

A STUDY TO DETERMINE THE EXTENT AND MEANS BY WHICH  
ADULT FARMERS IN GHANA COULD BE INVOLVED  
IN THE CONDUCT OF AGRICULTURAL  
EXTENSION EDUCATION PROGRAMS

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DOCTOR OF EDUCATION  
July, 1978

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## ACKNOWLEDGMENTS

The author expresses a deep feeling of gratitude and sincere appreciation to Dr. James Key, who served as major adviser and chairman of his advisory committee. He also wishes to express his gratitude and appreciation to other members of his advisory committee, Dr. Robert Reisbeck, Dr. Robert Terry, Dr. Deke Johnson and Dr. Marcus, Juby, for their assistance and encouragement.

The writer is thankful to members of the Ghanaian Association of Oklahoma for the time they spent in answering the questionnaire; to Dr. Paul Czarnecki for his guidance and assistance in programming the data; and to Mrs. David Walker for typing the thesis.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION . . . . .	1
Problem of the Study . . . . .	2
Purpose of the Study . . . . .	4
Objectives of the Study . . . . .	4
Scope and Limitations . . . . .	4
Definitions . . . . .	4
II. REVIEW OF LITERATURE . . . . .	6
Philosophy of Adult Education . . . . .	7
Adults and Learning . . . . .	7
Importance of Involving Local People . . . . .	7
Role of Extension Officers . . . . .	9
Program Planning . . . . .	11
Who Should Be Involved in Program Planning . . . . .	14
Program Implementation . . . . .	15
Characteristics of Adopters . . . . .	18
Extension Teaching Methods . . . . .	19
Program Evaluation . . . . .	19
Evaluation Process . . . . .	20
Who Should Evaluate the Extension Program . . . . .	20
Planning and Conducting an Extension Program	
Evaluation . . . . .	21
Program Development . . . . .	21
Conclusion . . . . .	23
III. METHOD AND PROCEDURES . . . . .	24
Introduction . . . . .	24
Development of Instrument . . . . .	24
Administering the Questionnaire . . . . .	25
Tabulation and Analysis of Data . . . . .	25
IV. PRESENTATION AND ANALYSIS OF DATA . . . . .	26
Introduction . . . . .	26
Description of Respondents . . . . .	26
Treatment of Data . . . . .	27
Findings . . . . .	28

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS . . . . .	40
Summary . . . . .	40
Conclusion . . . . .	41
Recommendation . . . . .	43
SELECTED BIBLIOGRAPHY . . . . .	44
APPENDIXES . . . . .	47
Appendix A - LIST OF RESPONDENTS . . . . .	47
Appendix B - STUDY INSTRUMENTS . . . . .	49

LIST OF TABLES

Table	Page
I. Comparison of Respondents' Perceptions of the Extent to which Adult Farmers Could Be Involved in Planning Agricultural Extension Education Programs . . . . .	29
II. Comparison of Respondents' Perceptions of the Extent to which Adult Farmers Could Be Involved in Implementing Agricultural Extension Education Programs . . . . .	31
III. Comparison of Respondents' Perceptions of the Extent to which Adult Farmers Could Be Involved in Evaluating Agricultural Extension Education Programs . . . . .	32
IV. Comparison of Respondents' Perceptions of the Appropriateness of Involving Selected Groups in Planning Extension Programs for Ghana . . . . .	34
V. Comparison of Respondents' Perceptions of the Appropriateness of Involving Selected Groups in Implementing Extension Programs for Ghana . . . . .	37
VI. Comparison of Respondents' Perceptions of the Appropriateness of Involving Selected Groups in Evaluating Extension Education Programs for Ghana . . . . .	39
VII. Summary of Overall Ratings by Method by Planning, Implementation and Evaluation . . . . .	42

## CHAPTER I

### INTRODUCTION

Ghana is an agricultural country, located in Central West Africa, with a population of about nine-and-a half million people. The country covers an area of 92,000 square miles. Of this area, 75,000 square miles or fifty six million acres of the country are agricultural lands.

Ghana has a tropical climate which is influenced by the northeast and southwest trade winds. There are two main seasons: the wet season, which occurs between May and September; and the dry season, from October to February. The natural vegetation is made up of forest, coastal shrubs and native grasses. These natural resources provide the necessary environment, favorable for agricultural production. Among the cultivated crops grown are yams, corn, rice, cotton, cassava, coffee and cocoa of which the country is the world's leading exporter.

It is believed that less than thirty percent of the available agricultural lands are being utilized currently for agricultural production and that nearly sixty percent of the labor force in the country is engaged in farming. Most of these people are traditional peasant farmers, who produce barely enough to feed themselves and their families since they cultivate small acreages. They also continue production on the same soil with no soil improvement practices until the soil becomes exhausted.



La Anyane (13) identifies these problems as some of the constraints on Agricultural Development in Ghana.

- a. Environmental problems--High cost of fertilizers coupled with the inability of the peasant farmer to apply the fertilizer correctly to the soil.
- b. Management problems--The increasing effects of weeds, pests and diseases.
- c. Economic problems--Labor migration, pricing and marketing of agricultural products.
- d. Social problems--The continuous use of traditional methods.
- e. Institutional problems--Problems associated with agricultural credit, rural infra-structure and the absence of many competent agricultural extension education personnel (p. 391-402).

A great impact would be made on the individual and the nation if these problems were overcome. There would be an increase in the level of food production due to the abandonment of traditional methods of farming and adoption of more improved production practices. The country then would be able to produce enough of the basic food items like rice, corn and fresh fish which it currently imports, thereby saving the country huge sums of money from foreign exchange. The savings could be used in developing the country. In addition, farmers would increase their acreage and yields providing more food and a higher level of living for the people would be the result.

#### Problem of the Study

Current agricultural extension education programs for the local farmers are either developed by the top hierarchy of the agricultural extension service or they are developed by the district agricultural extension staff. These educational programs are carried out solely by the district agricultural extension staff without the involvement of

the local farmers in planning, implementing or evaluating the programs. The need for educational programs are determined by government officials in the extension service. Likewise, they conduct the programs and report the outcomes to those in higher positions. The only involvement a farmer has is his attendance in a class or his listening to a radio program.

Farmers, by and large, are the final link in implementing the country's agricultural development program. Their involvement is necessary in planning, implementing and evaluating agricultural extension educational programs, designed to help them increase the profit on their production and to improve their way of living.

Their active involvement would lead to better decisions in terms of their needs and would help speed up the process of educational change. The selection and training of some farmers as local leaders would increase communication among the farmers and encourage more to attend and participate in agricultural extension educational programs. Farmers adoption of practices being recommended would likewise be encouraged. It is then, that the Agricultural Extension Service would be fulfilling its mission, of helping the local farmers to increase their output thus improving their way of living.

By the same token, farmers who are involved in analyzing their situation in order to determine problems which need educational input are learning how to analyze and make decisions. Learning such skills is also necessary since it contributes to the growth and development of a viable agriculture in Ghana.

### Purpose of the Study

The purpose of the study is to determine the extent and means by which adult farmers of Ghana could be involved in conducting agricultural extension education programs.

### Objectives of the Study

The specific objectives of the study are:

1. To determine the extent adult farmers of Ghana could be involved in the planning, implementing and evaluating the the agricultural extension educational programs.
2. To identify the most appropriate methods for achieving the involvement of adult farmers of Ghana in the planning, implementing and evaluating of agricultural extension educational programs.

### Scope and Limitations

In view of difficulties experienced earlier when questionnaires sent to Ghana for completion were not returned, the writer decided to limit the population of his study to Ghanaian students enrolled in institutions of higher learning in the state of Oklahoma and their Ghanaian spouses.

Most of these Ghanaians are sons and daughters of farmers. Some were either brought up on a farm or have lived in the rural areas. They have also either worked on a farm or are familiar with farming practices in Ghana.

### Definitions

Certain key words used in the study are defined here to enable accurate communication with the reader.

**Adult farmer:** Any individual, literate or illiterate, over the age of 21 years, engaged in farming.

**Familiarity with Extension and/or farming practices:** Any individual who has expressed having some knowledge about the work of the extension officer and/or with farming practices in Ghana.

**Unfamiliarity with Extension and/or farming practices:** Any person who has expressed little or no knowledge about the work of the extension officer and/or farming practices in Ghana.

**Program Planning:** The Cooperative linking of professional extension personnel and knowledgeable representatives of farmers and others of the district for the purpose of identifying agricultural problems and considering ways to overcome the problems.

**Program Implementation:** The execution of the teaching-learning activities that would result in helping the farmers overcome identified problems.

**Program Evaluation:** The measurement of the extent to which pre-planned educational objectives have been reached as a result of the program's implementation.

**Program Development:** A decision-making process, whereby problems are identified; goals are established; a prioritization of problems is established; alternative methods of overcoming each problem are determined; the best alternative is selected; and an educational program of teaching-learning activities is set forth to help implement the best alternative practices, thereby greatly increasing chances of overcoming the identified problems.

## CHAPTER II

### REVIEW OF LITERATURE

This chapter is a summary of literature related to the need to involve adult farmers in planning, implementing and evaluating agricultural extension education programs.

#### Meaning of Agricultural Extension Education

Agricultural extension education has been defined as "an informal out-of-school educational service for training and influencing farmers (and their families) to adopt improved practices in crop and livestock production, management, conservation and marketing" (5, p. 14). The report emphasizes that the concern of the agricultural extension service should not only be to secure the adoption of improved practices but also to encourage a farmer to continue to improve his farm business, thereby, improving his livelihood. Mosher (18) has indicated that the success of extension work with rural people will, in a great measure, depend upon current needs of the clientele, the cooperation and mutual respect that exists, coupled with the use of effective teaching methods. Phipps (21, p. 411) suggested the need for adult education in these words: "Our present national and world culture with its complexities demands adult education. We cannot wait to educate another generation."

## Philosophy of Adult Education

Agricultural Extension Education is adult education involving adult farmers in educational programs to help them overcome identified obstacles to the attainment of their goals. The philosophy of adult education is to help local people improve their living. It involves a series of activities geared:

1. To help local people explore their intellectual capacity.
2. To enable them to dissociate formal learning with institutions of learning.
3. To think of learning as a life-long process.
4. To involve local people in the planning, implementing and evaluating programs designed to assist them.

## Adults and Learning

Educators and psychologists in their studies on how people learn, have confirmed that adults have the desire to learn only when the program is geared toward their interests and needs; when they can see the benefits to be derived; and, above all, when they are made part of the planning process (12).

## Importance of Involving Local People

Agricultural Extension is confronted with the task of helping local farmers improve their farms and farming practices and thereby increase their production.

Pesson (20) maintains that better programs are developed when extension personnel work in conjunction with local people because the people's needs and interests are considered in program development.

Maunder (17) stated:

. . . extension must be carried out largely through groups and their formal or informal leaders to the masses of rural people who are the final target. Group action programs not only multiply the effectiveness of professional extension workers, but are the only means to bring about large scale change (p. 116).

According to Adriano and Billings, as quoted by Seville (24), the following are needs for and requirements of local leaders or informal leaders in extension work. These needs are summarized as follows:

1. Local leaders should be able to organize local groups.
2. Leaders should assist in spreading the influence of the extension worker by informing their neighbors and friends.
3. The leaders should be able to furnish technical knowledge and information to their clientele.
4. Self-help projects should be organized to improve social and economic **conditions**.
5. Leaders should be able to encourage people to join their groups and participate in local projects.
6. They should ensure that their people attend meetings, trips or demonstrations.
7. Assist in selecting project leaders and resource personnel.
8. Be able to engage in the teaching-learning process.
9. Should encourage their neighbors and friends to adopt improved practices.
10. To inform the extension worker of progress being made.

In terms of the characteristics of a good leader, these qualities were considered as befitting a good leader. These were:

1. Liked and respected by people in the community.
2. Understanding local conditions and needs.
3. Be successful in their chosen profession or occupation.

4. Willingness to serve his people.
5. Of the same economic, social and cultural background of the people.

Kincaid as cited by Boyle (3) added:

Group participation in planning, helps people to identify themselves with the planned behavior change as participants in the planning; or if nonparticipants, they may identify with the planned change through participation of others like them. These characteristics of the group process in decision-making are important aspects of motivating people in planning to actively search for and reflect upon their important needs, interests, and problems identifying the possible solutions and the ways and means toward achieving those solutions (p. 43).

#### Role of Extension Officers

The extension officer in most cases is a leader or teacher. He is responsible for providing the necessary learning experiences that would enable the farmers to improve their farms, thus raising their standard of living. Knowles (12) perceived the role of the extension officer as an adult educator who had to assist the farmers diagnose their needs and plan with them a sequence of experiences that would produce the desired outcome. The extension officer should be able to create the conditions that will motivate the farmers, provide the necessary resources and through effective teaching methods help the farmers attain the desired goals. Furthermore, he should assist the farmers in evaluating the outcomes of their learning experiences.

As other writers have stated, it is necessary for the extension officer to involve the formal and informal leadership of the social system in order to obtain the interest and participation of others in the system in progress of change.



Burritt (4) stated:

The Extension Agent's job is usually what he makes it. It may be merely one of great activity in unessential details and doing things for farmers which they should do for themselves. Or it may be the organizing of the agriculture of a country, the better training of its leadership and giving obligations and opportunities (p. 3).

Stier (25) felt the failures of extension officers in helping farmers to improve their farming practices have been the result of "Superior-inferior relationships that existed between extension personnel and the adult farmers."

Savile (23) recommended that extension personnel must act as friends or teachers of the farmers instead of imposing on them their will or government policy. He maintained that the success of extension work will to a great extent depend on how the problems of the farmer and his family are handled. He emphasized the need to organize, involve and discuss with the farmers their problems and decide with them methods that could be used to overcome their problems.

According to Leagans (14):

Needs represent an imbalance, lack of adjustment, or gap between the present situations or status quo and a new or damaged set of conditions assumed to be none desirable. Needs may be viewed as the difference between what is and what ought to be; they always imply a gap...What is can be determined by a study of the situation. To be useful, facts must be carefully selected, analyzed and interpreted through joint efforts of the extension staff and by leaders . . . Thus facts help identify needs by pointing to gaps between what is and what should be. To be adequate, such facts must be obtained that generally fall into four categories:

1. Current trends and outlooks,
2. People (what they think their needs are),
3. Physical factors and
4. Public problems and policy (p. 42-43).

A good agricultural extension program must be geared toward the needs of the individual or clientele. The need for the development of a sound extension education program cannot be overemphasized. This part of the review of literature, therefore, is directed at the three phases of extension education program development. These phases are program planning, implementation and evaluation.

### Program Planning

The success or failure of an agricultural education program depends to a great extent on how best the program meets the perceived needs of the people.

Program planning is a cooperative process linking professional extension personnel and knowledgeable representatives of farmers and others of the district for the purposes of identifying agricultural problems which need extension personnel helping the farmers make the best decisions concerning (1) their agricultural goals, (2) determining problems preventing attainment of those goals, (3) placing priorities on the identified problems, (4) considering alternative ways to overcome the problems, and (5) selecting of the best alternative (22).

Evans (6, p. 9) defined program planning as "the process through which an individual, a family, a special interest group, a community or a government agency, such as the extension service, engages when asking and finding answers to the questions which have been raised." It is a process which attempts to identify important problems which confront the people and provides educational programs to assist them to overcome those obstacles. He added that program planning is a

"systematic and continuous process of decision-making" about: What is to be done; what resources are available, how is it to be done; and, who is to do what.

Boyle (2) views program planning as a joint venture involving extension personnel, representatives of the people and professional people in these activities. These activities are summarized as follows:

1. Collect and analyze the facts.
2. Identify problems.
3. Prioritize problems and opportunities.
4. Establish objectives.

Whales and Boyle (27, p. 109-110) credited Dewey for developing this sequence for reaching rational decisions. The steps in the decision-making process include:

1. Objectively examining facts and trends that describe the current situation,
2. Considering facts and trends that indicate possible needs, and
3. Arriving at decisions concerning what action can and should be recommended.

Evans (6, p. 3-10) indicated that the concern of most people is their "fullest possible development economically, socially, and culturally utilizing wisely all of the resources which: (1) are presently available; (2) can be acquired; or, (3) can be created considering the human, physical and other resources like money, government programs, etc." and that extension programs are a "composite product which emerge as a result of engaging in the process of asking and answering at least the following closely related and important questions." Such questions are summarized as follows:

- (1) What are the objectives of the program?
- (2) What should be the criteria for establishing priorities?
- (3) What are the resources needed or available?
- (4) What are the major obstacles or restraints?
- (5) What are the causes of these restraints or obstacles?
- (6) How could these restraints be eliminated or minimized?
- (7) What are the program alternatives?
- (8) What is the recommended time schedule?
- (9) Who is to do what?
- (10) Who and how should the program be evaluated?

Waterson (26) viewed program planning as:

. . . the rational application of human knowledge to the process of reaching decisions which are to serve as the basis of human action...

...The central core of the meaning is the establishment of relationships between means and ends with the object of achieving the latter by the most efficient use of the former (p. 27).

Laverenz (15) said planning is:

. . . the rational determination of where you are, where you want to go, and how you are going to get there. Thus, the 'Where you want to go' becomes the organizational objectives. However, before you can decide where you want to go, it is necessary to determine where you are, and this ultimately requires a data base from which you can develop viable goals and challenging but achievable objectives for the organization (p. 7).

Lawrence and Gauger as quoted by Habibi (8) maintained that a good extension program should be a teaching-learning process. The process should be flexible, continuous and should be based on identified or felt needs of the local clientele. The local people should participate fully in the planning process, be involved in implementing program

objectives and actively participate in determining the success or failure of extension programs.

Habibi (9) further cited Millikan and Hopgood for establishing criteria that could be considered when developing new agricultural extension education programs in developing countries. Such programs according to Millikan and Hopgood should be profitable, based on improved practices and should be promoted by both the farmer and the change agent. Extension programs should be easy to understand, of immediate importance to the people and the necessary information or resources should be available on demand by interested farmers.

#### Who Should Be Involved in Program Planning

According to Evans (6) people who should be involved in program planning are (1) the participants, (2) the local people who have demonstrated leadership qualities, (3) people with special interest or skills, and (4) resource people or experts who can make a viable contribution.

Evans maintained that by engaging local people in the program planning process, there would be assured increased participation, effective organization, development of leadership qualities and experiences gained would not only be valuable but would also contribute to their knowledge of the surroundings and facts which would enable the people to make wise decisions.

Houle (10) listed the following basic steps which should be considered in program development:

- I. The 'initial phase' which covers the following steps:
  - a. Make an honest appraisal of the current situation.
  - b. Make an initial judgment about appropriateness.

- c. Develop a statement of broad objectives.
  - d. Determine specific objectives for a specific period of time.
  - e. Design or adjust programs and services in such a way as to accomplish these objectives. Some of the problem areas which must be dealt with in this connection are:
    - 1. The clear relationship of people to one another into an effective organization.
    - 2. The development of effective program ideas.
    - 3. The selection and training of leaders.
    - 4. The proper use of methods.
    - 5. The location of and effective use of suitable materials for instruction.
    - 6. The development of plans for guiding and counseling individuals who help.
    - 7. The building of group morale.
    - 8. The interpretation of the program to the public influenced by it.
    - 9. The financing of the program.
    - 10. The evaluating of the program.
  - f. Carry out the program.
  - g. At the close of the specific period of time, appraise the accomplishment of the specific objectives.
- II. The recurrent phases which are:
- a. Re-examine the appraisal to determine how the current general situation has been changed.
  - b. Re-examine and revise the statement of broad objectives in the light of present knowledge.
  - c. Select a new set of specific objectives for a specific period of time.
  - d. Adjust programs and services in such a way as to accomplish these new objectives.
  - e. At the specific period of time, appraise the accomplishment of specific objectives (p. 3).

### Program Implementation

Program implementation is the second step in developing an informal educational program. Program implementation involves the execution of the teaching-learning activities that would result in helping the farmers implement the best alternative farming practices to overcome problems identified in the program planning procedures.

Program implementation is concerned with the development of educational objectives for each program, recruitment of human resources

(local influential persons, subject matter specialists, teachers), selection of teaching-learning activities that would most likely result in reaching the educational objective, and designation of the specific audience for which the program is intended. Following this careful design of each program, the teaching-learning activities are implemented. The Extension worker has to create conditions that will inspire or perhaps will help create a more favorable attitude for the farmers to want to learn or adopt improved practices while bearing in mind the fact that learning is considered an individual process since there are differences in the way people learn. The different ways people learn are seeing, discussing, listening, or learning by doing. Also, the individual, by his own decision, may or may not learn. Therefore, the more different extension teaching methods are used, the greater should be the rate of adoption.

Basendewa (1) suggested:

Success in bringing about desired changes in behavior with farmers frequently depends on the extension worker's skill in arranging the best learning situation and in using the most effective methods of teaching in that situation (p. 33).

Lionberger (16) indicated that the adoption of a new idea or practice is a process through which the individual consciously or unconsciously passes when he first learns of a new practice until the time he adopts such a practice.

The steps involved are:

1. Awareness Stage. In which the farmer is exposed to the new practice for the first time to the extent that he can recall having heard or read about the new practice. Methods of communication effective in creating this situation are mass media, other farmers and neighbors.

2. Interest Stage. A farmer who becomes aware of a new practice may become interested and seek more information. Methods of communication effective in creating this situation are mass media, fellow farmers, neighbors and the various agricultural departments in the locality.
3. Evaluation Stage. As a result of interest, the farmer may try out the new practice mentally and decide whether actually to try out or abandon the whole idea. Here he relies greatly on the opinions of his peers or innovators.
4. Trial Stage. If the evaluation of the practice is acceptable, the farmer may decide to try the idea by experimenting on a small scale. Here he can be assisted by the change agent or extension officer or by a local leader. He receives supplemental information in the form of newsletters, newspaper articles, radio and help from his peers.
5. Adoption Stage. As a result of acceptable performance of the new practice during its trial the farmer may decide to adopt it. His own rewarding experience coupled with that of his friends and neighbors is very crucial at this stage.

Reisbeck (22) added that rejection of a new practice could occur at any stage of the adoption process. He also stressed the importance of the impact that legitimation by local influential persons has on the progression of that process of adoption.



## Characteristics of Adopters

Maunder (17) cited a U. S. regional study which lists the following as characteristics of five groups of adopters. A summary of the study follows:

The Innovator - These form about 2.5 percent of a population. They are the first to adopt new practices. These are people highly respected, wealthy, better educated and own substantially large properties. They are also people who are willing to assume risks.

The Early Adopter - These form 13.5 percent of a population. They are respected in the community, own large operations and are socially active. They will, however, wait for the innovators to experiment before they adopt a practice.

The Early Majority - These constitute 34 percent of the population who will adopt a new practice after they are convinced about the practice after peers have tried it first. They are "average" in all respects and have to their credit some amount of education and experience. They also command the respect of people in the community.

The Late Majority - These also form 34 percent of a population. They are skeptical and would only adopt after the practice is well established. These are small operators.

The Late Adopters - These form 16 percent of a population and include laggards. These are security-oriented people who want to stay with the old ideas.

## Extension Teaching Methods

Extension teaching methods are classified into three groups namely mass, group and individual methods (22):

1. Mass Method
  - a. Posters
  - b. Newspapers
  - c. Pamphlets and Leaflets
  - d. Fact Sheets
  - e. Displays and Exhibits
  - f. Radio
  - g. T.V.
  - h. Demonstrations
  - i. Bulletin Boards
  
2. Group Method
  - a. Lectures
  - b. Workshops
  - c. Tours
  - d. Class-Extension School or Farmer Training Center
  - e. Forum
  - f. Planning Sessions
  - g. Field Days
  - h. Clubs
  
3. Individual or Personal Method
  - a. Office Calls
  - b. Farm and Home Visits
  - c. Personal Calls
  - d. Telephones
  - e. Informal Contact.

## Program Evaluation

Program evaluation is the third step in developing informal educational programs. This is the determination or measurement of the extent to which the pre-planned educational objectives have been reached as a result of the program's implementation. It also involves the decisions about the educational program as a result of evaluating it; to continue or make changes to reach the objective; or to end it.

Extension program evaluation could also be considered as a process of determining the extent to which the extension service has helped local farmers improve their livelihood.

Janelid (11) has indicated that the evaluation process enables the objectives of the extension program to be clearly defined. This enables the observation of the programs strengths and weaknesses and thus helps improve the quality of the program. It is also a chance for the extension worker to reassess his program. Furthermore, evaluation of the program should provide in addition to information for program improvement, accountability indices. The design of the evaluation checklist should be specific, in line with the needs of the local people and program objectives.

#### Evaluation Process

According to Knowles (12) the evaluation process should consist of these steps:

1. Establishing a criteria for the collection of data.
2. Collecting the data.
3. Analyzing and interpreting the data.
4. Program improvement based on findings.

#### Who Should Evaluate the Extension Program?

Knowles (12, p. 225) suggested further that "every person who is in a position of judgment about a program should be brought into the evaluation process in some way. One or more of these groups are usually involved, depending upon the type of program."

1. Participants
2. Leaders or Instructors

3. Program Director and Staff
4. Local Experts
5. Outside Experts
6. Supervisory and Management Personnel
7. Community Representatives
8. Representatives of the Various Program Committees

#### Planning and Conducting Extension

##### Program Evaluation

Janelid (11) has recommended these steps as guidelines which should be followed when planning and conducting evaluation of an educational program. These guidelines are summarized as follows:

1. Establish and identify resources, both personnel and financial, that would be needed for carrying out the evaluation.
2. Identify the program objectives that are to be evaluated.
3. Define explicitly the objectives of the study.
4. Decide on the necessary data gathering tools.
5. Decide on how the information would be tabulated.
6. Determine the population sample.
7. Arrange for the collection of data.
8. Collect needed information.
9. Analyze and tabulate the data gathered.
10. Interpret and report findings.

##### Program Development

Program development is that continuing process of planning, implementing and evaluating an informal educational program. All in all, program development is a decision-making process whereby, problems are identified; goals are established; a prioritization of problems is

established; alternative methods of overcoming each problem are determined; the best alternative is selected; and an educational program of teaching-learning activities is set forth to help farmers implement the best alternative practices, thereby greatly increasing chances of overcoming the identified problem. During this entire process, evaluation is made concerning the process and its effectiveness in reaching the established goal.

In the entire process, professional extension personnel help the local farmers make their own best decisions.

According to Pesson (20, p. 94-98), Agricultural Extension Program Development is a "continuous and cooperative activity involving the people and extension personnel in which problems are identified, objectives are set forth and action is taken to reach the objectives." All viewpoints are considered and a program is developed to meet the needs of the local clientele.

Savile (24) described extension program development as:

- 1 . . . A plan prepared jointly by the people and extension personnel.
- 2 . . . It contains a list of the various projects which the people wish to undertake.
- 3 . . . It describes briefly the situation regarding each project.
- 4 . . . It mentions the problems affecting each project.
- 5 . . . It suggests the best situations that lie within the capacity of the people.
- 6 . . . It clearly states as its objectives what the people should learn to do within a stated period of time (p. 23-34).

### Conclusion

Agricultural Extension, as has been advanced thus far, has as its goal helping people overcome the identified problems which prevent them from reaching their goals. To accomplish this, the Extension educator helps people define their goals, identify the obstacles that prevent attainment of each goal, determine possible alternative courses of action to overcome the identified problems, select the best alternative course of action, provide educational input to help the people implement the best alternative course of action, and then evaluate the results of the entire process on subsequent goal attainment.

This is a decision-making process in which people affected must be involved for maximum benefit. Farmer clientele must be involved for the social action process to occur. And in addition, farmer involvement is necessary in the decision making process of planning, implementation and evaluation because of the need to make optimum use of scarce extension resources of manpower and money.

## CHAPTER III

### METHOD AND PROCEDURES

#### Introduction

The design of the study was based on the objectives specified in Chapter I. Briefly, they are:

1. To determine the extent adult farmers of Ghana could be involved in the planning, implementing and evaluating the agricultural extension educational programs.
2. To identify the most appropriate methods for achieving the involvement of adult farmers of Ghana in the planning, implementing and evaluating of agricultural extension educational programs.

#### Development of Instrument

The items or procedures of Part A of the instrument were based on the County Extension Program Development Model used by the Oklahoma Cooperative Extension Service. A questionnaire was developed and respondents were asked to react to each item on a five-point scale, ranging in involvement from (0) none to (4) very much.

In Part B, respondents were asked to indicate the appropriateness of various methods for achieving the involvement of adult farmers in procedures of planning, implementing and evaluating (as in Part A) extension education programs by writing the number corresponding to the appropriateness of each method. Each item or procedure was assigned a scale ranging from (0) not appropriate to (4) extremely appropriate.

### Administering the Questionnaire

Some members of the executive committee of the Ghanaian Association of Oklahoma assisted the writer in the distribution and collection of questionnaires to members of the association. The questionnaires were distributed in mid-March and completed questionnaires were returned by mid-April.

### Tabulation and Analysis of Data

The questionnaires were coded and sent to the OSU Computer Center to be key punched and programmed. The mean and frequency distributions relative to each item were calculated. A group T-test was utilized to determine if there were any significant differences between those who were familiar and those not familiar with Ghanaian farming practices and/or familiar with the work of the district agricultural extension officer in Ghana.

According to Nie and others (19):

"Given populations with unequal variances, 't' cannot be computed for the difference in sample means. Instead an approximation to 't' may be computed" (p. 269-270). The formula below was used:

$$t = \frac{(X_1 - X_2) (U_1 - U_2)}{S_1^2/n_1 + S_2^2/n_2}$$

The detailed findings of the data are presented in Chapter IV.



## CHAPTER IV

### PRESENTATION AND ANALYSIS OF DATA

#### Introduction

The purpose of this study was to determine the extent to which and means by which adult farmers of Ghana could be involved in Agricultural Extension Education programs. The first objective of the study was to determine the extent to which adult farmers of Ghana could be involved in the planning, implementing and evaluating the Agricultural Extension Education programs. The second objective dealt with identifying the most appropriate methods for achieving the involvement of adult farmers in planning, implementing and evaluating Agricultural Extension Education programs.

#### Description of Respondents

Respondents in this study were sixty Ghanaian students currently enrolled in institutions of higher learning in the state of Oklahoma and their spouses. Of the respondents, 31 Ghanaians indicated they were familiar with Ghanaian farming practices and/or familiar with the work of the district agricultural extension officer. The other 21 Ghanaians indicated they were neither familiar with Ghanaian farming practices nor were they familiar with the work of the district agricultural extension officer.

Items 6 and 7 on background information (see Appendix B) were recoded as follows: 0 through 1 was assigned a '1' and 2 through 4 was assigned a '2'. This way the respondents were divided into the two groups, those familiar (Group 1) and not familiar (Group 2) with Ghanaian farming practices and/or the work of the district agricultural extension officer in Ghana.

#### Treatment of Data

The 363-item instrument consisted of 33 questions comporting to the independent variable "extent of involvement of adult farmers in planning, implementing and evaluating district agricultural extension education programs;" and 330 questions comporting to the independent variable "how involvement can be achieved in the planning, implementation and evaluation procedures".

Each item of the instrument was rated by respondents on a scale of 0 to 4, with 4 being the highest rating. In order to determine the response for the extent of involvement of each item, a range of absolute values was established. The range used was 0 to 0.49, "none;" 0.5 to 1.49, "little;" 1.5 to 2.49, "some;" 2.5 to 3.49, "much;" and 3.5 to 4.0, "very much." In Part B, the scale ranged from "not appropriate" to extremely appropriate." The range used was 0 to 0.49, "not appropriate (NA);" 0.5 to 1.49, "slightly appropriate (SA);" 1.5 to 2.49, appropriate (A);" 2.5 to 3.49, very appropriate (VA);" and 3.5 to 4.0, extremely appropriate (EA)." Steps 34 to 363 (see Appendices) were recorded by items from 34 to 363.

A group T-test was utilized to determine what relationship existed between respondents familiar (Group 1) and respondents not familiar

(Group 2) with farming practices in Ghana; and/or familiar with the work of the district agricultural extension officer in Ghana and their perceptions as to (1) the extent of involvement of adult farmers in planning, implementation, and evaluation; and (2) how involvement can be achieved in the planning, implementing and evaluating of agricultural extension education programs. Differences were tested at the .05 level of significance.

### Findings

Table I is a comparison of respondents' perceptions of the extent to which adult farmers could be involved in planning agricultural extension education programs. Overall, respondents felt adult farmers should have "much" involvement in 11 of the 15 procedures of planning and "some" involvement in the remaining 4 procedures. The two respondent groups (1 and 2) rated twelve procedures the same. Eight procedures with "much" overall rating were rated "much" by both groups. Similarly, four procedures with "some" overall rating were rated "some" by both groups. Three of the items with overall rating of "much" were rated differently by the two groups. Of these, "Recruit volunteers to help in educational programs" was rated "some" by Group I (familiar) and "Schedule facilities" and "Assign time for a program" were rated "some" by Group II (unfamiliar.).

There were no significant differences between responses of the groups on any of the planning procedures shown in Table I which indicated both groups viewed adult farmer involvement essentially the same way.

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TABLE I  
 COMPARISON OF RESPONDENTS' PERCEPTIONS OF THE EXTENT  
 TO WHICH ADULT FARMERS COULD BE INVOLVED IN  
 PLANNING AGRICULTURAL EXTENSION  
 EDUCATION PROGRAMS

PLANNING PROCEDURES	GROUP	MEAN	CATEGORY
1. Formulate objectives and procedures for planning the agricultural program in the district.	Group 1	2.821	Much
	Group 2	2.905	Much
	Overall	2.850	Much
2. Identify problems in the district which needs informational or educational input.	Group 1	3.128	Much
	Group 2	2.857	Much
	Overall	3.033	Much
3. Analyze the agricultural situation of the districts.	Group 1	2.769	Much
	Group 2	2.762	Much
	Overall	2.767	Much
4. Reach decisions on problems, concerns and opportunities.	Group 1	2.821	Much
	Group 2	2.571	Much
	Overall	2.733	Much
5. Define the educational objective for educational programs designed to meet identified problems.	Group 1	2.436	Some
	Group 2	2.238	Some
	Overall	2.367	Some
6. Identify the target audience for each educational program.	Group 1	2.180	Some
	Group 2	2.333	Some
	Overall	2.233	Some
7. Identify and recruit local thought leaders to help in educational programs.	Group 1	2.641	Much
	Group 2	2.667	Much
	Overall	2.650	Much
8. Identify or help locate people who will teach or help in educational programs.	Group 1	2.641	Much
	Group 2	2.619	Much
	Overall	2.633	Much
9. Recruit volunteers to help in educational programs.	Group 1	2.359	Some
	Group 2	2.857	Much
	Overall	2.533	Much
10. Design and sequence teaching-learning experience to reach educational objectives in each program.	Group 1	2.026	Some
	Group 2	2.238	Some
	Overall	2.100	Some
11. Assemble necessary subject matter: information, newsletter, bulletin, etc., for each program.	Group 1	1.872	Some
	Group 2	2.333	Some
	Overall	2.033	Some
12. Provide necessary training for those involved in program leadership.	Group 1	2.539	Much
	Group 2	2.714	Much
	Overall	2.600	Much
13. Schedule facilities: meeting or demonstration area.	Group 1	2.641	Much
	Group 2	2.476	Some
	Overall	2.583	Much
14. Assign time for a program.	Group 1	2.718	Much
	Group 2	2.381	Some
	Overall	2.600	Much
15. Plan agricultural shows.	Group 1	3.000	Much
	Group 2	3.238	Much
	Overall	3.083	Much

Table II is a comparison of respondents' perceptions of the extent to which adult farmers could be involved in implementing agricultural extension education programs. Overall, respondents felt adult farmers should have "much" involvement in five procedures and "some" involvement in the other five procedures. Seven procedures were rated the same by both respondent groups. Three procedures with an overall rating of "some" in two procedures and "much" in the other were rated differently by the groups. Of these, "Arrange meeting facilities" was rated "much" by Group I (familiar) and "Enroll participants at meetings" and the "teaching-learning process" were rated "much" by Group II (unfamiliar).

No significant differences existed between responses of the two groups in any of the implementation procedures in Table II, indicating both groups viewed adult farmer involvement in much the same way.

Table III is a comparison of respondents' perceptions of the extent to which adult farmers could be involved in evaluating agricultural extension education programs. Overall, respondents felt adult farmers should have "much" involvement in "Evaluating the effectiveness of the district's agricultural program" and in "Informing the public of the successes of extension programs." Four procedures were rated "some" by the respondent groups. Four of the procedures with an overall rating of "some" were rated differently by the groups. Of these, "Determine the extent to which program evaluation should be based on stated objectives of the program; collect, analyze and interpret information to determine the strengths and weaknesses of the program; make judgments relative to adjustments in programs, activities and methods based on sound evidence." and "the use of previous evaluation reports

TABLE II

COMPARISON OF RESPONDENTS' PERCEPTIONS OF THE EXTENT  
TO WHICH ADULT FARMERS COULD BE INVOLVED IN  
IMPLEMENTING AGRICULTURAL EXTENSION  
EDUCATION PROGRAMS

IMPLEMENTATION PROCEDURES	GROUP	MEAN	CATEGORY
16. Set priorities of needs based on needs identified.	Group 1	2.769	Much
	Group 2	2.667	Much
	Overall	2.733	Much
17. The teaching-learning process.	Group 1	2.308	Some
	Group 2	2.667	Much
	Overall	2.433	Some
18. Developing a plan of work for the successful implementation of the program.	Group 1	2.462	Some
	Group 2	2.333	Some
	Overall	2.47	Some
19. Develop basic instructional materials for educational programs.	Group 1	2.103	Some
	Group 2	2.429	Some
	Overall	2.217	Some
20. Greet and introduce participants at meetings.	Group 1	27.95	Much
	Group 2	2.857	Much
	Overall	2.817	Much
21. Introduce speakers at meetings.	Group 1	2.641	Much
	Group 2	2.714	Much
	Overall	2.667	Much
22. Enroll participants at meetings.	Group 1	2.256	Some
	Group 2	2.524	Much
	Overall	2.350	Some
23. Arrange meeting facilities.	Group 1	2.769	Much
	Group 2	2.429	Some
	Overall	2.650	Much
24. Distribute handout materials at meetings.	Group 1	2.769	Much
	Group 2	2.762	Much
	Overall	2.767	Much
25. Operate audio visual aids at meetings.	Group 1	1.846	Some
	Group 2	2.238	Some
	Overall	1.983	Some

TABLE III

COMPARISON OF RESPONDENTS' PERCEPTIONS OF THE EXTENT  
TO WHICH ADULT FARMERS COULD BE INVOLVED IN  
EVALUATING AGRICULTURAL EXTENSION  
EDUCATION PROGRAMS

EVALUATION PROCEDURES	GROUP	MEAN	CATEGORY
26. Establish a criteria upon which evaluation of programs will be based.	Group 1	2.205	Some
	Group 2	2.143	Some
	Overall	2.183	Some
27. Determine the extent to which program evaluation should be based on stated objectives of the program.	Group 1	2.385	Some
	Group 2	2.667	Much
	Overall	2.483	Some
28. Evaluate the effectiveness of the district's agricultural program.	Group 1	3.000	Much
	Group 2	3.048	Much
	Overall	3.017	Much
29. Inform the public of the successes of extension programs.	Group 1	2.974	Much
	Group 2	3.143	Much
	Overall	3.033	Much
30. Design for collection and analysis evidence as regards to planned programs.	Group 1	2.256	Some
	Group 2	2.333	Some
	Overall	2.283	Some
31. Collect, analyze and interpret information to determine the strengths and weaknesses of the program.	Group 1	2.359	Some
	Group 2	2.524	Much
	Overall	2.417	Some
32. Make judgments relative to adjustments in programs, activities and methods based on sound evidence.	Group 1	2.256	Some
	Group 2	2.619	Much
	Overall	2.383	Some
33. Use previous evaluation reports along with other information in subsequent program development.	Group 1	2.256	Some
	Group 2	2.810	Much
	Overall	2.450	Some



along with other information in subsequent program development" were rated "much" by Group II (unfamiliar).

There was no significant difference between responses of the two groups for any of the evaluation procedures in Table III, indicating respondents viewed adult farmers involvement in the same way.

Table IV indicates a comparison of respondents' perceptions of the appropriateness of involving selected groups in planning agricultural extension education programs. Overall, respondents rated as very appropriate, the involvement of adult farmers through (1) "A Program Planning Committee Selected by Extension Staff," (2) "An Advisory Committee Elected by Farmers," and (3) "Farmers Organizations like the Cooperative Movements or Settlement Farms." Traditional Council" and "Church Dignitaries" being used as a means of achieving adult farmer involvement were only rated "slightly appropriate" overall.

Respondents in Group II (unfamiliar) rated higher "Program Planning Committee Selected by Extension Staff;" Advisory Committee Elected by Farmers" and "Farmers Organization" than respondents in Group I (familiar) for procedures 34, 36, 37, 43, 45 and 48. Respondents in Group II further rated as being "extremely appropriate". The use of "An advisory committee elected by farmers" in "formulating objectives and procedures for planning the agricultural program in the district" and in "Analyzing the agricultural situation of the district."

There were significantly different responses between the two groups on two procedures indicated in Table IV by asteriks (\*): (In parentheses is the level of significance).

**TABLE IV**  
**COMPARISON OF RESPONDENTS' PERCEPTIONS OF THE APPROPRIATENESS OF INVOLVING SELECTED**  
**GROUPS IN PLANNING AGRICULTURAL EXTENSION EDUCATION PROGRAMS**

PLANNING PROCEDURES	RESP. GROUPS	MEAN RESPONSE BY GROUP BY ORGANIZATION																			
		TRADITIONAL COUNCIL		CHURCH DIGNITARIES		LOCAL COUNCIL		YOUTH/STUDENT ORGANIZATION		DISTRICT CHIEF FARMER		PROGRAM PLANNING COMMITTEE SELECTED BY EXT. STAFF		PARAMOUNT CHIEF OR TRADITIONAL RULER		DISTRICT ADMINISTRATIVE OFFICER		ADVISORY COMMITTEE ELECTED BY FARMERS		FARMERS ORGANIZATION	
		Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.
34. Formulate objectives and procedures for planning the agricultural program in the district.	Group 1	1.69	A	1.00	SA	1.74	A	1.92	A	2.44	A	2.77	VA	2.05	A	1.80	A	3.23	VA	3.05	VA
	Group 2	1.38	SA	0.95	SA	1.76	A	1.81	A	2.33	A	3.29	VA	2.52	A	2.14	A	3.52	EA	3.19	VA
35. Identify problems in the district which need informational or educational input.	Group 1	1.74	A	1.33	SA	1.77	A	2.21	A	2.36	A	2.85	VA	2.23	A	2.28	A	3.26	VA	2.74	VA
	Group 2	1.52	A	0.86	SA	1.48	SA	2.00	A	2.62	VA	3.24	VA	1.86	A	2.71	VA	3.24	VA	2.91	VA
36. Analyze the agricultural situation of the district	Group 1	1.74	A	0.97	SA	1.74	A	1.82	A	2.49	A	2.95	VA	2.13	A	2.15	A	3.26	VA	2.72	VA
	Group 2	1.52	A	0.76	SA	1.33	SA	1.38	SA	2.57	VA	3.24	VA	1.29	SA	2.92	VA	3.57	EA	3.25	VA
37. Reach decisions on problems, concerns and opportunities.	Group 1	1.82	A	0.87	SA	2.00	A	1.56	A	2.33	A	2.90	VA	2.08	A	2.05	A	3.31	VA	2.85	VA
	Group 2	1.29	SA	0.91	SA	1.67	A	1.71	A	2.48	A	3.33	VA	1.57	A	2.62	VA	3.05	VA	2.67	VA
38. Define the educational objectives for educational programs designed to meet identified problems.	Group 1	1.18	SA	1.00	SA	1.72	A	2.10	A	2.03	A	2.95	VA	1.80	A	2.46	A	3.49	VA	2.59	VA
	Group 2	1.14	SA	0.71	SA	1.38	SA	1.86	A	2.10	A	3.00	VA	1.38	SA	2.86	VA	2.95	VA	2.48	A
39. Identify the target audience for each educational program.	Group 1	1.26	SA	1.41	SA	1.85	A	1.97	A	2.33	A	2.85	VA	1.92	A	2.44	A	3.10	VA	2.62	VA
	Group 2	1.14	SA	1.05	SA	1.52	A	1.91	A	1.80	A	3.24	VA	1.38	SA	2.48	A	3.33	VA	2.76	VA
40. Identify and recruit local thought leaders to help in educational program.	Group 1	1.85	A	1.59	A	2.13	A	1.92	A	2.49	A	2.74	VA	1.97	A	2.49	A	3.00	VA	2.74	VA
	Group 2	1.67	A	1.81	A	2.14	A	2.06	A	2.38	A	3.10	VA	1.91	A	2.29	A	3.05	VA	2.67	VA

TABLE IV (continued)

41. Identify or help locate people who will teach or help in educational programs.	Group 1	1.59	A	1.59	A	2.05	A	2.15	A	2.05	A	2.92	VA	1.82	A	2.49	A	3.13	VA	2.72	VA
	Group 2	2.05	A	2.00	A	2.29	A	2.05	A	2.29	A	3.43	VA	2.05	A	2.14	A	2.95	VA	2.54	VA
42. Recruit volunteers to help in educational programs.	Group 1	1.82	A	1.85	A	2.05	A	2.26	A	2.13	A	2.59	VA	2.05	A	2.51	VA	2.72	A	2.64	VA
	Group 2	1.76	A	1.10	A	2.05	A	2.67	VA	2.29	A	2.86	VA	2.05	A	2.57	VA	2.48	A	2.95	VA
43. Design and sequence teaching-learning experience to reach educational objectives in each program.	Group 1	1.23	SA	1.15	SA	1.44	SA	1.92	A	1.82	A	3.00	VA	.164	A	2.39	A	2.82	VA	2.49	A
	Group 2	1.48	SA	1.10	SA	1.71	A	2.24	A	2.33	A	3.38	VA	1.67	A	2.14	A	2.71	VA	2.71	VA
44. Assemble necessary subject matter information: newsletter, bulletin, etc, for each program.	Group 1	1.46	SA	1.21	SA	1.72	A	2.08	A	2.00	A	3.15	VA	1.87*	A	2.54	VA	3.00*	VA	2.41	A
	Group 2	1.05	SA	1.00	SA	1.62	A	2.54	VA	1.52	A	3.05	VA	1.10	SA	1.95	A	2.24	A	2.48	A
45. Provide necessary training for those involved in program leadership.	Group 1	1.31	SA	1.10	SA	1.72	A	2.05	A	1.87	A	2.82	VA	1.78	A	2.31	A	2.85	VA	2.82	VA
	Group 2	0.95	SA	1.10	SA	1.29	SA	2.05	A	1.91	A	3.29	VA	1.14	SA	2.00	A	2.95	VA	2.86	VA
46. Schedule facilities: meeting or demonstration area.	Group 1	1.49	SA	1.36	SA	1.90	A	2.21	A	2.05	A	3.05	VA	2.05	A	2.56	VA	2.90	VA	2.80	VA
	Group 2	1.14	SA	1.24	SA	1.62	A	2.38	A	2.05	A	3.24	VA	1.91	A	1.91	A	2.54	VA	2.38	A
47. Assign time for a program.	Group 1	1.15	SA	1.03	SA	1.39	SA	1.62	A	1.95	A	2.87	VA	1.95	A	2.13	A	2.90	VA	2.69	VA
	Group 2	1.14	SA	0.91	SA	1.38	SA	1.86	A	2.10	A	3.24	VA	1.38	SA	1.91	A	2.57	VA	2.14	A
48. Plan agricultural shows.	Group 1	1.87	A	1.62	A	1.87	A	2.18	A	2.36	A	3.08	VA	1.95	A	2.74	VA	2.97	VA	2.87	VA
	Group 2	1.48	SA	1.48	SA	1.91	A	2.57	VA	2.24	A	3.62	EA	2.10	A	2.29	A	3.19	VA	3.29	VA

SA - Slightly Appropriate  
A - Appropriate

VA - Very Appropriate  
EA - Extremely Appropriate

\* - Significant at .05 level

1. Assemble necessary subject matter through the paramount chief or traditional ruler (0.03).
2. Assemble necessary subject matter information through the advisory committee elected by farmers (0.03).

Table V shows how respondents' perceived the appropriateness of selected groups in implementing agricultural extension education programs. According to the respondents, it would be very appropriate to secure adult farmer involvement through (1) "Program Planning Committee Selected by Extension Staff; (2) Advisory Committee Elected by Farmers"; and, (3) Farmers Organizations. The involvement of adult farmers through the "Traditional Council, Church Dignitaries" and Paramount Chief or Traditional Ruler were considered only slightly appropriate. Respondents in Group I (Familiar) rated procedures under "Program Planning Committee Selected by Extension Staff; Advisory Committee Elected by Farmers in the District" and "Farmers Organization," much higher than respondents in Group II (unfamiliar). These were procedures 53, 54, 55, 56 and 58. Respondents in Group II (unfamiliar) rated as being "slightly appropriate," the use of "Local Council" in securing the involvement of adult farmers in implementing programs. The other procedures had no particular sequence and were very diverse.

The only significantly different response between the two groups in Table V was, "Set priorities of needs based on needs identified through paramount chief or traditional ruler (0.03).

Table VI indicates the appropriateness of selected groups or organizations in evaluating agricultural extension programs. Overall, respondents rated as very appropriate, the involvement of adult farmers

TABLE V

## COMPARISON OF RESPONDENTS' PERCEPTIONS OF THE APPROPRIATENESS OF INVOLVING SELECTED GROUPS IN IMPLEMENTING AGRICULTURAL EXTENSION EDUCATION PROGRAMS

IMPLEMENTATION PROCEDURES	RESP. GROUPS	MEAN RESPONSE BY GROUP BY ORGANIZATION																			
		TRADITIONAL COUNCIL		CHURCH DIGINTARIES		LOCAL COUNCIL		YOUTH / STUDENT ORGANIZATION		DISTRICT CHIEF FARMER		PROGRAM PLANING COMMITTEE SELECTED BY EXT. STAFF		PARAMOUNT CHIEF OR TRADITIONAL RULER		DISTRICT ADMINIS-TRATIVE OFFICER		ADVISORY COMMITTEE ELECTED BY FARMERS		FARMERS ORGANIZATION	
		Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.
49. Set priorities of needs based on needs identified.	Group 1	1.53	A	1.26	SA	1.67	A	1.80	A	2.41	A	2.97	VA	2.13*	A	2.33	A	3.28	VA	2.77	VA
	Group 2	1.05	SA	1.05	SA	1.33	SA	1.62	A	1.91	A	3.24	VA	1.24	SA	1.81	A	3.29	VA	2.43	A
50. The teaching-learning process.	Group 1	1.41	SA	1.44	SA	1.54	A	2.23	A	1.80	A	2.56	VA	1.64	A	2.46	A	2.82	VA	2.80	VA
	Group 2	1.94	A	1.43	SA	1.33	SA	2.14	A	1.91	A	3.24	VA	1.48	SA	1.86	A	2.74	VA	2.67	VA
51. Developing a place of work for the successful implementation of the program.	Group 1	1.39	SA	1.26	SA	1.56	A	2.03	A	1.92	A	3.32	VA	1.62	A	1.97	A	2.97	VA	2.64	VA
	Group 2	1.19	SA	1.14	SA	1.43	SA	2.05	A	1.95	A	3.33	VA	1.57	A	2.00	A	2.86	VA	2.74	VA
52. Develop basic instruktural materials for educational programs.	Group 1	1.26	SA	1.05	SA	1.56	A	2.03	A	1.82	A	2.85	VA	1.44	SA	2.05	A	2.67	VA	2.49	A
	Group 2	0.86	SA	0.91	SA	1.29	SA	1.81	A	1.95	A	3.33	VA	1.10	A	2.00	A	3.00	VA	2.62	VA
53. Greet and introduce participants at meetings.	Group 1	1.77	A	1.49	SA	1.80	A	1.80	A	3.08	VA	2.23	A	2.33	A	2.41	A	2.49	A	2.51	VA
	Group 2	1.57	A	1.73	SA	1.71	A	1.91	A	2.71	VA	1.57	A	2.57	VA	2.52	A	1.86	A	1.91	A
54. Introduce speakers at meetings.	Group 1	1.36	SA	1.26	SA	1.44	SA	1.67	A	3.00	VA	2.54	VA	2.33	A	2.33	A	2.49	A	2.80	VA
	Group 2	1.52	A	1.52	SA	1.48	SA	1.67	A	2.67	VA	1.91	A	1.95	A	2.00	A	2.19	A	2.52	VA
55. Enroll participants at meetings.	Group 1	1.39	SA	1.36	SA	1.77	A	2.13	A	1.92	A	2.92	VA	2.36	SA	1.69	A	2.54	VA	2.82	VA
	Group 2	0.76	SA	0.81	SA	1.14	SA	2.62	VA	1.76	A	2.52	VA	1.29	SA	1.67	A	2.19	A	2.52	VA
56. Arrange meeting facilities.	Group 1	1.64	A	1.23	SA	1.77	A	2.46	A	2.33	A	2.90	VA	1.64	A	2.41	A	2.56	VA	2.62	VA
	Group 2	1.14	SA	1.57	A	1.52	A	2.43	A	1.86	A	2.57	VA	1.57	A	1.36	A	1.91	A	2.52	VA
57. Distribute handout materials at meetings.	Group 1	1.51	A	1.10	SA	1.41	SA	2.72	VA	2.10	A	2.64	VA	1.46	SA	1.41	SA	2.46	A	2.66	VA
	Group 2	1.76	A	1.05	SA	2.05	A	2.81	VA	1.43	SA	1.86	A	0.91	SA	1.24	SA	2.43	A	2.71	VA
58. Operate audio-visual aids at meetings	Group 1	1.15	SA	1.08	SA	1.46	SA	2.26	A	1.67	A	2.56	VA	1.33	SA	1.46	SA	2.41	A	2.59	VA
	Group 2	0.57	SA	0.81	SA	1.38	SA	2.43	A	1.33	SA	2.10	A	0.95	SA	1.38	SA	2.05	A	2.29	A

through (1) "A Program Planning Committee Selected by Extension Staff," (2) "An Advisory Committee Elected by Farmers," and (3) "Farmers Organization." Respondents in Group I (familiar) rated the use of "An Advisory Committee Elected by the Farmers" as being "extremely appropriate" in "evaluating the effectiveness of the district's agricultural program." The use of "Traditional Council" and "Church Dignitaries" as a means of achieving adult farmer involvement were rated only "slightly appropriate" overall. Respondents in Group II (unfamiliar) rated as "slightly appropriate" the use of a "Paramount Chief or Traditional Ruler", "Local Council" and "Youth or Student Organizations" in securing the involvement of adult farmers in evaluating agricultural extension programs.

There were significantly different responses between the two groups on two procedures indicated by asterisks in Table VI. The two procedures were:

- (1) Collect, analyze and interpret information to determine the strengths and weaknesses of the program through Paramount Chief or Traditional Ruler (0.04).
- (2) Make judgments relative to adjustments in programs, activities and methods based on sound evidence through the Paramount Chief or Traditional Ruler (0.04).

TABLE VI

COMPARISON OF RESPONDENTS' PERCEPTIONS OF THE APPROPRIATENESS OF INVOLVING SELECTED GROUPS IN EVALUATING AGRICULTURAL EXTENSION EDUCATION PROGRAMS

EVALUATION PROCEDURES	RES P. GROUPS	MEAN RESPONSE BY GROUP BY ORGANIZATION																			
		TRADITIONAL COUNCIL		CHURCH DIGNITARIES		LOCAL COUNCIL		YOUTH/STUDENT ORGANIZATION		DISTRICT CHIEF FARMER		PROGRAM PLANNING COMMITTEE SELECTED BY EXT. STAFF		PARAMOUNT CHIEF OR TRADITIONAL RULER		DISTRICT ADMINISTRATIVE OFFICER		ADVISORY COMMITTEE ELECTED BY FARMERS		FARMERS ORGANIZATION	
		Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.	Mean	Cat.
59. Establish a criteria upon which evaluation will be used.	Group 1	1.15	SA	0.95	SA	1.67	A	1.74	A	2.41	A	3.26	VA	1.67	SA	1.85	A	3.13	VA	2.78	VA
	Group 2	0.67	SA	0.81	SA	1.38	SA	1.29	SA	1.86	A	3.05	VA	1.14	SA	1.71	A	3.29	VA	2.34	A
60. Determine the extent to which program evaluation should be based on stated objectives of the program.	Group 1	1.39	SA	0.88	SA	1.69	SA	1.82	A	2.26	A	3.31	VA	1.72	A	2.27	A	3.32	VA	2.74	VA
	Group 2	0.71	SA	0.71	SA	1.19	SA	1.32	SA	1.76	A	2.95	VA	1.14	SA	1.52	A	3.19	VA	2.29	A
61. Evaluate the effectiveness of the district's agricultural program.	Group 1	1.69	SA	1.18	SA	1.80	A	2.03	A	2.44	A	3.33	A	1.95	A	2.00	A	3.54	EA	2.97	VA
	Group 2	1.29	SA	1.33	SA	1.43	SA	1.57	A	1.95	A	3.10	VA	1.67	A	1.81	A	3.10	VA	2.52	VA
62. Inform the public of the successes of extension programs.	Group 1	2.13	A	1.80	A	2.03	A	2.28	A	2.54	VA	3.00	VA	2.59	VA	2.33	A	2.87	VA	2.82	VA
	Group 2	1.67	A	1.74	A	1.86	A	1.95	A	2.29	A	2.67	VA	2.00	A	2.33	A	2.52	VA	2.52	VA
63. Design for collection and analysis evidence as regards planned programs.	Group 1	1.49	SA	0.95	SA	1.67	A	1.80	A	2.03	A	3.15	VA	1.56	A	1.87	A	2.82	VA	2.82	VA
	Group 2	1.00	SA	0.86	SA	1.19	SA	1.43	SA	1.81	A	3.52	EA	1.00	SA	1.48	SA	2.57	VA	2.19	VA
64. Collect, analyze and interpret information to determine the strengths and weaknesses.	Group 1	1.46	SA	1.15	SA	1.80	A	1.85	A	2.26	A	3.13	VA	1.56*	A	2.05	A	3.00	VA	2.62	VA
	Group 2	1.00	SA	1.05	SA	1.43	SA	1.76	A	1.62	A	3.29	VA	0.76	SA	1.57	A	2.81	VA	2.38	A
65. Make judgments relative to adjustments in program activities and methods based on sound evidence.	Group 1	1.41	SA	1.03	SA	1.69	A	1.85	A	2.28	A	3.08	VA	1.67*	A	1.90	A	3.10	VA	2.69	VA
	Group 2	1.00	SA	1.10	SA	1.33	SA	1.38	SA	1.71	A	3.24	VA	0.86	SA	1.38	SA	3.00	VA	2.25	A
66. Use previous evaluation reports along with other information in subsequent program development.	Group 1	1.54	A	1.10	SA	1.64	A	1.74	A	2.15	A	3.36	VA	1.74	A	1.97	A	3.08	VA	2.72	VA
	Group 2	1.10	SA	1.00	SA	1.48	SA	1.48	SA	2.05	A	3.67	EA	1.00	SA	1.38	SA	2.95	VA	2.19	A

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Summary

The purpose of the study was to determine the extent and means by which adult farmers of Ghana could be involved in the conduct of agricultural extension education programs.

Respondents in this study comprised 60 Ghanaian students currently enrolled in institutions of higher learning in Oklahoma and their Ghanaian spouses. Respondents checked on a five-point scale steps which dealt with the extent to and means by which adult farmers in Ghana could be involved in the conduct of agricultural extension education programs.

A group T-test was utilized to determine what relationship existed between respondents familiar and not familiar with farming practices in Ghana; and/or familiar with the work of the district agricultural extension officer in Ghana. Also their perceptions as to the extent of involvement of adult farmers and how involvement can be achieved in the planning, implementing and evaluating of agricultural extension education programs were included.

This chapter summarizes the findings concerning the extent of involvement and the method or methods for achieving the involvement of adult farmers in the planning, implementing and evaluating agricultural



extension education programs. Respondents felt adult farmers of Ghana should have "much" involvement in 11 procedures of planning, 5 procedures of implementation and 2 procedures of evaluation. Adult farmers were also to have "some" involvement in 4 procedures of planning, 5 procedures of implementation and 6 procedures of evaluation.

Since there were no significant differences between responses of the two groups, as to any of the planning, implementing and evaluating procedures, it was concluded that the two groups of respondents viewed adult farmer involvement essentially in the same way. There were significant differences between group responses on organization to be used for five procedures: planning (2), implementation (1) and evaluation (2).

Table VII indicates the methods that could be used to achieve the involvement of adult farmers in planning, implementing and evaluating. These methods were found to be very appropriate in securing the involvement of adult farmers. They were:

1. Program Planning Committee which includes Farmers Selected by Extension Staff.
2. Advisory Committee which includes Farmers Elected by Farmers in the District.
3. Farmers Organizations--Cooperatives/Settlement Farms.

#### Conclusion

Based on the results within the limitation of this study, the following conclusions can be drawn:

TABLE VII  
SUMMARY OF OVERALL RATINGS BY METHOD BY PLANNING,  
IMPLEMENTATION AND EVALUATION

PROCEDURES	Methods of Achieving Involvement									
	Traditional Council	Church Dignitaries	Local Council	Youth/Student Organizations	District Chief Farmer	Program Planning Committee Selected by Extension Staff	Paramount Chief or Traditional Ruler	District Administrative Officer	Advisory Committee Elected by Farmers in the District	Farmers Organizations Cooperatives/Settlement Farms
Planning	1.49 SA	1.24 SA	1.77 A	2.03 A	2.19 A	3.02 VA	1.82 A	2.36 A	3.02 VA	2.72 VA
Implementation	1.35 SA	1.22 SA	1.55 A	2.13 A	2.13 A	2.68 VA	1.45 SA	1.98 A	2.59 VA	2.60 VA
Evaluation	1.32 SA	1.11 SA	1.63 A	1.76 A	2.15 A	3.20 VA	1.59 A	1.88 A	3.04 VA	2.61 VA

SA - Slightly Appropriate

A - Appropriate

VA - Very Appropriate

1. Adult farmers in Ghana should have "much" involvement in planning and implementing agricultural extension education programs as indicated by respondents in Table I.
2. Adult farmers in Ghana should have "some" involvement in evaluating agricultural extension education programs as indicated by respondents in Table I.
3. The method of involving adult farmers in program planning, implementing and evaluating according to results shown in Table IV would be to form a committee which would include the following:
  - a. Farmers selected by extension staff.
  - b. Farmers elected by farmers in the district.
  - c. Representatives of farmers organization.

#### Recommendations

The writer makes the following recommendations:

1. The study should be replicated in Ghana using a sample of extension personnel and adult farmers.
2. Adult farmers should be more involved in conducting agricultural extension education programs than they are at present.
3. Findings of this study should be made available to the Ministry of Agriculture to be discussed in workshops for agricultural extension personnel.
4. Each district should have a Program Planning and Advisory Committee. The committees should include farmers elected by farmers in the district, farmers selected by Extension staff and representatives of farmers' organizations.
5. The Ministry of Agriculture should encourage the use of local leaders as volunteers in the conduct of agricultural extension education programs.
6. District Agricultural personnel should be educated as to how to identify, recruit and utilize program planning and advisory committees in the conduct of agricultural extension education programs.

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APPENDIX A

LIST OF RESPONDENTS

1. Eddie Owusu
2. Prince Danquah
3. Beatrice Danquah
4. Josephine Agyemang
5. Ampofo Agyemang
6. Richard Akufo
7. Kwaku D. Oyirifi
8. Edward F. Akufo
9. Mary Crabbe
10. James Crabbe
11. J. K. Buadoo
12. Clifford Clottey
13. Frederick Sagoe
14. Daniel Osafo
15. Nii Ansah Mensah
16. Mabel Dzakuma
17. Mante Dzakuma
18. Justice M. A. Yorke
19. Gideon Adjei
20. Bertha Azuma
21. T. K. Azuma
22. Nii Moi Sarbah
23. Victor Wayo Crabbe
24. Kwame Opuni
25. Georgina Agyemang
26. M. Torku
27. E. K. Torku
28. L. K. Richard
29. Doris Appiah
30. N. K. Appiah
31. Rita Anobah
32. Eddie Ohene Anobah
33. Tagoe Baffoe
34. Albert D. Kotey
35. Alfred Magnusen
36. Magdeline Quaye
37. Martey Quaye
38. Mavis Amoako
39. Robert Amoako
40. Joyce Mensah
41. Richard Mensah
42. Alfred Ababio
43. Samuel Abakah
44. Teresa Abakah
45. Ernest Clinton
46. Branford Dodoo
47. Baffour Mensah Bonsu
48. Osei Boama
49. Oto France
50. Ester Mbroh
51. Alfred Mbroh
52. Paul Biney
53. Kwabena Agyemang
54. Agatha Mbroh
55. Alfred Mbroh
56. Kwame Boateng Gyimah
57. Earnest Asante
58. Grace Money
59. James Money
60. Sam Borlabi



APPENDIX B  
STUDY INSTRUMENTS

James Agyemang  
140 Midi  
Stillwater, OK  
74074

March 7, 1978

Dear fellow Ghanaian,

I am currently conducting a study to determine the extent and means by which adult farmers in Ghana could be involved in the conduct of district agricultural extension education programs. The study has as its objectives:

1. To determine the extent adult farmers could be involved in the planning, implementing and evaluating the agricultural extension education programs.
2. To identify the most appropriate means or methods for involving adult farmers in the conduct of agricultural extension education programs.

I wish to encourage you to take time off your busy schedule to respond to the enclosed questionnaire. Please read the questionnaire once, twice, and then attempt to respond to the items on the questionnaire. The information you contribute will help in developing future agricultural extension education programs for adult farmers in Ghana. Thank you for your participation.

Sincerely,

James Ntow Agyemang

Dr. James Key  
Chairman of Committee

## Background Information

1. Name
2. Address
3. Current Classification  
 undergraduate     Graduate     Other (specify)
4. Major Area of Study
5. Have you ever worked on a farm?  
 Yes                       No
6. How familiar are you with the farming practices in Ghana?  
 None  
 Little  
 Some  
 Much  
 Very much
7. How familiar are you with the work of the district agricultural extension services in Ghana?  
 None  
 Little  
 Some  
 Much  
 Very Much

## INSTRUCTIONS.

Please read carefully each item and indicate your response by checking the appropriate column (Part A) or by writing the number corresponding to the appropriateness in the box under methods (Part B).

PART A  
Section 1

Planning of District Agricultural  
Extension Education Programs

To what extent could adult farmers be involved in:	None	Little	Some	Much	Very Much
1. Formulate objectives and procedures for planning the agricultural program in the district.					
2. Identify problems in the district which need informational or educational input.					
3. Analyze the agricultural situation of the district.					
4. Reach decisions on problems, concerns and opportunities.					
5. Define the educational objectives for educational programs designed to meet identified problems.					
6. Identify the target audience for each educational program.					
7. Identify and recruit local thought leaders to help in educational programs.					
8. Identify or help locate people who will teach or help in educational programs.					
9. Recruit volunteers to help in educational programs.					
10. Design and sequence teaching-learning experience to reach educational objectives in each program.					
11. Assemble necessary subject matter information: newsletter, bulletin, etc. for each program					
12. Provide necessary training for those involved in program leadership.					

To what extent could adult farmers be involved in:	None	Little	Some	Much	Very Much
13. Schedule facilities: meeting or demonstration area.					
14. Assign time for a program.					
15. Plan agricultural shows.					

## Section 2

Implementation of District Agricultural  
Extension Education Programs

To what extent could adult farmers be involved in:	None	Little	Some	Much	Very Much
16. Set priorities of needs based on needs identified.					
17. The teaching-learning process.					
18. Developing a plan of work for the successful implementation of the program.					
19. Develop basic instructional materials for educational programs.					
20. Greet and introduce participants at meetings.					
21. Introduce speakers at meetings.					
22. Enroll participants at meetings.					
23. Arrange meeting facilities.					
24. Distribute hand-out materials at meetings.					
25. Operate audio visual aids at meetings.					

## Section 3

The Evaluation of District Agricultural  
Extension Education Programs

To what extent could adult farmers be involved in:	None	Little	Some	Much	Very Much
26. Establish a criteria upon which evaluation of programs will be based.					
27. Determine the extent to which program evaluation should be based on stated objectives of the program.					
28. Evaluate the effectiveness of the district's agricultural program.					
29. Inform the public of the successes of extension programs.					
30. Design for collection and analysis evidence as regards planned programs.					
31. Collect, analyze and interpret information to determine the strengths and weaknesses of the program.					
32. Make judgments relative to adjustments in programs, activities and methods based on sound evidence.					
33. Use previous evaluation reports along with other information in subsequent program development.					

## PART B

Section 4

Indicate the appropriateness of the following methods for involving adult farmers in these steps of planning, implementing and evaluating extension programs by writing the number corresponding to the appropriateness (see scale below) in the box under the method beside the step.

## SCALE:

0-Not appropriate

2-Appropriate

4-Extremely appropriate

1-Slightly appropriate

3-Very appropriate

PLANNING STEPS	Method of involvement										
	Traditional Council	Church Dignitaries	Local Council	Youth/Student Organizations	District Chief farmer	Program planning committee which includes farmers selected by extension staff	Paramount Chief or Traditional Ruler	District Administrative Officer	Advisory Committee which includes farmers elected by farmers in the district	Farmers organizations (coops/settlement farms)	Other (specify)
34. Formulate objectives and procedures for planning the agricultural program in the district.	34	35	36	37	38	39	40	41	42	43	
35. Identify problems in the district which need informational or educational input.	44	45	46	47	48	49	50	51	52	53	
36. Analyze the agricultural situation of the district.	54	55	56	57	58	59	60	61	62	63	
37. Reach decisions on problems concerns and opportunities.	64	65	66	67	68	69	70	71	72	73	
38. Define the educational objectives for educational programs designed to meet identified problems.	74	75	76	77	78	79	80	81	82	83	
39. Identify the target audience for each educational program.	84	85	86	87	88	89	90	91	92	93	
40. Identify and recruit local thought leaders to help in educational programs.	94	95	96	97	98	99	100	101	102	103	
41. Identify or help locate people who will teach or help in educational programs.	104	105	106	107	108	109	110	111	112	113	
42. Recruit volunteers to help in educational programs.	114	115	116	117	118	119	120	121	122	123	
43. Design and sequence teaching--learning experience to reach educational objectives in each program.	124	125	126	127	128	129	130	131	132	133	
44. Assemble necessary subject matter information, newsletter, bulletin, etc. for each program.	134	135	136	137	138	139	140	141	142	143	

## PART B

Section 4

## SCALE:

0-Not appropriate

2-Appropriate

4-Extremely appropriate

1-Slightly appropriate

3-Very appropriate

PLANNING STEPS	Method of Involvement										
	Traditional Council	Church Dignitaries	Local Council	Youth/student Organizations	District Chief farmer	Program planning committee which includes farmers selected by extension staff	Paramount Chief or Traditional Ruler	District Administrative Officer	Advisory Committee which includes farmers elected by farmers in the district	Farmers organizations (coops/settlement farms)	Other (specify)
45. Provide necessary training for those involved in program leadership.	144	145	146	147	148	149	150	151	152	153	
46. Schedule facilities: meeting or demonstration area.	154	155	156	157	158	159	160	161	162	163	
47. Assign time for a program.	164	165	166	167	168	169	170	171	172	173	
48. Plan agricultural shows.	174	175	176	177	178	179	180	181	182	183	
49. Set priorities of needs based on needs identified.	184	185	186	187	188	189	190	191	192	193	
50. The teaching--learning process.	194	195	196	197	198	199	200	201	202	203	
51. Developing a plan of work for the successful implementation of the program.	204	205	206	207	208	209	210	211	212	213	
52. Develop basic instructional materials for educational programs.	214	215	216	217	218	219	220	221	222	223	
53. Greet and introduce participants at meetings.	224	225	226	227	228	229	230	231	232	233	
54. Introduce speakers at meetings.	234	235	236	237	238	239	240	241	242	243	
55. Enroll participants at meetings.	244	245	246	247	248	249	250	251	252	253	
56. Arrange meeting facilities	254	255	256	257	258	259	260	261	262	263	



## PART B

Section 5

## SCALE:

0-Not appropriate  
1-Slightly appropriate

2-Appropriate  
3-Very appropriate

4-Extremely appropriate

IMPLEMENTATION STEPS	Method of Involvement										
	Traditional Council	Church Dignitaries	Local Council	Youth/student Organizations	District Chief farmer	Program planning committee which includes farmers selected by extension staff	Paramount Chief or Traditional Ruler	District Administrative Officer	Advisory Committee which includes farmers elected by farmers in the district	Farmers organizations (coops/settlement farms)	Other (specify)
57. Distribute hand out materials at meetings.	264	265	266	267	268	269	270	271	272	273	
58. Operate audio visual aids at meetings.	274	275	276	277	278	279	280	281	282	283	
EVALUATION STEPS	PART B - Section 6										
59. Establish a criteria upon which evaluation of programs will be based.	284	285	286	287	288	289	290	291	292	293	
60. Determine the extent to which program evaluation should be based on stated objectives of the program.	294	295	296	297	298	299	300	301	302	303	
61. Evaluate the effectiveness of the district's agricultural program.	304	305	306	307	308	309	310	311	312	313	
62. Inform the public of the successes of extension programs.	314	315	316	317	318	319	320	321	322	323	
63. Design for collection and analysis evidence as regards planned programs.	324	325	326	327	328	329	330	331	332	333	
64. Collect, analyze and interpret information to determine the strengths and weaknesses of the program.	334	335	336	337	338	339	340	341	342	343	
65. Make judgements relative to adjustments in programs, activities and methods based on sound evidence.	344	345	346	347	348	349	350	351	352	353	
66. Use previous evaluation reports along with other information in subsequent program development.	354	355	356	357	358	359	360	361	362	363	

2  
VITA

James Ntow Agyemang

Candidate for the Degree of

Doctor of Education

Thesis: A STUDY TO DETERMINE THE EXTENT AND MEANS BY WHICH ADULT FARMERS IN GHANA COULD BE INVOLVED IN THE CONDUCT OF AGRICULTURAL EXTENSION EDUCATION PROGRAMS

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Accra, Ghana, July 25, 1943, the son of the Very Reverend Andrew and Emily Agyemang.

Education: Attended St. John's Anglican Middle School, O'Reilly Secondary School and the Kwadaso Agricultural College in Kumasi; received with honors, the Bachelor of Science degree in general agriculture from the University of Maryland Eastern Shore, Princess Anne, in May, 1975; received the Master of Science in Education degree from the Virginia Polytechnic Institute and State University, Blacksburg in June, 1976; completed the requirements for Doctor of Education degree at Oklahoma State University in July, 1978.

Professional Experience: Technical Officer, Ministry of Agriculture from February, 1966, to December, 1971; student assistant, University Farms and Soybean Project, U.M.E.S. from January, 1972, to June, 1975.