	Encourage different types of livestock such as sheep or goats.
59.69	28.45	6	Give more information on OSU research or Extension programs.
57.90	31.23	7	Have a TV station run Ag information programs 24 hours a day.
<u>POULTRY AND EGGS</u>			
67.03	29.22	1	Provide management information on feeding, diseases, etc.
66.71	28.90	2	Have feed company and processor representatives visit Vo-Ag classes.
65.21	29.21	3	Encourage contact with processors that have specialists who aid the poultry producer.

TABLE V (Continued)

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES BY ENTERPRISE
61.14	29.45	4	Encourage expansion where profitable.
60.73	31.03	5	Find alternatives for financing.
58.35	29.50	6	Provide more information on processing.

TABLE VI

IMPORTANCE RATINGS BY VO-AG TEACHERS OF SUGGESTED  
ALTERNATIVES TO AID VO AG STUDENTS, FARMERS  
AND RANCHERS DEVELOP MORE PROFITABLE  
WILDLIFE ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
69.68	28.95	1	Expose students to game biologists and wildlife rangers.
68.38	29.19	2	Learn how to use natural resources and crops for wildlife.
63.20	36.44	3	Help stop poaching.
57.52	32.92	4	Use trapping as an SOE project.
54.65	35.31	5	Lease land (for hunting, fishing, etc.)
54.10	32.60	6	Provide guide services to protect the land.

TABLE VII

IMPORTANCE RATINGS BY VO-AG TEACHERS OF SUGGESTED  
ALTERNATIVES TO AID VO AG STUDENTS, FARMERS AND  
RANCHERS DEVELOP MORE PROFITABLE AGRICULTURAL  
CROP AND FORAGE ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
<u>FIELD CROPS</u>			
73.56	25.71	1	Provide information on management, marketing and new practices.
73.19	26.39	2	Use better pest control and improved seed varieties.
72.94	27.37	3	Adapt crops to soil conditions.
72.51	28.60	4	Give more information on fertilizers, spraying and new varieties.
65.98	30.47	5	Use proper harvesting methods.
35.28	32.57	6	Don't plant field crops.
<u>PASTURE AND RANGE</u>			
81.58	25.24	1	Rotate pastures and control grazing.
78.99	27.31	2	Use year around pasture with improved varieties.
76.81	28.08	3	Use new methods of forage production.
72.60	29.72	4	Improve ASCS programs and make them exempt from income taxes.

TABLE VIII

IMPORTANCE RATINGS BY VO-AG TEACHERS OF SUGGESTED  
ALTERNATIVES TO AID VO AG STUDENTS, FARMERS AND  
RANCHERS DEVELOP MORE PROFITABLE  
AGRICULTURAL HORTICULTURAL  
ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
<u>VEGETABLES</u>			
69.87	28.74	1	Encourage more usage of research station, field days, etc.
69.80	30.34	2	Show the advantage in initial investment between small acreage truck farms and bigger acreage cattle operations.
69.75	28.95	3	Provide more information on changing to growing vegetables.
69.75	30.14	4	Use better or develop better varieties.
69.52	29.07	5	Develop programs on labor saving methods.
69.18	31.12	6	Use small acreages.
67.92	31.73	7	Provide methods to solve harvesting problems.
66.71	32.31	8	Provide incentive or low interest loans to encourage adoption.
66.42	31.33	9	Develop transportation for produce to markets or processing area.
66.08	33.62	10	Increase the number of canneries in the area.
<u>FRUIT OR NUTS</u>			
63.77	29.67	1	More development of small fruits like grapes, and blueberries.
63.67	30.33	2	Diversify enterprises with nuts or fruits, like pecans.
57.14	32.25	3	Do no expansion, just take better care of existing orchards.

TABLE IX

IMPORTANCE RATINGS BY VO-AG TEACHERS OF SUGGESTED  
ALTERNATIVES TO AID VO AG STUDENTS, FARMERS  
AND RANCHERS DEVELOP MORE PROFITABLE  
FORESTRY ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
67.89	30.74	1	Provide more information on selection and harvesting.
65.23	31.36	2	Provide new products or production methods information.
62.02	32.18	3	Practice reforestation at the local level using FFA Chapters and supervised by SCS or the Forestry Service.
60.61	33.17	4	Develop marketing practices for walnut and pecan lumber.
60.57	31.90	5	Use management of woodlands for firewood.
58.84	32.11	6	Set up demonstration tours.



TABLE X

IMPORTANCE RATINGS BY VO-AG TEACHERS OF SUGGESTED  
ALTERNATIVES TO AID VO AG STUDENTS, FARMERS  
AND RANCHERS DEVELOP MORE PROFITABLE  
AGRICULTURAL STRATEGIES

MEAN RATINGS	SD	RANK	SUGGESTED STRATEGIES
<u>MARKETING</u>			
72.08	28.73	1	Teach marketing, record keeping and management together.
69.97	26.12	2	Use coop buying and selling techniques.
69.54	34.14	3	Improve export laws.
67.97	29.33	4	Develop new and alternative marketing schemes.
67.77	28.45	5	Learn how to use hedging and futures.
66.46	28.68	6	Practice studying marketing cycles and price analysis.
<u>RECORD KEEPING</u>			
77.25	26.59	1	Teach accuracy in keeping records.
74.02	27.45	2	Emphasize tax management.
72.74	27.97	3	Use computers to help keep records.
71.57	28.02	4	Provide better record forms.
71.41	27.18	5	Teach economics and cost analysis.
70.61	30.15	6	Don't overspend the farm projected budget.
70.54	26.63	7	Encourage attendance in farm business management programs.
<u>MANAGEMENT</u>			
75.00	28.59	1	Explain the difference between needs and wants.
72.65	29.44	2	Use better organization for cash flow.
72.54	30.17	3	Encourage farmers and ranchers not to buy a new piece of equipment every year or two, unless absolutely needed.
69.24	27.63	4	Use computers for management systems.
58.53	33.54	5	Form partnerships on land and equipment.

TABLE XI

IMPORTANCE RATINGS BY VO-AG TEACHERS OF OTHER SUGGESTED  
ALTERNATIVES TO AID VO AG STUDENTS, FARMERS AND  
RANCHERS DEVELOP MORE PROFITABLE AGRICULTURAL  
OPERATIONS

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
			<u>WRITE IN</u>
72.05	27.09	1	Provide field trips.
70.19	29.84	2	Present new material and people at PI meetings.
69.47	28.08	3	Have an Ag Mechanics program for Young Farmers.
65.96	29.25	4	Use video tape presentations in conjunction with speeches.
65.10	32.77	5	Provide mini units as supplements.
63.42	32.26	6	Have a school farm where students can work and earn money for the chapter.

came from the Wildlife category.

The highest means were found in the tables under listed categories, from teachers, in the following order: Pasture and Range, Table VII; Record Keeping, Table X; Livestock and Dairy, Table V; Management, Table X; Field Crops, Table VII; Write In, Table XI; Marketing, Table X; Vegetables, Table VII; Wildlife, Table VIII; Forestry, Table IX; Poultry and Eggs, Table V; and Fruit or Nuts, Table VIII. Tables VIII and IX had means of less than 70 and the rest of the tables had means of 70 or above. Seventy was considered a natural breaking point between "very important" and "important" suggested alternatives as shown by the mean scores.

Questions five and six were combined from the first round on to round two and resulted in response ratings of the suggested alternatives to the following question. "What resource persons, research or information sources from OSU would you need to help you make this information about these alternative or improved approaches available to the young and adult farmers and ranchers in your local school district?" AND (6.) "What information, research, or training from OSU would you need to adequately teach these alternative or improved approaches to Vo-Ag students?" The categories were: Livestock and Dairy, six; Poultry and Eggs, zero; Wildlife, one; Field Crops, three; Pasture and Range, two; Vegetables, two; Fruit or Nuts, one; Forestry, three; Marketing, two; Record Keeping, two; Management, four; and Write In, none. Results of questions five and six are shown in Table XII. Rank, as to importance and feasibility, was by means, and for concensus of agreement on suggested alternatives, standard deviations are given.

The following findings were from Table XII on resources needed by

TABLE XII

IMPORTANCE RATINGS BY VO-AG TEACHERS OF SUGGESTED  
RESOURCES NEEDED TO AID THEM TO DEVELOP  
EDUCATIONAL PROGRAMS FOR FARMERS,  
RANCHERS AND YOUTH

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES BY ENTERPRISE
<u>LIVESTOCK AND DAIRY</u>			
77.18	25.39	1	Resource people to get down to the same level as farmers (don't always talk about spending money).
73.94	25.84	2	Videos of new practices.
72.07	27.66	3	More <u>practical</u> fact sheets.
69.40	27.89	4	Information on the newest breeds doing good on the market.
60.89	31.91	5	Resource people to convince producers to use futures market.
57.46	31.24	6	Ag agents and Extension specialists.
<u>WILDLIFE</u>			
55.92	35.31	1	Information on how to lease.
<u>FIELD CROPS</u>			
71.60	31.56	1	Information on weed control, irrigation and fertilizers.
70.82	31.43	2	Resource people to show farmers ways to improve.
67.72	39.95	3	Farmers as resource people.
<u>PASTURE AND RANGE</u>			
67.50	31.78	1	Money management information, how much production can we afford?
61.92	32.80	2	Ag agents and Extension Specialists.
<u>VEGETABLE</u>			
71.12	32.77	1	Better market development.
63.47	33.74	2	Up-to-date resource personnel.
<u>FRUIT OR NUTS</u>			
63.26	33.27	1	Information on how to start up an orchard.

TABLE XII (Continued)

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES BY ENTERPRISE
<u>FORESTRY</u>			
55.29	34.52	1	Information on how much production can we afford.
50.31	35.28	2	Information on how to set up a forest.
45.14	34.17	3	Old timers as resource people, in conjunction with a coordinator.
<u>MARKETING</u>			
72.75	32.53	1	A stable market for vegetables in our area.
69.54	32.71	2	Information on when and how to market.
<u>RECORD KEEPING</u>			
76.18	30.08	1	A method to convince people they should keep records.
60.20	32.90	2	Motivation from past State Farmers.
<u>MANAGEMENT</u>			
72.66	31.69	1	A thorough explanation of markets and the farm credit system.
69.69	31.93	2	Information on money management.
69.61	30.95	3	Information on alternatives to unprofitable production.
68.44	31.03	4	Information on banking.

vocational agriculture teachers. The highest mean for the fifth and sixth questions was 77.18 in the Livestock category and the lowest was 45.14 for a range of 32.04. The highest ranked alternative was: "Resource people need to get down to the same level as farmers (don't always talk about spending money)." The lowest ranked alternative was in Forestry and stated: "Old timers as resource people, in conjunction with a coordinator." Standard deviations ranged from a low of 25.39 to 39.95. The highest ranked means, in each category was above 70 except for Forestry which was 55.29; and Wildlife, 55.92. A standard deviation of 25.39 was the lowest and was in the Livestock and Dairy category. Two low standard deviations in the Livestock and Dairy category were 25.39 and 25.84. The next high mean to the top mean was 76.18 in the Record Keeping category.

#### Importance and Feasibility Ratings of County Agriculture Extension Agents

The first round for county agriculture extension agents in response to the first question "In what way(s) do you feel you can best aid adult farmers and ranchers in your county to develop a more profitable operation?" produced 18 suggested alternatives for rating in the second round. Table XIII shows the results of the second round for the first question. The second round ratings were made on a scale from 1 to 99, with 1 being "unimportant" and 99 being "extremely important". Ratings were given mean averages among respondents and then ranked. Standard deviations were calculated for each suggested alternative to show consensus of agreement among respondents for the rating of each item. This procedure of ranking and standard

TABLE XIII

IMPORTANCE BY COUNTY AGRICULTURE EXTENSION AGENTS  
RATINGS OF SUGGESTED ALTERNATIVES TO AID  
FARMERS AND RANCHERS DEVELOP MORE  
PROFITABLE OPERATIONS

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
85.79	8.50	1	Help farmers look at returns from practices used to maximize yields, such as implants, supplemental protein, heavy fertilization, and others to make sure they are profitable.
85.18	12.77	2	Take more time for one-to-one visits with farmers and ranchers.
81.50	18.72	3	Help farmers reduce costs rather than produce maximum yields.
81.00	11.13	4	Encourage a strict culling program based on pregnancy testing and weaning weights.
75.79	20.63	5	Teach better management practices, including record keeping.
75.54	16.29	6	Help farmers consider direct marketing alternatives.
75.46	23.78	7	Inform farmers about new products that work or don't work.
75.18	16.40	8	Present the current information available, as well as new techniques as they appear, in a more interesting and informative way.
72.04	15.70	9	Encourage farmers to carefully scrutinize enterprises for profitability and eliminate those which are unprofitable, selling the associated enterprise equipment.
69.32	21.27	10	Educate loan agencies about the needs of small acreage farmers.
68.11	23.19	11	Encourage diversification from cow-calf to other enterprises, e.g. vegetables, fruits, stockers, etc.
64.96	19.15	12	Encourage minimum or no-till farming where feasible.
64.82	20.95	13	Encourage the group approach through growers' cooperatives.

TABLE XIII (Continued)

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MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
61.14	23.70	14	Provide educational meetings (with videos) of what farmers in other parts of the country are doing successfully.
60.14	22.32	15	Encourage farmers to shop for lower interest rates for credit and carefully consider the soundness of the lending agency.
57.86	23.58	16	Have a program on fitting equipment size to the job to be done and comparing for effective operation.
57.79	23.79	17	Help develop area financial resources.
52.00	24.90	18	Help develop area packing houses.

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deviation for each mean was repeated for each alternative in all questionnaires.

The highest mean for the first question was 86.75 and the lowest was 50.30 for a range of 36.45. The two highest ranked alternatives with almost identical means were: "Take more time for one-to-one contact with farmers and ranchers." and, "Help farmers look at returns from practices used to maximize yields, such as implants, supplemental protein, heavy fertilization, and others to make sure they are profitable." The lowest ranked alternative was: "Help develop area packing houses." Standard deviations ranged from a low of 8.55 to 26.33 for a range of 17.78 and were correspondingly the same as the highest means. The four highest ranked means, 86.75, 86.35, 82.20, and 79.90 had differences of just almost seven and the lowest standard deviations of 8.55, 9.06, 12.56, and 12.83 had differences of slightly over four points.

The second question, in the first round, resulted in 20 suggested alternatives in responses to the question, "In what way(s) do you feel you can best aid your AGRICULTURAL YOUTH prepare to operate a profitable farm or ranch?" for rating in the second round. The question developed 20 suggested alternatives. Combined ratings by extension agriculture and 4-H agents are given in Table XIV.

The highest mean for the second question was 78.66 and the lowest was 32.14 for a range of 46.52 points from Table XIV. The highest ranked three alternatives, which had very similar mean ratings, were: "Emphasize profitability in production projects rather than maximum production"; "Emphasize the importance of knowing all phases of an enterprise from planning to marketing"; "Encourage a good education

TABLE XIV

IMPORTANCE RATINGS BY COUNTY AGRICULTURE AND 4-H  
EXTENSION AGENTS OF SUGGESTED ALTERNATIVES TO  
AID AGRICULTURAL YOUTH DEVELOP A  
PROFITABLE FARM OR RANCH

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
78.66	16.87	1	Emphasize the importance of knowing all phases of an enterprise from planning to marketing.
77.59	17.49	2	Emphasize profitability in production projects rather than maximum production.
76.55	17.77	3	Encourage a good education to qualify for ag-related, off-farm employment.
74.10	19.94	4	Develop interesting and useful projects and activities that are not available from schools, churches or other clubs.
73.90	25.54	5	Stress production projects that get away from emphasizing the show program.
73.14	18.62	6	Show them how to grow profitable crops, i.e. strawberries and asparagus.
73.14	26.83	6	Teach poise, public speaking and other leadership skills to enable them to become leaders in agriculture.
73.10	20.63	8	Provide practical experience in youth agriculture projects with a realistic presentation of farm business management that stresses record keeping and economic feasibility.
72.24	17.95	9	Encourage post high school training in agriculture.
71.90	23.70	10	Encourage training during high school in actual farming operations as opposed to trophy-winning activities.
69.83	20.10	11	Have realistic presentations on farm business management, including record keeping, enterprise budgets and computer use.

TABLE XIV (Continued)

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
68.17	28.51	12	Instill a desire to pursue higher education in order to learn to make sound decisions.
63.24	23.20	13	Emphasize that access to low fixed cost land is necessary before they can consider going into farming.
62.00	22.28	14	Stay with basic 4-H work based on agriculture production.
59.48	26.49	15	Have programs to show the difference between hobby farming and business farming.
58.00	25.41	16	Encourage youth to consider agribusiness instead of farming and ranching.
57.83	30.67	17	Tell them they probably can't make it without someone helping with financing.
55.62	31.30	18	Eliminate projects that are unprofitable.
52.28	33.93	19	De-emphasize livestock shows.
32.14	33.28	20	Eliminate stock shows.

to qualify for ag related, off-farm employment." The lowest ranked alternative was: "Eliminate stock shows." Standard deviations ranged from a low of 16.87 to 33.93. The three highest ranked means, 77.59, 76.66 and 76.55 had differences of just over one point and the lowest standard deviations of 16.87, 17.49 and 17.77 had differences of slightly under one point.

Question three, for farmers and ranchers, in the first round listed various agricultural categories. Specific responses to those categories resulted in suggested alternatives in every category as listed in Tables XV through XVIII. The categories and number of alternatives suggested were: Animals, 15, Table XV; Poultry, three, Table XV; Field Crops, 15, Table XVI; Vegetables, Fruit and Nuts, 16 Table XVI; Forestry, 16, Table XVII; Marketing, eight, Table XVIII; Management, 10, Table XVIII. The results for question three are shown in Tables XV through XVIII.

The highest mean for the third question in the second round was 84.00, from Table XV, and the lowest was 26.15 for a range of 57.85 points. The highest ranked alternative was Forage Management, closely followed by Pasture Improvement, Planned Breeding, and Better Record Keeping, all from Table XV. The lowest ranked alternative was: "Dairy goat cheese production and marketing." The widest spread in standard deviations ranged from a low of 9.41 to 36.39, in Table XVI, for a range of 26.98 points. The three highest ranked means, 84.00, 83.90 and 83.20 from Tables XV and XVI, respectively, had differences of less than one point and the lowest standard deviations of 24.78, 25.46 and 26.81 had differences of slightly over two (2) points.

Responses to question four, for youth, in the first round for the

TABLE XV  
 IMPORTANCE RATINGS BY COUNTY AGRICULTURE EXTENSION  
 AGENTS OF SUGGESTED ALTERNATIVES TO AID  
 FARMERS AND RANCHERS DEVELOP MORE  
 PROFITABLE AGRICULTURAL ANIMAL  
 ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
<u>LIVESTOCK AND DAIRY</u>			
84.00	11.90	1	Forage management
83.90	13.51	2	Pasture improvement
81.80	10.59	3	Planned breeding
81.75	16.84	4	Better record keeping
80.00	22.80	5	Improved marketing
79.30	21.92	6	Implanting
78.05	14.75	7	Improved herd management
77.25	18.37	8	Pregnancy testing
74.55	17.33	9	The Oklahoma Gold and Silver Plan
73.75	16.14	10	Feeding least cost rations
71.40	21.40	11	Pest control
68.35	18.77	12	Cooperative marketing
62.05	19.87	13	Increasing ewe and lamb production
29.80	29.86	14	Improved dog care programs for kennel owners
26.15	28.91	15	Dairy goat cheese production and marketing
<u>POULTRY</u>			
42.00	31.28	1	Increased basic knowledge
41.89	32.70	2	Development of closer markets
40.26	31.35	3	Better housing and management programs.

TABLE XVI

IMPORTANCE RATINGS BY COUNTY AGRICULTURE EXTENSION  
AGENTS OF SUGGESTED ALTERNATIVES TO AID FARMERS  
AND RANCHERS DEVELOP MORE PROFITABLE  
AGRICULTURAL CROP ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
<u>FIELD CROPS</u>			
83.20	9.41	1	Pasture spraying
82.20	19.59	2	Maximizing profit, not yield
80.15	11.80	3	Enterprise profitability comparison
79.35	17.78	4	Improved marketing
78.30	20.55	5	Increased hay and soil testing
77.05	14.16	6	Improved insect and weed control
76.05	18.35	7	Improved pasture and hay production
72.95	20.13	8	Diversification
72.10	17.87	9	Planting improved seed varieties
72.00	21.13	10	Intensified management and less acreage
71.15	19.16	11	Alternating crops
70.15	11.56	12	Greater use of fertilizers
63.40	21.41	13	Futures marketing
55.00	25.89	14	Double cropping
51.30	34.90	15	Updated peanut workshops each year
<u>HORTICULTURE</u>			
79.85	14.41	1	Improved marketing
78.25	16.74	2	Increased basic information
77.15	23.49	3	Maintaining a small scale until the techniques are learned
76.95	17.37	4	Growing small acerages of high yield crops
73.60	19.10	5	Growing adapted varieties that will sell
72.60	17.42	6	Learning the intensive horticulture management skills required as opposed to the less intensive skills of beef production.
69.85	23.50	7	Emphasis on quality
69.85	22.56	7	Drip irrigation
69.30	25.19	9	Expanded commercial production
69.25	21.00	10	Improved pest control
67.55	20.50	11	Help in Horticulture Economics

TABLE XVI (Continued)

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MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
63.65	15.32	12	Establishment of vineyards, apple and peach orchards
63.20	25.79	13	Improved labor availability
61.80	25.49	14	Development of a packing and grading shed
61.75	21.29	15	Improved pruning
50.70	36.39	16	Full time county horticulture extension agent

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TABLE XVII

IMPORTANCE RATINGS BY COUNTY AGRICULTURE EXTENSION  
AGENTS OF SUGGESTED ALTERNATIVES TO AID FARMERS  
AND RANCHERS DEVELOP MORE PROFITABLE  
FORESTRY ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
60.11	21.99	1	Utilize current programs
58.42	28.02	2	Using land unsuitable for crops for forests
56.63	26.19	3	Growing Christmas trees
56.42	25.36	4	Improved controlled burning
55.79	27.69	5	Proper chemical use
49.32	25.50	6	Improved tree planting
46.63	27.09	7	Producing firewood, hardwood lumber, pulpwood, etc.
40.32	22.48	8	Planting wood lots and windbreaks
35.89	26.06	9	Growing red oak



TABLE XVIII

IMPORTANCE RATINGS BY COUNTY AGRICULTURE EXTENSION  
AGENTS OF SUGGESTED ALTERNATIVES TO AID  
FARMERS AND RANCHERS DEVELOP MORE  
PROFITABLE AGRICULTURAL  
STRATEGIES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
<u>MARKETING</u>			
74.55	20.42	1	Development of a quality product with a reputation
73.40	17.37	2	Better utilization of free extension information
70.95	17.06	3	Direct marketing
70.85	20.80	4	A method of determining marketplace needs
64.90	20.50	5	A broader market base
64.35	23.03	6	Development of a pricing structure
59.65	27.95	7	Increased technical information from Three Rivers
58.80	23.87	8	Futures marketing
<u>MANAGEMENT</u>			
78.75	18.40	1	Improved use of OSU research information
78.70	17.50	2	Improved record keeping
77.10	19.54	3	Improved budgeting
77.05	15.61	4	Use of least cost machinery for enterprise
76.40	26.87	5	Improved cash flow management
76.25	21.15	6	Use of management as a production practice
74.80	24.13	7	Increased use of Extension and VoAg information
72.60	28.10	8	Improved debt servicing
70.00	23.13	9	Use of information from an unbiased source
67.20	21.53	10	Increased computer use

categories listed under each question for specific responses to those areas produced suggested alternatives in all categories. The categories and number of alternatives were: Animals, 12, Table XIX; Poultry, four, Table XX; Field Crops, eight, Table XXI; Vegetables, eight, Table XXII; Fruit and Nuts, three, Table XXIII; Forestry, six, Table XXIV; Marketing, five, Table XXV; Management, nine, Table XXVI. The results for question four are shown in Tables XIX through XXVI.

The highest mean for the fourth question was 81.38 and the lowest was 40.69 for a range of 40.69 points, from Tables XIX and XXVI, respectively. Standard deviations ranged from a low of 20.12 in Table XXVI, to 34.63 in Table XXV. The three highest ranked means, 81.38, 78.28 and 78.24 had differences of 3.14 points and the lowest standard deviations of 20.12, 10.97 and 21.14 had differences of 1.02 points from Table XXVI.

Tables XXV and XXVI show results of questions five and six that were combined from the first round responses on round two and resulted in suggested alternatives to the following question: "What resource persons, research or information sources from OSU would you need to help you make this information about these alternative or improved approaches available to the FARMERS AND RANCHERS in your county: AND (6.) "What information, research, or training from OSU would you need to adequately educate AGRICULTURAL YOUTH about these alternative or improved approaches in?" The categories and alternatives were: Animals, eight, Table XXV; Poultry, three, Table XXV; Field Crops, four, Table XXVI; Vegetables, seven, Table XXVI; Fruit or Nuts, three, Table XXVI; Forestry, three, Table XXVI; Marketing, five, Table XXVI; Management, two, Table XXVI. Results of questions five and six are

TABLE XIX

IMPORTANCE RATINGS BY COUNTY AGRICULTURE AND 4-H  
EXTENSION AGENTS OF SUGGESTED ALTERNATIVES  
TO AID YOUTH DEVELOP MORE PROFITABLE  
LIVESTOCK AND DAIRY ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
76.93	23.06	1	Teach them to use implants
75.27	22.54	2	Teach them to use closer grouping of calves
75.17	23.15	3	Encourage on the farm or ranch experience
74.93	25.56	4	Teach them to use improved sires
74.27	24.87	5	Teach them to use an improved nutrition program
73.72	25.26	6	Stress production projects as much as show projects
73.31	23.45	7	Teach them to use parasite control
68.41	31.10	8	Change stock shows to reflect commercial products
65.72	25.88	9	Teach them to use pregnancy checking
65.69	25.45	10	Stay with the basic 4-H program
56.83	28.08	11	Teach them to use artificial insemination
40.69	29.91	12	Teach them to use embryo transplanting

TABLE XX

IMPORTANCE RATINGS BY COUNTY AGRICULTURE AND 4-H  
EXTENSION AGENTS OF SUGGESTED ALTERNATIVES  
TO AID YOUTH DEVELOP MORE PROFITABLE  
POULTRY ENTERPRISES

MEAN	SD	RANK	SUGGESTED ALTERNATIVES
56.55	30.10	1	Teach the economics of how the poultry industry works through integrated companies
55.07	31.23	2	Emphasize practical broiler, turkey and other poultry projects
51.79	29.92	3	Teach small scale egg production that can be profitable
51.24	31.99	4	Design new contests and approaches to showing poultry

TABLE XXI

IMPORTANCE RATINGS OF SUGGESTED ALTERNATIVES BY  
 COUNTY AGRICULTURE AND 4-H EXTENSION  
 AGENTS TO AID YOUTH DEVELOP MORE  
 PROFITABLE AGRICULTURAL CROP  
 ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
72.66	21.88	1	Teach pasture and hay production
72.55	23.85	2	Stress total management from planning to marketing
72.21	25.05	3	Encourage farming less acres and intensify management
71.14	24.76	4	Stress the comparison of net values of different crops
71.03	23.04	5	Teach how to choose fertile soils for high income crops
69.97	26.07	6	Improve 4-H field crop programs with recognition at several levels
68.69	25.18	7	Provide information and booklets as well as video tapes
63.97	27.95	8	Encourage youth to apply for summer internships

TABLE XXII

IMPORTANCE RATINGS BY COUNTY AGRICULTURE AND 4-H  
EXTENSION AGENTS OF SUGGESTED ALTERNATIVES TO  
AID YOUTH DEVELOP MORE PROFITABLE  
HORTICULTURAL ENTERPRISES

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
<u>VEGETABLES</u>			
72.24	23.82	1	Encourage production utilizing research and market development
70.55	22.58	2	Encourage direct marketing
69.79	24.72	3	Stress economical importance of vegetables
69.59	25.98	4	Provide programs with more activities
69.10	25.82	5	Encourage on the farm experience
69.00	26.58	6	Encourage home gardens as training for commercial production
68.79	25.33	7	Encourage horticulture projects as a future career potential
64.90	23.56	8	Encourage greenhouse production as a source of income
<u>FRUIT AND NUTS</u>			
71.83	23.28	1	Encourage spraying as a related enterprise
69.52	25.33	2	Encourage peach production in applicable areas
66.48	27.62	3	Use individual trees as a starter project

TABLE XXIII

IMPORTANCE RATINGS OF SUGGESTED ALTERNATIVES BY COUNTY  
 AGRICULTURE AND 4-H EXTENSION AGENTS TO AID  
 YOUTH DEVELOP MORE PROFITABLE FORESTRY  
 ENTERPRISES

MEAN	SD	RANK	SUGGESTED ALTERNATIVES
63.17	30.23	1	Teach wildlife conservation
62.03	28.06	2	Explore Christmas trees as a project or business
61.07	31.27	3	Teach proper management of forest
60.45	29.66	4	Look into related businesses
58.86	33.21	5	Teach chainsaw safety
56.72	31.08	6	Teach firewood production

TABLE XXIV

IMPORTANCE RATINGS BY COUNTY AGRICULTURE AND 4-H  
EXTENSION AGENTS OF SUGGESTED ALTERNATIVES TO  
AID YOUTH DEVELOP MORE PROFITABLE  
AGRICULTURAL STRATEGIES

MEAN	SD	RANK	SUGGESTED ALTERNATIVES
<u>MARKETING</u>			
74.97	25.45	1	Teach marketing as a part of all projects
71.66	24.93	2	Teach quality products are marketable
71.45	27.53	3	Teach them to establish a market before producing
68.59	25.09	4	Provide education on alternative marketing
65.70	27.58	5	Teach about the futures market
<u>MANAGEMENT</u>			
81.38	20.12	1	Teach about farming for highest profit, not highest production
78.28	21.14	2	Teach decision making about all phases of agriculture
78.24	20.97	3	Teach flexibility and diversification in crops/livestock
77.69	22.84	4	Stress economic management
77.17	22.04	5	Teach the latest approved research practices in all areas
75.79	24.28	6	Teach record keeping
71.24	22.74	7	Teach use of computerized least cost budgets
70.07	23.13	8	Show how to use a tax consultant
62.10	26.65	9	Encourage enrollment in the IPM Scouting Program



TABLE XXV

IMPORTANCE RATINGS BY COUNTY AGRICULTURE AND 4-H  
EXTENSION AGENTS OF SUGGESTED RESOURCES NEEDED  
TO AID THEM TO DEVELOP AGRICULTURAL  
EDUCATION PROGRAMS WITH ANIMALS

MEAN	SD	RANK	SUGGESTED ALTERNATIVES
<u>LIVESTOCK AND DAIRY</u>			
71.29	24.83	1	Programs, pasture tours and news releases on weed control
69.82	28.03	2	4-H Agents in every county to work with youth livestock program
67.00	25.86	3	An. Sci. personnel trained in low cost animal production
65.46	26.64	4	Programs and news releases from Area Specialists on implants
63.25	24.60	5	Area Specialist programs and news releases on feed additives
63.21	31.40	6	Emphasize production through carcass shows
57.57	28.33	7	State specialist pasture tour on management and improvement
40.07	34.63	8	Eliminate the steer, barrow and lamb shows
<u>POULTRY</u>			
70.77	27.12	1	Telephone access to state poultry specialists
65.26	32.01	2	Continue chick egg embryo youth program
55.37	33.02	3	Extension agents with general knowledge of poultry management

TABLE XXVI

IMPORTANCE RATINGS BY COUNTY AGRICULTURE AND 4-H  
EXTENSION AGENTS OF SUGGESTED RESOURCES NEEDED  
TO AID THEM TO DEVELOP AGRICULTURAL  
EDUCATION PROGRAMS WITH CROPS

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
<u>FIELD CROPS</u>			
62.04	22.54	1	Provide agronomy scholarships through ag industry participation
61.59	26.47	2	Provide agronomy summer internships
59.19	26.90	3	More help from pathologists, entomologists, and engineers
53.44	32.29	4	More soils and weed control specialists
<u>VEGETABLES</u>			
70.85	27.41	1	Specialists from Lane Research Station to work with Co. Staffs
70.00	25.37	2	Develop a learn to earn program in vegetables for youth
63.29	31.15	3	County horticulturists
62.11	31.37	4	Programs and field tours by state horticulture specialist
57.63	31.95	5	Programs and field tours by plant pathologist
55.56	30.65	6	Programs and field tours by ag. engineering specialist
47.93	32.20	7	More horticultural economists
<u>FRUIT AND NUTS</u>			
65.50	28.33	1	Help provide direct marketing outlets
58.77	25.06	2	Help in organizing fruit and vegetable growers association
45.38	30.33	3	More horticultural economists

TABLE XXVI (Continued)

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
<u>FORESTRY</u>			
61.89	27.32	1	Continue State Forestry & Wildlife Camps
57.37	30.27	2	Provide student work in forestry camps in the summer
51.41	30.38	3	State specialist in Christmas trees and nursery management.
<u>MARKETING</u>			
69.22	28.21	1	Develop new or alternative markets
65.59	27.36	2	News articles on marketing
65.04	25.91	3	Need help in grading and marketing fruits and vegetables
59.19	28.53	4	Youth camp in summer which provides tours to market outlets
57.67	25.73	5	Computer budget information on livestock
<u>MANAGEMENT</u>			
62.56	28.24	1	Provide practical on farm management training, such as youth summer work programs.
56.81	29.79	2	Need computers to utilize research information from OSU.

shown in Tables XXV and XXVI. Rank, as to importance and feasibility, by mean and for concensus of agreement on alternatives, standard deviations are given.

The highest mean for the fifth and sixth question was 71.29 and the lowest was 40.07 for a range of 31.22 points in Table XXV. The highest ranked alternatives were: "Telephone access to state poultry specialists; 4-H agents in every county to work with youth livestock program; Develop a learn to earn program in vegetables for youth." The lowest ranked alternative was: "Eliminate the steer, barrow and lamb shows." Standard deviations ranged from a low of 22.54 to 24.83. The three highest ranked means, 71.29, 70.85 and 70.77 had differences of less than one point and the lowest standard deviations of 22.54, 24.60 and 24.83 had differences of slightly over two (2) points.

The summary questions were rated by the county agriculture extension agents only. The highest mean for the summary questions in Table XXVII was 75.58 and the lowest was 42.89 for a range of 32.69 points. The highest ranked three suggested alternatives were: "Help provide more one-to-one contact", "Help set up farmer demonstration plots and farms;" "Help develop new and alternative markets for all areas." The lowest ranked alternative was: "Provide more area and state specialists in all areas." Standard deviations ranged from a low of 21.54 to 35.32 for a range of 13.78 points. The three highest ranked means, 75.58, 74.58 and 72.53 had differences of just over three (3) points and the lowest standard deviations of 21.54, 21.89 and 22.05 had differences of only 0.51 of one point. All results are shown in Table XXVII.

TABLE XXVII

SUMMARY OF IMPORTANCE RATINGS BY COUNTY AGRICULTURE  
EXTENSION AGENTS OF ALTERNATIVES TO AID FARMERS,  
RANCHERS, AND YOUTH IN AGRICULTURE

MEAN RATINGS	SD	RANK	SUGGESTED ALTERNATIVES
<u>ALL AREAS</u>			
75.58	21.89	1	Help provide more one-to-one contact
74.58	21.54	2	Help set up farmer demonstration plots and farms
72.53	23.03	3	Help develop new and alternative markets for all areas
70.58	32.32	4	Provide a 4-H Agent in every county
69.95	22.05	5	Develop video tapes of information in all areas
66.79	27.19	6	Help improve information delivery approaches
65.21	22.58	7	Provide more pre-service training for agents in all areas
64.68	23.51	8	Provide more in-service training for agents in all areas
61.53	31.37	9	More program thrust development from the state level
52.21	28.96	10	Develop additional computer programs in all areas
57.05	34.64	11	Replace satellites with video tapes to reach more people
54.37	25.85	12	Encourage increased use of grower panels
51.47	30.76	13	Provide more Fact Sheets, news letters, and bulletins
51.00	32.71	14	Research the use of Extension information by bankrupt farmers
44.79	26.79	15	Increase teleconferencing for all areas
42.89	35.32	16	Provide more area and state specialists in all areas

## CHAPTER V

### SUMMARY, ANALYSIS AND CONCLUSIONS

The purpose of this chapter is to present a summary of the data gathered, an analysis of the data, conclusions drawn from the data, and recommendations for future research inferred by this study.

#### Problem

Opinions and perceptions of vocational agriculture teachers and county agriculture and 4-H extension agents are needed to give insight into the feasibility and importance of alternatives that might be used by farmers and those who would engage in farming in the future.

#### Purpose

The purpose was to survey the perceptions and opinions of vocational agriculture teachers and county agriculture and 4-H extension agents in Southeast Oklahoma about the current economic conditions as they relate to the feasibility and importance of alternatives that could be adopted by farmers and ranchers to help raise their economic level. Additionally, the purpose was to survey the vocational agriculture teachers and county agriculture and 4-H extension agents about resources needed to aid dissemination of innovations to adults and youth who are engaged in or will engage in farming.

## Objectives

1. To determine what alternatives are perceived by vocational agriculture teachers and county agriculture extension agents as being the most important and feasible for adoption by adult farmers.
2. To determine what alternatives are perceived by vocational agriculture teachers and county agriculture and 4-H extension agents as being the most important and feasible for adoption by agricultural youth.
3. To determine what alternatives are perceived by vocational agriculture teachers and county agriculture extension agents as being the most important and feasible for adoption by agricultural youth and adult farmers with animals: poultry; wildlife; field crops; pasture and range; vegetables; fruit and nuts; forestry, marketing; record keeping; and management.
4. To determine the resource needs of the vocational agriculture teachers and county agriculture extension agents in helping to diffuse information to farmers and ranchers so that adoption of alternative approaches may take place.

## Design of the Study

The population of vocational agriculture teachers and county agricultural extension agents consisted of all of each group within the boundaries of 22 selected counties in Southeast Oklahoma. The population was divided into two distinct groups consisting of vocational agriculture teachers and county agriculture extension agents. There were 143 vocational agriculture teachers and 20 county agriculture

extension agents. Of the 143 vocational agriculture teachers in the Southeast District of Oklahoma, the first round respondents consisted of the 123 vocational agriculture teachers attending the Professional Improvement Group meetings in October, 1985, the second round respondents consisted of 129 vocational agriculture teachers attending the Professional Improvement Group meetings in February 1986. Of the 20 county agriculture extension agents actually functioning as agriculture extension agents in the 22 counties, 15 responded to the first round questionnaire. The 4-H agents were asked to respond to the second round questionnaire to get their input into the alternatives involving agriculture youth.

#### Instrument

For this study a modified Delphi technique was used that consisted of only two rounds. The questions and categories for the first round were formulated from literature review of the area and a brainstorming session among researchers. From the extensive list compiled, the final broad questions and specific categories were used to obtain as much information as possible from the respondents. The initial round of open-ended questions was to gather perceptions from the respondents and the second round was where the respondents rated their responses as to importance and feasibility.

After the suggested alternatives were received by the researcher, the opinions were edited and combined into statements for rating. After the questionnaires were returned the ratings were summed, the mean scores were determined, and the standard deviations were calculated.



## Major Findings of the Study

The major findings of this study were divided into two groups by population and into four sections for the vocational agriculture extension agents.

### The Perceptions of Vocational Agriculture

#### Teachers as to the Importance and Feasi-

#### bility of Alternative Approaches for

#### Adult Farmers and Ranchers

The three highest rated alternatives on the first question of the second round questionnaire were: "Educate farmers and ranchers to use record keeping and farm management more efficiently"; "Help the farmers find better markets"; "Provide programs to make farmers and ranchers more aware of new methods and technology." The lowest rated item was: "Help them contact government officials to help resolve such problems as the national debt, Fm Hm Administration, foreign trade, international trade dollar value, and marketing and tax credits."

The three highest alternatives were rated by means of 74.41, 74.22, and 72.46. The standard deviations were 26.81, 29.65, and 24.78 respectively. The lowest alternative was ranked with a mean of 54.45 with a standard deviation of 30.89.

The other seven (7) alternatives dealt with cost cutting, diversification, enterprise management, cooperative selling, financing, and technological research. The top rated alternatives dealt in the management area which included record keeping and marketing.

The Perceptions of Vocational Agriculture  
Teachers as to the Importance and Feasi-  
bility of Alternative Approaches for  
Vocational Agriculture Students

The second question of the second round questionnaire dealt with vocational agriculture students. The three highest ranked alternatives were: "Encourage better record keeping and market analysis": "Teach students HOW to ask questions about profitable farming and where and how they can find the answers WHEN they need those answers"; and "Teach fundamentals of sound money management." The lowest ranked alternative was: "Eliminate jackpot shows and the high prices of show projects."

The three highest alternatives were rated: 80.53, 79.38, and 78.97 with standard deviations of 19.09, 18.76, and 21.84 respectively. The lowest alternative rated 45.58 with a standard deviation of 39.65.

The top three items dealt with management including record keeping. The other items dealt with management in various ways, SOEP's, ag related careers, and changing from cattle to vegetables or fruit.

The Perceptions of Vocational Agriculture  
Teachers as to the Importance and Feasi-  
bility of Alternative Approaches with  
Agricultural Enterprises for Farmers  
and Ranchers

Among all enterprise categories, there were several alternatives rated highly by the respondents. The highest from Pasture and Range was: "Rotate pastures and control grazing." Other alternatives rated

relatively high in comparison from the Pasture and Range category were: "Use year around pasture with improved varieties"; "Use new methods of forage production", and "Create a production-to-market system that cuts out the middleman" from the Livestock category.

The alternatives were rated 81.58, 78.99, 76.81, and 76.77. The standard deviations were 25.24, 27.31, 28.08, and 27.53 respectively.

The lowest rated alternative was from the Wildlife category. It stated: "Provide guide services to protect the land"; and had a mean of 54.10 and a standard deviation of 32.60. The highest standard deviations were from this category.

Other categories with ratings very close to the highest were Management, Record Keeping and Marketing. The rest of the categories had means in the high 60's or low 70's with mid-twenty standard deviations indicating they were important, but not a top priority. Some of the alternatives receiving high ratings were "Teach accuracy in keeping records"; "Explain the difference between needs and wants"; "Provide information on management, marketing and new practices"; "Teach marketing and new practices"; "Teach marketing, management and record keeping together."

The Perceptions of Vocational Agriculture  
Teachers as to the Importance and Feasi-  
bility of Resources Needed to Develop  
Educational Programs in Agricultural  
Enterprises to Aid Vo Ag Students,  
Farmers and Ranchers

From the various agricultural enterprises and strategies the highest

mean score was: "Resource people to get down to the same level as farmers (don't always talk about spending money)" in the Livestock category. The next alternative in importance was: "A method to convince people they should keep records", from the Recording Keeping strategy. Also rating highly was: "Videos of new practices"; in the Livestock category. Other categories had resources rated very close to 70 or above. They were from Management, Marketing, Field Crops, and Vegetables.

The mean score for the three highest resources needed were 77.18, 76.18, and 73.94. The standard deviations were 25.39, 30.08, and 25.84 respectively.

The lowest rated resource was in Forestry: "Old timers as resource people, in conjunction with a coordinator." The mean was 45.14 with a standard deviation of 34.17. Forestry and Wildlife were the lowest rated enterprise categories.

The Perceptions of County Agriculture Extension Agents as to the Importance and Feasibility of Alternative Approaches for Adult Farmers and Ranchers

The alternatives rated by the respondents on the second round first question were: "Help farmers look at returns from practices used to maximize yields, such as implants, supplemental protein, heavy fertilization, and others to make sure they are profitable"; "Take more time for one-to-one visits with farmers and ranchers"; "Help farmers reduce costs rather than produce maximum yields."

The alternatives were rated 86.75, 86.35, and 82.20. The standard

deviations were 8.55, 9.06, and 12.56 respectively.

The lowest alternative was: "Help develop area packing houses" and was rated 50.30 with a standard deviation of 25.31.

The top rated alternatives were concerned with management except for one dealing with clients on a one-to-one basis which was related to extension work.

The Perceptions of County Agriculture and 4-H  
Extension Agents as to the Importance and  
Feasibility of Alternative Approaches  
for Agricultural Youth

The respondents, in the second round second question rated the following as the three highest alternatives: "Emphasize profitability in production projects rather than maximum production"; "Emphasize the importance of knowing all phases of an enterprise from planning to marketing"; and, "Encourage a good education to qualify for ag related, off-farm employment." The rating means were 77.59, 76.66, and 76.55 for the three highest alternatives with standard deviations of 17.49, 16.87, and 17.77 respectively.

The lowest ranked alternative was: "Eliminate stock shows." The mean for the alternative was 32.14 with a standard deviation of 33.28.

The Perceptions of County Agriculture Extension  
Agents as to the Importance and Feasibility  
of Alternative Approaches in Agricultural  
Enterprises for Farmers and Ranchers

The various agricultural enterprises included many alternatives

that were rated highly by the county agriculture extension agents. The three highest were: "Forage Management"; "Pasture Improvement"; and "Pasture Spraying."

The means were 84.00, 83.90, and 83.20 with standard deviations of 11.90, 13.51 and 9.41 respectively.

Forestry was the only category with means below 70 and had only one score at 60. The lowest mean was 35.89 with a standard deviation of 26.06 for: "Growing red oak."

The Perceptions of County Agriculture and 4-H  
Extension Agents as to the Importance and  
Feasibility of Alternative Approaches in  
Agricultural Enterprises for  
Agricultural Youth

The enterprises generally had means in the 70's except for Poultry and Forestry, which were lower. The highest means came from Management and were: "Teach about farming for highest profit, not highest production"; "Teach decision making about all phases of agriculture"; and "Teach flexibility and diversification in crops/livestock."

The means for the three highest were 81.38, 78.28, and 78.24. Standard deviations were 20.12, 21.14, and 20.97 respectively. The means were closely grouped in the 70's and high 60's for most of the alternatives in all enterprise categories except for Poultry and Forestry.

The lowest alternative was in Livestock: "Teach them to use embryo transplanting." The mean for this alternative was 40.69 with a standard deviation of 29.91

The Perceptions of County Agriculture and 4-H  
Extension Agents as to the Importance and  
Feasibility of Resources Needed to  
Develop Educational Programs for  
Agricultural Youth, Farmers and  
Ranchers

Although resource needs were not rated as high as alternative approaches, they did generally have means in the 60's and 70's. The highest resource need was: "Programs, pasture tours and news releases on weed control"; in the Livestock category. Closely following were: "Specialists from Lane Research Station to work with county staffs"; and "Telephone access to state poultry specialists."

The highest means were: 71.29, 70.85, and 70.77 with standard deviations of 24.83, 27.41, and 27.12 respectively. Two resource needs from two entirely different enterprises were interestingly very close to the three highest resource needs. These needs were: "Develop a learn to earn program in vegetables for youth"; and "4-H agents in every county to work with youth livestock program." The means were 70.00 and 69.82 respectively.

The lowest rated resource was: "Eliminate the steer, barrow and lamb shows." It had a mean of 40.07 with a standard deviation of 34.63.

A Summary of Perceptions of County Agriculture  
Extension Agents as to the Importance and  
Feasibility of Alternative Approaches

Of the summary group, the three highest rated alternatives by means were: "Help provide more one-to-one contact"; "Help set up farmer

demonstration plots and farms"; and, "Help develop new and alternative markets for all areas." The means were 75.58, 74.58, and 72.53 with standard deviations of 21.89, 21.54, and 23.03 respectively.

The lowest rated alternative was: "Provide more area and state specialists in all areas" which had a mean of 42.89 and a standard deviation of 35.32.

### Conclusions

The analysis of data and subsequent findings were the basis of the following conclusions:

1. The three highest ranked alternatives by vocational agriculture teachers for farmers and ranchers dealt with farm management, including record keeping and marketing. The importance of farm management, as perceived by the teachers, was borne out by the high means and the closeness of standard deviations. There was slightly less agreement on the second suggested alternative according to the standard deviations.

Except for the fifth ranked alternative, the next six (6) alternatives dealt with farm management in various ways, such as cutting costs, diversification, cooperative selling, and maximizing profits. There was less consensus of opinions on the ninth (9) alternative, as evidenced by the large standard deviation, on finding lower interest rates. The last two alternatives on research in ag technology and contacting government officials were ranked quite a bit lower and had less agreement by standard deviation scores than the rest of the alternatives. It was generally concluded that farm management needed to be emphasized most in helping farmers and ranchers in Southeast



Oklahoma.

2. The conclusion about the most important way to help vo ag students was to teach farm management, including better record keeping, market analysis, sound money management, critical thinking and examples. This conclusion was based on high means and low standard deviations within this top group of suggested alternatives.

The next six (6) alternatives dealt with a variety of farm management related ideas, except for the seventh (7) ranked item dealing with ag related careers. Diversification, management, efficiency and SOEP's were grouped almost as high as the first four items in means and also had low standard deviations. The conclusion was that a general theme of farm management still prevailed throughout the suggested alternatives. The mean scores reflected the strength of importance.

It was concluded that the last two alternatives on "changing from cattle to vegetables" and "eliminating jackpot shows and high project prices" were rated lower than other alternatives because the vo ag teachers were either for or against the alternative with very few respondents in the mid-range. The last item appeared as the most controversial alternative in the questionnaire.

3. Conclusions drawn among the various alternative enterprise categories were also directed toward management as the topic to be emphasized most in aiding vo ag students, farmers and ranchers. In several enterprise categories such as poultry, management was the top rated suggested alternative. Those enterprises receiving highest importance ratings were in order: Pasture and range, Record Keeping, Field Crops, Management, Marketing, Vegetables, Forestry, Fruit and Nuts, and Wildlife.

Based on this order of rating, it appears that the vo ag teachers are maintaining that the present types of enterprises need to be strengthened with up-to-date information, and all aspects of agricultural management should be emphasized. Emphasis should take place in the form of education to aid the farmers and ranchers in raising their economic level in Southeast Oklahoma.

4. The conclusion that farm management was again an important issue was seen when the teachers rated resources, research and information needs. The highest or most important resources needed were in Marketing, Management, Field Crops, Animals, Record Keeping, Vegetables, Pasture and Range, Fruit and Nuts, and Forestry, in that order. Videos of new practices rated highly and could be a way to present farm management. The teachers were not in agreement concerning resources needed. Based on the large standard deviation which leads to the conclusion that individuals had varying resource needs as well as the possibility that different localities had varying resource needs, too. Although the means were generally lower than some previous tables, they were still well above the 40-60 midrange areas which indicated importance of suggested resources, but again not a high consensus of importance.

5. It was concluded that county agriculture extension agents, in rating the first four alternatives on one-to-one contact, maximizing profits, reducing costs, and culling were emphasizing the necessity of farm management as important in helping farmers and ranchers. The high means and low standard deviations compared to the rest of the alternatives in this section provided support for this conclusion. The level of agreement on these alternatives was extremely high. The next

five (5) alternatives had very similar mean ratings, but had some diversity with standard deviations, especially on the seventh (7th) ranked item. The next six (6) alternatives were grouped by means and had slightly higher standard deviations. The two previous groups generally were concerned with management, it was concluded. They dealt with record keeping, marketing, new techniques, profitability, financing, diversification, and cooperatives. Two alternatives dealt with new products and videos which were out of the management area.

The last three alternatives led to the conclusion that county agriculture extension agents thought that fitting equipment size to operation, developing financial sources and developing packing houses were not as important. The low mean scores supported this conclusion.

6. The conclusion drawn about agricultural youth alternatives was that they again concerned farm management. Profitability and enterprise planning were among the top three along with an alternative on getting a good education. Low standard deviations demonstrated considerable agreement among the agents. The next nine (9) alternatives were rated rather closely and had supporting standard deviations for agreement except for two alternatives which were slightly out of line. The variety of ideas perceived important included profitable vegetables, interesting projects and activities, production rather than show projects, leadership, practical experience, post secondary training and management presentations leading to the conclusion that management was the overall theme. The next four alternatives were grouped somewhat and had less agreement on alternatives. Again a variety of ideas were presented having their roots in management.

The next three alternatives were about considering agribusiness

instead of farming and ranching, needing financing to make it in farming and eliminating unprofitable projects. The conclusion drawn from these alternatives was that not much importance was placed on these somewhat negative statements. The low means and high standard deviations bore out this conclusion. The lowest two alternatives and the most controversial among the county agriculture and 4-H agents concerned de-emphasizing or eliminating the livestock shows. Approximately 75 percent of the agents were strongly against eliminating the shows although there were a few who thought it had merit. There was more agreement about de-emphasizing shows, with a fairly even spread between those for and those against the concept.

7. For the various enterprise categories, conclusions drawn by county agriculture extension agents were similar to those from the vo ag teachers about the aid to farmers, ranchers and agricultural youth. A look at the ratings showed Livestock and Dairy, Field Crops, Management, Horticulture, Marketing, Forestry and Poultry were listed in this order of importance. It appears that the emphasis should be placed on existing enterprises with additional attention on management, record keeping and marketing.

For youth the county agriculture extension and 4-H agents rated the enterprises in order of importance only slightly different than for adult farmers and ranchers. The differences may be due to the different approach necessary and the background knowledge of youth in comparison to adults. For youth enterprise categories on Management, Marketing, Livestock and Dairy, Field Crops, Vegetables, Fruit and Nuts, Forestry and Poultry came in this order of importance. Again, strong emphasis concerning management, record keeping and marketing was suggested as

alternatives in these enterprise categories.

8. Needs of county agriculture and 4-H extension agents in the area of research and resources was rated low in most areas with generally high standard deviations leading to the conclusion that research and resources were less important to agents as a whole or that the individual needs varied widely. Only four alternatives rated over 70 and those were to have telephone access to state poultry specialists, provide programs, pasture tours, and news releases on weed control, provide vegetable specialists from Lane, and provide learn to earn programs. A seemingly overall lack of clear cut ideas about research, resource personnel and information needed was a conclusion that was drawn about this section based on the relatively low means and slightly higher standard deviations in comparison to other questions asked of county agriculture and 4-H extension agents.

9. The summary alternatives by county agriculture extension agents formed the basis for conclusions that demonstration plots and one-to-one contact are the most important ways to help farmers and ranchers. Closely following was the development of alternative markets, providing 4-H agents in every county for livestock programs, and development of video tapes as resources rating fairly high. The rest of the suggested alternatives fell somewhere in between the top and bottom and it was generally concluded that resources, research and personnel were needed by them, but that it was variable from individual to individual and county to county.

10. The overall conclusion that vocational agriculture teachers and county agriculture extension agents rate farm management as the most important way to help farmers, ranchers and youth in Southeast Oklahoma

is evident by the comparatively high means and low standard deviations and the observed closeness of those scores between the two groups.

11. The difference between the mean scores for vocational agriculture teachers when rating alternatives about aid to adults and vo ag students tends to be higher for the students. This might be due to the day to day contact with students as the major portion of the work teachers perform. The vo ag teachers deal less on a professional basis with farmers than they do with students.

12. Conversely to the above conclusion about teachers and their contact with students, county agriculture extension agents dealt less with youth and more with farmers as a professional. This was supported by higher mean ratings for alternatives for farmers and ranchers rather than youth.

13. Although there are differences between the vocational agriculture teachers and the county agriculture extension agents with regard to aiding farmers and ranchers, suggested alternatives by both groups of respondents cover many of the perceptions that may be held by farmers and ranchers. The alternatives suggested and the mean ratings given to them clearly indicated that both groups of respondents were in agreement about the importance of farm management, marketing and record keeping as being the top priority in aiding farmers in the current economic crisis. There are some other important ideas imbedded in them, especially with respect to vegetables and fruit and resources needed.

#### Recommendations

1. It is recommended, based on the conclusions and findings of

the data presented, that emphasis should be placed on farm management and marketing educational programs to help farmers, ranchers and those youth interested in agriculture. It is also recommended that supporting research, resource personnel and information be provided to deliver the educational program to the clientele. Educational programs for farmers and ranchers about farm management and marketing should include specific topics such as cutting costs, diversification, cooperative selling and maximizing profits. These topics were suggested by both vo ag teachers and county agriculture extension agents as alternatives that could possibly help solve current economic problems.

2. Recommended educational programs for vo ag students and youth have similar topic headings as they were for farmers and ranchers. The emphasis on management, marketing and record keeping is the same, but with specific areas of concentration aimed for student level audiences. More specific to the student programs should be the emphasis on SOEP's, efficiency, diversification, and a look at the way livestock shows are now conducted. Programs should emphasize management for profit rather than production.

3. It is recommended that inservice training for vocational agriculture teachers and county agriculture and 4-H extension agents be conducted to improve competencies in the areas of farm management, marketing and record keeping. These areas continually were identified as areas of great importance to farmers, ranchers and agricultural youth. Other areas not rated as highly might also need inservice training. Horticulture might be a good example because few people in the population of this study presumably have had much formal training

in the subject. Also, the emphasis in Southeastern Oklahoma on the production of vegetables, fruit and nuts by the Experiment Station and leaders in the area indicated a need for inservice in horticulture.

4. The need to develop markets prompts the recommendation to increase the quality of agricultural products. The quality of the product and the means to determine the criteria for establishing the quality grade of the product should come from a third party and not from the grower or buyer. This is particularly true in vegetable and fruit production, but could be an innovative trend for livestock producers. The teaching of quality as a production goal was suggested by several alternatives from vo ag teachers and county ag agents to improve or develop markets in general, as well as, in specific enterprises. Expansion of the suggested alternatives like cooperative marketing and contract marketing are recommended for development into practical educational programs for farmers and ranchers.

5. The need to develop a horticulture curriculum for vocational agriculture teachers is recommended to aid vo ag students to become more diversified in their approach to agriculture. This was suggested by vo ag teachers by their alternative on providing more information about changing to growing vegetables as well as the horticulture emphasis in Southeastern Oklahoma.

It is recommended that development of contests in horticulture for youth should be conducted through curriculum development by the FFA and 4-H organizations, with horticulture industry support. Emphasis should be placed on fruit and vegetable quality and economic strategies of production. This was inferred by the vo ag teachers and county agriculture agents in their suggested alternatives to develop



interesting and useful projects and activities, and to teach students to be more diversified in their operations.

7. The development of video tapes for use by vocational agriculture teachers and county extension agents is recommended as a feasible method to reach large audiences with information and yet make the same information available to individuals as well.

8. Time for additional one-to-one contact should be made available to county agriculture extension agents to aid farmers and ranchers. This was highly rated by the agents in both the adult and summary sections. Other methods of delivery of educational programs, indicated by vo ag teachers and county extension agents as resources needed, were telephone access to specialists, more extension personnel and their availability, and information on the major enterprise categories of this study. Some of the recommendations suggest renewed emphasis on existing topics, using existing methods such as Young Farmer programs and adult farmer programs. New methods include the use of new communications technology in educational programs.

9. Greater liaison between vocational agriculture, extension, Oklahoma State University and its experiment stations, USDA, other governmental agencies or quasi-agencies, and the agriculture community needs to be established. The necessity for unity among producers and a friendly and strong liaison with processors, packers and distributors will insure the economic development of agriculture in Southeast Oklahoma. The above recommendations are derived from such alternatives as helping farmers find better markets, providing adult education programs utilizing outside resource personnel, setting up demonstration plots, and providing programs on new methods and technology, to

mention a few. This coordination is vital to the delivery of educational programs to provide efficiency, lack of duplication and prompt attention to short term educational needs.

#### Further Research

1. The need to collect data from farmers to determine the closeness of their perceptions to vo ag teachers and county agriculture agents is recommended. This data should be gathered in a similar manner for establishment of actual perceived needs by farmers and ranchers. Since this study was the first phase of a proposed five year longitudinal study that was to include farmers, the continuance of the longitudinal study is recommended.

2. Other research needed includes assessment of competencies needed by educational personnel to deliver alternative approaches to farmers and ranchers. Based on alternatives suggested to provide programs in areas of management, marketing and horticulture, to name the more important ones mentioned, it is recommended that this type of research be conducted to determine subject areas to be included as well as level of proficiency needed for inservice and preservice training.

3. Ongoing research on the adoption process and adoption itself should be conducted. Emphasis should be placed on the consequences of adoption rather than adoption of innovations. Economic results are the criteria for the delivery of aid to clientele. This recommendation is inferred by the fact that any system or program needs to have a means of monitoring the system as well as the output of the system or program for future revision and new needs.

4. Research into information networks is recommended concerning farmers and ranchers utilization of existing, upcoming and relatively new information delivery systems. A means of validating the reception and use of information by farmers and ranchers on an ongoing basis is recommended. It is recommended that continual monitoring of educational program delivery methods be evaluated for improvement to insure that the major goal of economic improvement is being met. Suggestions on the use of video and satellite telecommunication warrants additional investigation into the impact of these information systems.

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APPENDIXES



APPENDIX A

VO AG TEACHER INSTRUMENT I

The current agricultural economic situation has caused most farmers and ranchers to look closely at their operation to determine how they can operate more efficiently or if they can continue to operate at all. Even those who are supplementing their agricultural income with an off-farm job can continue to take losses only so long. Oklahoma State University, with the support of Congressman Wes Watkins, is attempting to provide alternatives for farmers in Southeastern Oklahoma which will enable those farmers and ranchers to engage in profitable agricultural pursuits. You, as professional educators and disseminators of agricultural information, are in a unique position to provide valuable information for researching these agricultural alternatives for your local school district. Would you take a few moments of your valuable time to answer a few questions?

1. In what way(s) do you feel you can best aid the young and adult farmers and ranchers in your school district to develop a more profitable operation?

2. In what way(s) do you feel you can best aid your Vo-Ag students to prepare to operate a profitable farm or ranch?

3. What alternative or improved approaches do you feel would most help the young and adult farmers and ranchers in your local school district develop a more profitable operation with:

- A. LIVESTOCK AND DAIRY
- B. POULTRY AND EGGS
- C. WILDLIFE
- D. FIELD CROPS
- E. PASTURE AND RANGE
- F. VEGETABLES
- G. FRUIT OR NUTS
- H. FORESTRY
- I. MARKETING
- J. RECORD KEEPING
- K. MANAGEMENT
- L.
- M.

4. What alternative or improved approaches do you think you should teach your Vo-Ag students to best prepare them to operate a profitable farm or ranch with:

A. LIVESTOCK AND DAIRY

B. POULTRY AND EGGS

C. WILDLIFE

D. FIELD CROPS

E. PASTURE AND RANGE

F. VEGETABLES

G. FRUIT OR NUTS

H. FORESTRY

I. MARKETING

J. RECORD KEEPING

K. MANAGEMENT

L.

M.

5. What resource persons, research or information sources from OSU would you need to help you make this information about these alternative or improved approaches available to the young and adult farmers and ranchers in your local school district with:

A. LIVESTOCK AND DAIRY

B. POULTRY AND EGGS

C. WILDLIFE

D. FIELD CROPS

E. PASTURE AND RANGE

F. VEGETABLES

G. FRUIT OR NUTS

H. FORESTRY

I. MARKETING

J. RECORD KEEPING

K. MANAGEMENT

L.

M.

6. What information, research, or training would you need from OSU to adequately teach these alternative or improved approaches to your Vo-Ag students in:

A. LIVESTOCK AND DAIRY

B. POULTRY AND EGGS

C. WILDLIFE

D. FIELD CROPS

E. PASTURE AND RANGE

F. VEGETABLES

G. FRUIT OR NUTS

H. FORESTRY

I. MARKETING

J. RECORD KEEPING

K. MANAGEMENT

L.

M.

APPENDIX B

VO AG TEACHER INSTRUMENT II

**POSSIBLE SOLUTIONS TO THE CURRENT AGRICULTURAL PROBLEMS**

You were asked to brainstorm possible ways Vocational Agriculture teachers might be able to help farmers and ranchers with their current agricultural problems. Now we need you to consider some of these alternatives and improved practices for their feasibility and importance. The responses given below are responses YOU and other Vocational Agriculture teachers gave as possible alternatives or improved practices to help with the current agricultural problems.

Please rate each of these alternatives or improved practices on a scale from 1 to 99 with 1 being not important and 99 extremely important. Please write in and rate any alternatives or practices which may have been omitted or which you have thought of since the first survey.

1-----99  
NOT IMPORTANT EXTREMELY IMPORTANT

1. In what way(s) do you feel you can best aid adult farmers and ranchers in your school district to develop a more profitable operation?

**RESPONSES:**

- 1. Provide more adult education programs utilizing available outside resource people.
- 2. Provide programs to make farmers and ranchers more aware of new methods and technology.
- 3. Teach effective enterprise management, that is, how to know when to switch from livestock to crops or to some other enterprise to maximize profits.
- 4. Help them contact government officials to help resolve such problems as the national debt, Fm Hm Admin., foreign trade, international trade dollar value, and marketing and tax credits.
- 5. Help farmers obtain financing with lower interest rates.
- 6. Help the farmers find better markets.
- 7. Educate farmers and ranchers to use record keeping and farm management more efficiently.
- 8. Provide more research in agricultural technology.
- 9. Help develop cooperative selling of commodities.
- 10. Advise on methods to cut costs and work more efficiently.
- 11. Encourage more diversification or more specialization as needed.
- 12. \_\_\_\_\_
- 13. \_\_\_\_\_

2. In what way(s) do you feel you can best aid your Vo-Ag students prepare to operate a profitable farm or ranch?

**RESPONSES:**

- 1. Use examples of present farming situations, both profitable and non-profitable, to make students aware of the economic situation of farming.
- 2. Teach farm management as a broad based subject which includes marketing, production costs and financing of the total farm operation.
- 3. Teach students HOW to ask questions about profitable farming and where and how they can find the answers WHEN they need those answers.
- 4. Teach students to be more diversified in their operations.
- 5. Encourage students to look into ag related careers and not so much at production farming.
- 6. Help students to improve SOEP's.
- 7. Encourage students to change from cattle business to vegetable or fruit production. (Where conditions permit.)
- 8. Teach students management of time and money so they can explore alternatives before making commitments.
- 9. Teach students to upgrade their thinking on more economical, productive and efficient ways. (EX: livestock and forage utilization)
- 10. Encourage better record keeping and market analysis.
- 11. Teach fundamentals of sound money management.
- 12. Eliminate jackpot shows and the high prices of show projects.
- 13. \_\_\_\_\_
- 14. \_\_\_\_\_



3. What alternative or improved approaches do you feel would most help the young and adult farmers and ranchers in your local school district develop a more profitable operation:
- AND
4. What alternative or improved approaches do you think you should teach your Vo-Ag students to best prepare them to operate a profitable farm or ranch with:

A. LIVESTOCK AND DAIRY RESPONSES:

- 1. More technical programs in animal science.
- 2. Management programs and information in such areas as animal health , A. I. programs, selection and feeding, and keep and cull.
- 3. Create a production-to-market system that cuts out the middleman.
- 4. Give more information on OSU research or Extension programs.
- 5. Have a TV station run Ag information programs 24 hours a day.
- 6. Encourage different types of livestock such as sheep or goats.
- 7. Have long term goals, starting small, working part time and avoiding high interest rates to get started.
- 8. -----

B. POULTRY AND EGGS RESPONSES:

- 1. Find alternatives for financing.
- 2. Encourage expansion where profitable.
- 3. Provide management information on feeding, diseases, etc.
- 4. Provide more information on processing.
- 5. Encourage contact with processors that have specialists who aid the poultry producer.
- 6. Have feed company and processor representatives visit Vo-Ag classes.
- 7. -----

C. WILDLIFE RESPONSES:

- 1. Help stop poaching.
- 2. Learn how to use natural resources and crops for wildlife.
- 3. Lease land (for hunting, fishing, etc.)
- 4. Provide guide services to protect the land.
- 5. Use trapping as an SOE project.
- 6. Expose students to game biologists and wildlife rangers.
- 7. -----

D. FIELD CROPS RESPONSES:

- 1. Adapt crops to soil conditions.
- 2. Provide information on management, marketing and new practices.
- 3. Use better pest control and improved seed varieties.
- 4. Don't plant field crops.
- 5. Use proper harvesting methods.
- 6. Give more information on fertilizers, spraying and new varieties.
- 7. -----

E. PASTURE AND RANGE RESPONSES:

- 1. Use year around pasture with improved varieties.
- 2. Use new methods of forage production.
- 3. Improve ASCS programs and make them exempt from income taxes.
- 4. Rotate pastures and control grazing.
- 5. -----

F. VEGETABLES RESPONSES:

- 1. Use small acreages.
- 2. Use better or develop better varieties.
- 3. Provide more information on changing to growing vegetables.
- 4. Develop transportation for produce to markets or processing area.
- 5. Provide incentive or low interest loans to encourage adoption.
- 6. Increase the number of canneries in the area.
- 7. Develop programs on labor saving methods.
- 8. Encourage more usage of research station, field days, etc.
- 9. Show the advantage in initial investment between small acreage truck farms and bigger acreage cattle operations.
- 10. Provide methods to solve harvesting problems.
- 11. -----

## G. FRUIT OR NUTS RESPONSES:

- 1. Do no expansion, just take better care of existing orchards.
- 2. More development of small fruits like grapes, and blueberries.
- 3. Diversify enterprises with nuts or fruits, like pecans.
- 4.

## H. FORESTRY RESPONSES:

- 1. Use management of woodlands for firewood.
- 2. Set up demonstration tours.
- 3. Provide new products or production methods information.
- 4. Provide more information on selection and harvesting.
- 5. Develop marketing practices for walnut and pecan lumber.
- 6. Practice reforestation at the local level using FFA Chapters and supervised by SCS or the Forestry Service.
- 7.

## I. MARKETING RESPONSES:

- 1. Practice studying marketing cycles and price analysis.
- 2. Develop new and alternative marketing schemes.
- 3. Learn how to use hedging and futures.
- 4. Use coop buying and selling techniques.
- 5. Improve export laws.
- 6. Teach marketing, record keeping and management together.
- 7.

## J. RECORD KEEPING RESPONSES:

- 1. Use computers to help keep records.
- 2. Emphasize tax management.
- 3. Provide better record forms.
- 4. Encourage attendance in farm business management programs.
- 5. Don't overspend the farm projected budget.
- 6. Teach economics and cost analysis.
- 7. Teach accuracy in keeping records.
- 8.

## K. MANAGEMENT RESPONSES:

- 1. Explain the difference between needs and wants.
- 2. Form partnerships on land and equipment.
- 3. Encourage farmers and ranchers not to buy a new piece of equipment every year or two, unless absolutely needed.
- 4. Use computers for management systems.
- 5. Use better organization for cash flow.
- 6.

## L. WRITE IN RESPONSES:

- 1. Have an Ag Mechanics program for Young Farmers.
- 2. Use video tape presentations in conjunction with speeches.
- 3. Provide field trips.
- 4. Have a school farm where students can work and earn money for the chapter.
- 5. Present new material and people at PI meetings.
- 6. Provide mini units as supplements.
- 7.

5. What resource persons, research or information sources from OSU would you need to help you make this information about these alternative or improved approaches available to the young and adult farmers and ranchers in your local school district,

AND

6. What information, research, or training would you need from OSU to adequately teach these alternative or improved approaches to your Vo-Ag students in:

## A. LIVESTOCK AND DAIRY RESPONSES:

- 1. Resource people to convince producers to use futures market.
- 2. Ag agents and Extension specialists.
- 3. Resource people to get down to the same level as farmers (don't always talk about spending money).
- 4. Videos of new practices.
- 5. More practical fact sheets.
- 6. Information on the newest breeds doing good on the market.
- 7.

## B. POULTRY AND EGGS RESPONSES: None

1. -----  
-----

## C. WILDLIFE RESPONSES:

1. Information on how to lease.
2. -----  
-----

## D. FIELD CROPS RESPONSES:

1. Farmers as resource people.
2. Information on weed control, irrigation and fertilizers.
3. Resource people to show farmers ways to improve.
4. -----  
-----

## E. PASTURE AND RANGE RESPONSES:

1. Money management information, how much production can we afford?
2. Ag agents and Extension Specialists.
3. -----  
-----

## F. VEGETABLES RESPONSES:

1. Up-to-date resource personnel.
2. Better market development.
3. -----  
-----

## G. FRUIT OR NUTS RESPONSES:

1. Information on how to start up an orchard.
2. -----  
-----

## H. FORESTRY RESPONSES:

1. Information on how to set up a forest.
2. Information on how much production can we afford.
3. Old timers as resource people, in conjunction with a coordinator.
4. -----  
-----

## I. MARKETING RESPONSES:

1. A stable market for vegetables in our area.
2. Information on when and how to market.
3. -----  
-----

## J. RECORD KEEPING RESPONSES:

1. A method to convince people they should keep records.
2. Motivation from past State Farmers.
3. -----  
-----

## K. MANAGEMENT RESPONSES:

1. Information on alternatives to unprofitable production.
2. Information on money management.
3. Information on banking.
4. A thorough explanation of markets and the farm credit system.
5. -----  
-----

## J. WRITE IN YOUR OWN COMMENTS:

APPENDIX C

COUNTY AGENT INSTRUMENT I

The current agricultural economic situation has caused most farmers and ranchers to look closely at their operation to determine how they can operate more efficiently or if they can continue to operate at all. Even those who are supplementing their agricultural income with an off-farm job can continue to take losses only so long. Oklahoma State University is attempting to provide alternatives for farmers in Southeastern Oklahoma which will enable those farmers and ranchers to engage in profitable agricultural pursuits. You, as professional educators and disseminators of agricultural information, are in a unique position to provide valuable information for researching these agricultural alternatives for your county. Would you take a few moments of your valuable time to answer a few questions?

1. In what way(s) do you feel you can best aid the farmers and ranchers in your county to develop a more profitable operation?

2. In what way(s) do you feel you can best aid the agricultural youth to prepare to operate a profitable farm or ranch?

3. What alternative or improved approaches do you feel would most help the farmers and ranchers in your county develop a more profitable operation with:

A. ANIMALS

B. POULTRY

C. FIELD CROPS

D. VEGETABLES

E. FRUIT OR NUTS

F. FORESTRY

G. MARKETING

H. MANAGEMENT

4. What alternative or improved approaches do you think you should use with agricultural youth to best prepare them to operate a profitable farm or ranch with:

A. ANIMALS

B. POULTRY

C. FIELD CROPS

D. VEGETABLES

E. FRUIT OR NUTS

F. FORESTRY

G. MARKETING

H. MANAGEMENT

5. What resource persons, research or information sources from OSU would you need to help you make this information about these alternative or improved approaches available to the farmers and ranchers in your county with:

A. ANIMALS

B. POULTRY

C. FIELD CROPS

D. VEGETABLES

E. FRUIT OR NUTS

F. FORESTRY

G. MARKETING

H. MANAGEMENT

6. What information, research or training would you need from OSU to adequately educate agricultural youth about these alternative or improved approaches in:

A. ANIMALS

B. POULTRY

C. FIELD CROPS

D. VEGETABLES

E. FRUIT OR NUTS

F. FORESTRY

G. MARKETING

H. MANAGEMENT



APPENDIX D

COUNTY AGENT INSTRUMENT II



2. In what way(s) do you feel you can best aid the AGRICULTURAL YOUTH to prepare to operate a profitable farm or ranch?

- 1. Provide practical experience in youth agriculture projects with a realistic presentation of farm business management that stresses record keeping and economic feasibility.
- 2. Stress production projects that get away from emphasizing the show program.
- 3. Emphasize profitability in production projects rather than maximum production.
- 4. Develop interesting and useful projects and activities that are not available from schools, churches or other clubs.
- 5. Show them how to grow profitable crops, i.e. strawberries and asparagus.
- 6. Encourage youth to consider agribusiness instead of farming and ranching.
- 7. Teach poise, public speaking and other leadership skills to enable them to become leaders in agriculture.
- 8. Instill a desire to pursue higher education in order to learn to make sound decisions.
- 9. Tell them they probably can't make it without someone helping with financing.
- 10. Emphasize the importance of knowing all phases of an enterprise from planning to marketing.
- 11. Encourage training during high school in actual farming operations as opposed to trophy-winning activities.
- 12. Have realistic presentations on farm business management, including record keeping, enterprise budgets and computer use.
- 13. Eliminate stock shows.
- 14. Encourage a good education to qualify for ag-related, off-farm employment.
- 15. Have programs to show the difference between hobby farming and business farming.
- 16. Emphasize that access to low fixed cost land is necessary before they can consider going into farming.
- 17. Encourage post high school training in agriculture.
- 18. Stay with basic 4-H work based on agriculture production.
- 19. Eliminate projects that are unprofitable.
- 20. Deemphasize livestock shows.

3. What alternative or improved approaches do you feel would most help the FARMERS AND RANCHERS in your county develop a more profitable operation with:

A. ANIMALS

- 1. Improved marketing
- 2. Better record keeping
- 3. Implanting
- 4. Forage management
- 5. Planned breeding
- 6. Pest control
- 7. Dairy goat cheese production and marketing
- 8. Improved dog care programs for kennel owners
- 9. Feeding least cost rations
- 10. Increasing ewe and lamb production

- 11. Pregnancy testing
- 12. Pasture improvement
- 13. The Oklahoma Gold and Silver Plan
- 14. Cooperative marketing
- 15. Improved herd management

#### B. POULTRY

- 1. Increased basic knowledge
- 2. Development of closer markets
- 3. Better housing and management programs.

#### FIELD CROPS

- 1. Diversification
- 2. Intensified management and less acreage
- 3. Greater use of fertilizers
- 4. Enterprise profitability comparison
- 5. Planting improved seed varieties
- 6. Improved insect and weed control
- 7. Improved marketing
- 8. Updated peanut workshops each year
- 9. Improved pasture and hay production
- 10. Alternating crops
- 11. Double cropping
- 12. Pasture spraying
- 13. Futures marketing
- 14. Maximizing profit, not yield
- 15. Increased hay and soil testing

#### VEGETABLES, FRUIT AND NUTS

- 1. Increased basic information
- 2. Improved marketing
- 3. Drip irrigation
- 4. Growing adapted varieties that will sell
- 5. Growing small acreages of high yield crops
- 6. Expanded commercial production
- 7. Full time county horticulture extension agent
- 8. Improved pest control
- 9. Development of a packing and grading shed
- 10. Emphasis on quality
- 11. Improved labor availability
- 12. Help in Horticulture Economics
- 13. Improved pruning
- 14. Maintaining a small scale until the techniques are learned
- 16. Establishment of vineyards, apple and peach orchards
- 15. Learning the intensive horticulture management skills required as opposed to the less intensive skills of beef production.

#### FORESTRY

- 1. Growing Christmas trees
- 2. Growing red oak
- 3. Planting wood lots and windbreaks
- 4. Producing firewood, hardwood lumber, pulpwood, etc.
- 5. Improved controlled burning
- 6. Proper chemical use
- 7. Improved tree planting
- 8. Utilize current programs
- 9. Using land unsuitable for crops for forests

#### MARKETING

- 1. A broader market base
- 3. Direct marketing
- 4. Development of a quality product with a reputation
- 5. Better utilization of free extension information
- 6. Increased technical information from Three Rivers
- 7. A method of determining marketplace needs
- 8. Futures marketing
- 9. Development of a pricing structure .

## MANAGEMENT

- 1. Use of management as a production practice
- 2. Use of information from an unbiased source
- 3. Improved record keeping
- 4. Improved budgeting
- 5. Improved cash flow management
- 6. Improved debt servicing
- 7. Increased computer use
- 8. Improved use of OSU research information
- 9. Use of least cost machinery for enterprise
- 10. Increased use of Extension and VoAg information

4. What alternative or improved approaches do you think you should use with AGRICULTURAL YOUTH to prepare them to operate a profitable farm or ranch with:

## ANIMALS

- 1. Stress production projects as much as show projects
- 2. Encourage on the farm or ranch experience
- 3. Change stock shows to reflect commercial products
- 4. Stay with the basic 4-H program
- 5. Teach them to use artificial insemination
- 6. Teach them to use pregnancy checking
- 7. Teach them to use embryo transplanting
- 8. Teach them to use improved sires
- 8. Teach them to use an improved nutrition program
- 8. Teach them to use implants
- 8. Teach them to use closer grouping of calves
- 8. Teach them to use parasite control

## POULTRY

- 1. Emphasize practical broiler, turkey and other poultry projects
- 2. Design new contests and approaches to showing poultry
- 3. Teach small scale egg production that can be profitable
- 4. Teach the economics of how the poultry industry works through integrated companies

## FIELD CROPS

- 1. Stress total management from planning to marketing
- 2. Encourage farming less acres and intensify management
- 4. Stress the comparison of net values of different crops
- 5. Encourage youth to apply for summer internships
- 6. Teach how to choose fertile soils for high income crops
- 7. Provide information and booklets as well as video tapes
- 8. Teach pasture and hay production
- 9. Improve 4-H field crop programs with recognition at several levels

## VEGETABLES

- 1. Encourage horticulture projects as a future career potential
- 2. Stress economical importance of vegetables
- 3. Encourage home gardens as training for commercial production
- 4. Encourage greenhouse production as a source of income
- 5. Encourage direct marketing
- 6. Encourage on the farm experience
- 7. Provide programs with more activities
- 8. Encourage production utilizing research and market development

## FRUIT AND NUTS

- 1. Use individual trees as a starter project
- 2. Encourage spraying as a related enterprise
- 3. Encourage peach production in applicable areas

## FORESTRY

- 1. Teach chainsaw safety
- 2. Teach firewood production
- 3. Look into related businesses
- 4. Explore Christmas trees as a project or business
- 5. Teach proper management of forest
- 6. Teach wildlife conservation

## MARKETING

- 1. Provide education on alternative marketing
- 2. Teach quality products are marketable
- 3. Teach them to establish a market before producing
- 4. Teach marketing as a part of all projects
- 5. Teach about the futures market

## MANAGEMENT

- 1. Stress economic management
- 2. Teach decision making about all phases of agriculture
- 3. Teach the latest approved research practices in all areas
- 4. Teach use of computerized least cost budgets
- 5. Teach about farming for highest profit, not highest production
- 6. Teach flexibility and diversification in crops/livestock
- 7. Show how to use a tax consultant
- 8. Encourage enrollment in the IPM Scouting Program
- 9. Teach record keeping

5. What resource persons, research or information sources from OSU would you need to help you make this information about these alternative or improved approaches available to the FARMERS AND RANCHERS in your county with: \* AND \*

6. What information, research or training would you need from OSU to adequately educate AGRICULTURAL YOUTH about these alternative or improved approaches in:

## ANIMALS

- 1. Programs, pasture tours and news releases on weed control
- 2. Programs and news releases from Area Specialists on implants
- 3. Area Specialist programs and news releases on feed additives
- 4. Eliminate the steer, barrow and lamb shows
- 5. Emphasize production through carcass shows
- 6. State specialist pasture tour on management and improvement
- 7. An. Sci. personnel trained in low cost animal production
- 8. 4-H Agents in every county to work with youth livestock program

## POULTRY

- 1. Extension agents with general knowledge of poultry management
- 2. Telephone access to state poultry specialists
- 3. Continue chick egg embryo youth program

## FIELD CROPS

- 1. More help from pathologists, entomologists, and engineers
- 2. More soils and weed control specialists
- 3. Provide agronomy scholarships through ag industry participation
- 4. Provide agronomy summer internships

## VEGETABLES

- 1. Specialists from Lane Research Station to work with Co. Staffs
- 2. More horticultural economists
- 3. County horticulturists
- 4. Programs and field tours by state horticulture specialist
- 5. Programs and field tours by ag. engineering specialist
- 6. Programs and field tours by plant pathologist
- 7. Develop a learn to earn program in vegetables for youth

## FRUIT AND NUTS

- 1. More horticultural economists
- 2. Help in organizing fruit and vegetable growers association
- 3. Help provide direct marketing outlets

## FORESTRY

- 1. Continue State Forestry & Wildlife Camps
- 2. Provide student work in forestry camps in the summer
- 3. State specialist in Christmas trees and nursery management.

## MARKETING

- 1. Develop new or alternative markets
- 2. News articles on marketing
- 3. Need help in grading and marketing fruits and vegetables
- 4. Computer budget information on livestock
- 5. Youth camp in summer which provides tours to market outlets

## MANAGEMENT

- 1. Need computers to utilize research information from OSU.
- 2. Provide practical on farm management training, such as youth summer work programs.

## SUMMARY FOR ALL AREAS

- 1. Provide more area and state specialists in all areas
- 2. Provide more Fact Sheets, news letters, and bulletins
- 3. Develop video tapes of information in all areas
- 4. Provide more pre-service training for agents in all areas
- 5. Provide more in-service training for agents in all areas
- 6. Replace satellites with video tapes to reach more people
- 7. Help improve information delivery approaches
- 8. Encourage increased use of grower panels
- 9. Increase teleconferencing for all areas
- 10. Help provide more one-to-one contact
- 11. Provide a 4-H Agent in every county
- 12. Research the use of Extension information by bankrupt farmers
- 13. Develop additional computer programs in all areas
- 14. Help set up farmer demonstration plots and farms
- 15. More program thrust development from the state level
- 16. Help develop new and alternative markets for all areas

APPENDIX E

COVER AND FOLLOW-UP LETTERS





# COOPERATIVE EXTENSION SERVICE

DIVISION OF AGRICULTURE • OKLAHOMA STATE UNIVERSITY

Department of Agricultural Education • 459 Agricultural Hall  
Stillwater, Oklahoma 74078 • (405)624-5132

## MEMORANDUM

TO: Selected Southeast District Extension Staff  
 FROM: *Roy R. Lessly*  
 Roy R. Lessly, Extension Staff Development Specialist  
 DATE: January 15, 1986  
 SUBJ: AGRICULTURE SURVEY

Due to lack of time at the Southeast District Meeting in December, I was unable to adequately explain or give you time to fill out and return the questionnaire I handed you. Therefore, I am sending you another one, since it is very important that we get your input concerning the serious problems which all of our clientele in agriculture are facing at the current time.

Please take a few moments of your valuable time to help brainstorm some alternative approaches for our adult and youth clientele. Your ideas will be summarized, along with those from the other Extension personnel from Southeastern Oklahoma. These ideas will then be returned to you to help in evaluating and prioritizing them according to feasibility and value.

Thanks for your assistance.

RRL:r1r

xc Bill Parham

Please Return Survey to:

Roy R. Lessly  
 Extension Staff Development Specialist  
 459 Agricultural Hall  
 Oklahoma State University  
 Stillwater, OK 74078



# COOPERATIVE EXTENSION SERVICE

DIVISION OF AGRICULTURE • OKLAHOMA STATE UNIVERSITY

Department of Agricultural Education • 459 Agricultural Hall  
Stillwater, Oklahoma 74078 • (405)624-5132

TO: Selected Extension Agricultural Agents - Southeast District  
FROM: Roy R. Lessly, *Roy Lessly* Extension Staff Development Specialist  
DATE: March 25, 1986  
SUBJECT: Agricultural Survey

In January you were asked to complete a questionnaire concerning the serious problems which are currently facing our agricultural clientele. I realize that this spring has been extremely busy; however, your input is critical in the overall summary. If you have not already done so, please take a few minutes to fill out and return the enclosed questionnaire.

If you have already completed the survey, please accept our sincere thanks.

Thanks again for your prompt attention to this matter.

RRL/sas



# COOPERATIVE EXTENSION SERVICE

**DIVISION OF AGRICULTURE • OKLAHOMA STATE UNIVERSITY**

Department of Agricultural Education • 459 Agricultural Hall  
Stillwater, Oklahoma 74078 • (405)624-5132

October 6, 1986

Douglas B. Dear  
County Extension Agric. Agent  
Courthouse  
Marietta, OK 73448

Dear Douglas:

I have carefully analyzed the possible solutions you and the other agents in the Southeast District gave me for the current agricultural problems. I was impressed! I was so impressed that I am sharing the synthesized list with Roy Bogle and the other Extension administrators so they can start considering some of them, even before you rate them on feasibility and importance.

However, your ratings of feasibility and importance for these alternatives are very essential. They will give the administrators and yourselves a better evaluation of these ideas.

Please take a few minutes out of your busy schedule to consider and rate these ideas. You will, no doubt, gain some outstanding ideas from this list yourself. I will send you the summarized ratings after receiving all your ratings and compiling them.

The list may appear a bit long, but I purposely did not combine some of the ideas, because I felt they were too important to lose. I think you will agree after considering them.

Thank you for rating these possible solutions and returning them promptly. That way we can try to get them implemented more quickly.

Sincerely,

A handwritten signature in cursive script that reads 'Jim Key'.

James P. Key  
Evaluation Specialist  
Cooperative Extension

VITA

Garey Gene Harritt

Candidate for the Degree of

Doctor of Education

Thesis: PERCEPTIONS OF VOCATIONAL AGRICULTURE TEACHERS AND COUNTY EXTENSION AGENTS AS TO THE IMPORTANCE AND FEASIBILITY OF ALTERNATIVE APPROACHES TO FARMING IN SOUTHEAST OKLAHOMA

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Maysville, Oklahoma, February 21, 1935, the son of Burton and Grace Harritt.

Education: Graduated from Sanger Union High School, Sanger, California, in June, 1953; received the Bachelor of Science degree in General Agriculture from Fresno State College, Fresno, California in 1964; Master of Arts in Education degree with a concentration in Agriculture, California Polytechnic State University, San Luis Obispo, California in 1966; Master of Arts in Education (Counseling option), California Lutheran University in 1975; completed the requirements for the Doctor of Education degree at Oklahoma State University in May, 1987.

Professional Experience: Vocational Agriculture Teacher, Los Banos, California, August 1965 to June, 1967; Corcoran, California, July 1967 to June 1968; Vocational Electronics teacher, Oxnard, California, September 1968 to July 1974; Career Consultant, Fresno County Schools, August 1974 to June 1975; math teacher, Elsinore, California, February 1983 to June 1983; Vocational Agriculture teacher, Lovelock, Nevada, August 1983 to June 1985; graduate research associate, Oklahoma State University, July 1985 to present.

Professional Organizations: American Vocational Association, Oklahoma Vocational Association, National Vocational Agriculture Teachers Association, Oklahoma Vocational Agriculture Teachers Association; Alpha Tau Alpha; Phi Delta Kappa; Gamma Sigma Delta.