

COMPARISON OF EXTENSION DELIVERY SYSTEMS
AVAILABLE TO FARMERS OF THE MINISTRY OF
AGRICULTURE AND GHANA TOBACCO COMPANY
LIMITED AT WENCHI AND EJURA DISTRICTS
IN GHANA

A Thesis presented to the Department of Agriculture
Extension of the University of Ghana - Legon



JACOB MTA OKRAH

In Partial Fulfilment of the Requirement for the
Degree of Master of Science in Agricultural Extension

AUGUST, 1981



To my wife

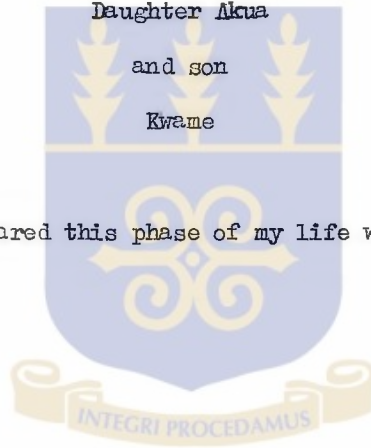
Edna,

Daughter Akua

and son

Kwame

who shared this phase of my life with me.



DECLARATION

I do hereby declare that except for references to other people's work which have been cited, this work is the result of my own original research and that this thesis has neither in whole nor in part been presented for another degree elsewhere.



J. A. Okrah.

Approved by:

Dr. J.K. Geker
(SUPERVISOR).

ACKNOWLEDGEMENT

I would like to thank Dr. Josuah K. Geker wholeheartedly for his guidance, advice and very constructive criticisms as my supervisor during the study and the preparation of this manuscript.

My sincere thanks also go to Dr. Kwadjo Dua-Opare for his encouragement and advice in writing the proposal for this study and the invaluable assistance rendered to me in the preparation of the questionnaires.

I am heavily indebted to Mr. F.Y.M. Fiadjoe, without whom this work could not have been completed. I owe him a lot. My special thanks also go to Professor E. Bortei-Doku, head of the department of Agricultural Extension who gave me a lot of encouragement and suggestions and who patiently took his time to read through the whole script and offered valuable criticisms.

I wish to thank members of the board of directors of Ghana Tobacco Company Limited for granting me a study leave to enable me pursue this programme. Particular thanks go to the chairman of the board of directors Mr. Joel Ako-Nai for his patience, encouragement and fatherly advice. I am also grateful to the staff and management of Ghana Tobacco Company Limited and the Department of Agriculture especially, Messrs. J. Anin-Mari (Chief Accountant of G.T.C.), P.A. Ewuntomah (Accountant of G.T.C.), J.K. Kwarteng (Internal Auditor of G.T.C.), Ofori-Duodu (Crop Manager of G.T.C.) T.A. Ankumah (District Leaf Manager G.T.C. Wenchi) and Agbeako (District Agricultural Extension Officer Ejura) for their co-operation and help and also for making available to me information during the field work and materials for the typing of the manuscript.

Special acknowledgement, is made to Mr. K.P. Appiah, my former boss as Managing Director of G.T.C. and now leaf director of P.T.C. for his advice and fruitful suggestions in the planning of the study as a whole.

Many thanks also go to Messrs. T.K. Quartey of the Physics Department, and Mr. J.K. Edmond of Legon Hall, the University of Ghana for typing out the drafts and the manuscripts.

Finally, my greatest debt is to my wife and family. My wife Edna for her support, encouragement and patience to wait and for taking good care of the children during my absence and to my children Akua and little Kwame for behaving well during my absence from the house.

TABLE OF CONTENT

	<u>PAGE</u>
Title Page	1
Dedication	ii
Declaration	iii
Acknowledgement	iv
Table of Content	vi
List of Tables	ix
Abstract	x
 CHAPTER I	
INTRODUCTION	
Background Statement	1
Agricultural Extension in Ghana	4
The Extension Organization Today	7
Ghana Tobacco Extension Service	8
Ghana Tobacco Extension Activities	10
Statement of the Problem	12
Objectives of the Study	14
Development of Hypotheses	14
 CHAPTER II	
LITERATURE REVIEW	
Concept of Agricultural Extension In Agricultural Development	16
Extension Teaching Methods	21
Extension Programme Planning	25
 CHAPTER III	
RESEARCH DESIGN AND METHODOLOGY	
Source of Data	27
Data Collection Procedure	27
Construction of Questionnaire and Presenting	30

Data Analysis	..	..	31
Significance of the Study	..	..	32
Limitations of the Study	..	..	33
Assumptions of the Study	..	..	35
Definition of Terms	..	..	34
 CHAPTER IV			
FINDINGS			
Personal, Educational and Professional Characteristics of Farmers	..	..	36
Educational and Professional Experiences of Field Staff	..	..	38
Respondents Exposure to Extension Activities			39
Farmers Source(s) of Farm Information and Teaching Methods	..	..	45
Teaching Methods Used by Field Extension Staff	..	..	47
Agricultural Extension Services and Farmers Adoption Behaviour	..	..	50
Farmers Perception of Extension Workers	..		51
Factors and Problems Limiting Extension Work			53
 CHAPTER V			
DISCUSSION OF FINDINGS			
Personal, Educational and Professional Characteristics of Farmers	..	..	58
Educational and Professional Experiences of Field Staff	..	..	60
Respondents Exposure to Extension Activities			62
Farmers Source(s) of Farm Information	..		65
Teaching Methods Used by Field Extension Staff			67
Farmers Perceptions of Extension Workers	..		71
Factors and Problems Limiting Extension Work			73

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary	..	..	..	77
Hypotheses Tested		..	..	78
Data Collection and Analysis			..	78
Summary of Findings		..	..	78
Recommendations		..	..	86
BIBLIOGRAPHY		..	..	89
APPENDIX A	Interview Questionnaire for Farmers	..	..	92
APPENDIX B	Interview Questionnaire for Field Staff	..	..	99
APPENDIX C	Tobacco Stations in Ghana	..		103
APPENDIX D	Ejura Tobacco Growing Area			104
APPENDIX E	Wenchi Tobacco Growing Area			105

<u>TABLE</u>		<u>PAGE</u>
1.	Frequency and Percentage Distribution of Age of Respondents	38
2.	Frequency and Percentage Distribution of Education of Respondents	39
3.	Frequency and Percentage Distribution of Staff Education ..	40
4.	Frequency and Percentage Distribution of Staff Engagement ..	41
5.	Frequency and Percentage Distribution of Farmers making Contact with Extension Services	41
6.	Frequency and Percentage Distribution of Farmers Responding to the Question "Is Visit By Extension Agent Useful to You".	42
7.	Frequency Percentage Distribution of Respondents to the question "How often are you visited by your staff". ..	43
8.	Frequency Percentage Distribution of Specific Extension Activities Field Staff Reported Being Involved	44
9.	Frequency Percentage Distribution of Farmers Supervised By Extension Agents	45
10.	Frequency Percentage Distribution of Response to the Question "Is the Frequency of Contact Adequate Enough" ..	46
11.	Frequency Percentage Distribution of Farmers Major Source(s) of Farm Information	47
12.	Frequency Percentage Distribution of Category of People Farmers discuss their problems with	48
13.	Frequency Percentage Distribution of Extension Teaching Methods Reported In Use By Extension Staff	49
14.	Frequency Percentage Distribution of Extension Teaching Method Reported By Field Staff As Applicable To Their Area	50
15.	Frequency Percentage Distribution of Score on the Effectiveness of Extension Teaching Methods Used By Staff	51
16.	Frequency Percentage Distribution of Practice Farmers Have Tried or Adopted Through Extension Education	53
17.	Frequency Percentage Distribution of Respondents View of their Extension Staff	54
18.	Farmers Perception and Opinion of Extension Staff	55
19.	Frequency Percentage Distribution of Farmer's Dressing Needs As Perceived By Extension Workers	56
20.	Frequency Percentage Distribution of Farmers Major Problems	57
21.	Frequency Percentage Distribution of Major Problems of Field Extension Staff	58
22.	Frequency Percentage Distribution of Job Satisfaction By Staff Respondents	59

This study attempted to compare and contrast the effectiveness of the extension delivery systems available to farmers and staff of two agricultural institutions namely:- The Ministry of Agriculture (Government controlled and financed) and the Ghana Tobacco Company Limited (a private participation). Specifically, the study was designed to determine:

- (1) The extension teaching methods used by the two organizations.
- (2) Farmers source of farm information.
- (3) The degree of contact between the farmers and the field extension staff and its effect or impact on agricultural extension and finally
- (4) To find out whether extension addressed itself to farmers needs and problems.

The research findings were based upon a study of both food and cash crop farmers and field extension staff of the two organizations.

The study revealed that the G.T.C. extension services to their farmers were more effective in terms of provision of production inputs and extension teaching methods used than those of the Ministry of Agriculture. The effectiveness of G.T.C. extension services seems to have been greatly enhanced by (1) the low staff/farmer ratio as compared to a high ratio of the Ministry of Agriculture. (2) The high mobility of G.T.C. staff and (3) The regularly monitored activities of G.T.C. staff by their supervisors.

Both G.T.C. and the Ministry of Agriculture use group teaching method particularly, demonstration and farmers meeting as forms of educational instructions with their farmers. Both groups of farmers realise the positive contribution extension plays in their farming education and adoption of new practices but found extension staff effort to assist them woefully inadequate.

Lack of transportation, poor service conditions and lack of farm inputs were some of the problems hampering field extension staff in their work. Teaching methods and extension programmes designed were more service rather than education oriented.

CHAPTER II N T R O D U C T I O N1. BACKGROUND STATEMENT

Agriculture may be said to be the solar plexus of our very existence as a nation and must be accorded pride of place in our scale of priorities.¹

This exhortation from Professor Kwapong, thirteen years ago is being repeated to-day more than at anytime in the history of the country's agriculture because of the present food crisis. Ghana is an agricultural country with over 70% of its population engaged in the agricultural sector. Even though the country is blessed with abundant agricultural resources and suitable environmental conditions for the development of variety of food and cash crops, e.g. maize, cassava, cola, tobacco, cotton, none of these crops received the attention it deserves with the exception of cocoa. There has been little diversification and development of other agricultural crops before and immediately after independence. The dependence on single cash crop economies in the colonies was apparently planned by the colonial masters to foster their interests.² Dumor, observed that this policy was not only peculiar to the British but also to the French who were also interested in the introduction of stable cash economy infrastructures in their territories.³

-
1. Kwapong, A.A. - Vice-Chancellor's address "Agricultural Education and Training in Ghana at Legon" Nov. 20 1970, Legon Agric. News Vol.4 No.2 1973 p.3.
 2. Kimmerling, B. - "Subsistence Crops, Cash Crops and Urbanization" Some materials from Ghana, Uganda and the Ivory Coast. Rural Sociology Vol.36 No.4 1971 p.472-3.
 3. Dumor, F.E.K., "Development of Agricultural Extension" - A search for strategy, a paper delivered at International Seminar on Socio-Economic Problems of Rural Development UCC. 5th January 1976.

It was realised early after independence that with the fast rate of population growth, any attempt to improve the economy of the country and the general living conditions of the people of Ghana needed improvement in agriculture the main occupation of the bulk of the people. Emphasis was then placed on cash crops like cotton, oil palm, and tobacco to feed local factories. Also new improved methods of agriculture were introduced. Until the idea of large scale plantation started to be mooted barely a decade or two ago, the indigenous farmers were the sole producers of these crops.

Despite diversification and improvement plans in our agriculture, productivity has remained very low mainly because of the predominance of the indigenous farmers who despite the demonstration in the country about the benefits of modern farm techniques have still not parted entirely with their old practices of farming.⁴ Some writers do therefore accuse our farmers of being too conservative to change. However, Bortei-Doku, believes that although the farmer may not get as much out of his land using his traditional methods, it is what he knows best, what he is confident of doing,⁵ and probably what his resources can take him to achieve.

To overcome this low productivity in agriculture which has plagued many developing countries including Ghana, in the past, various developmental strategies

4. Adomako, A. "Agricultural Policy" Statement by Commissioner of Agriculture at 1968 E/R Agricultural Show at Koforidua. Legon Agric. News Vol.2 No.3 1969 p.13.

5. Bortei-Doku, E. "A fresh look at traditional small scale farmer" The Ghana Farmer Vol. XVIII No.1 p.4.

reflecting economic, social and ideological considerations have been devised. Chang, says that in recent years emphasis on these strategies have been placed on research, education and extension as the three essential services that a government must provide for a country's agricultural development.⁶

The development of Ghana's agriculture has over the years revolved around such a framework pointed out by Chang. In spite of this, little impact has been made to change and improve the techniques of the indigenous farmers. His productivity has not improved much and Ghana is still struggling to meet her food demands. Her agricultural policies, programmes and the extension services in particular have been constantly under attack. Bortei-Doku summed up the position of the country's agriculture this way:

In spite of the fact that systematic agricultural research and extension has been in Ghana⁷ over 80 years, the impact of the Ghana's agricultural services on the small-scale traditional system of crop and animal production has continued to be minimal. Yet this sector accounts for up to 95% of the country's food production output.⁷

One reason adduced for this condition is that agricultural extension has not been made to play its proper role in the agricultural development of this country. Geker, noted that the agricultural extension service has been criticised on many occasions for being ineffective and went on to blame its

6. Chang, C.W. "Increasing Food Production Through Education, Research and Extension". F.A.O. Publication Rome 1970.

7. Bortei-Doku, E.: Ibid p.3

ineffectiveness on the incompetence of the extension officers.⁸ A background history and study of the agricultural extension service in Ghana as practised by the Ministry of Agriculture and a private company Ghana Tobacco Company will therefore throw more light on what has caused this present situation.

2. AGRICULTURAL EXTENSION IN GHANA

The introduction of Agricultural Extension dates back to the nineteenth century when the first Basel Missionaries settled at Akropong and experimented with cash crops. According to La Anyane, they employed men and women to teach farmers new ways of farming. In 1890, when the Aburi Botanical Gardens was established, results of experiments and experiences of trained professional staff from the gardens were transmitted to farmers.⁹ Later as a result of the importance cocoa played in the economy, it attracted more attention and had a separate extension service organised by the colonial agricultural service.¹⁰ Though efforts were made to increase food production, no attempt was made to provide institutional framework in which to carry out extension work to the non-cocoa farmer. After independence when foreign experts were called in, misunderstanding led to the abolition of the colonial agricultural extension services in 1959 and an attempt was made to infuse the American system by creating in 1959, four divisions of the Ministry of Agriculture namely:-

1. General Agricultural Services Division.
2. Scientific Services Division.

-
8. Geker, J.K. "A study of Pre-service professional development needs for Agricultural Extension Officers in Ghana (Unpublished Ph.D. thesis) 1976.
 9. La Anyane, S. : Ghana Agriculture Oxford University Press 1963 p.2
 10. Geker, J.K. : Ibid p.7

(3) Cocoa Division and (4) Economic and Statistics Division.

In 1962, all the four divisions were abolished. Around this time, the country was going socialist in political orientation and with the help of Russians and Eastern European Experts, the government established the State Farms, Co-operative Farms, and the Workers Brigade as the main institutions responsible for agricultural^{production} in the country.

The State Farm Corporation took over all the research and experimental farms and it was given the mandate by the government to organise the youth for large scale farming of state ownership. Continuous political pressure in the entire agricultural scene led to the formation of the United Ghana Farmers Co-operative Council (UGFCC) which took over the organization of farmers throughout the country for co-operative and collective farming. Geker, observed that, because of the political situation prevailing at the time, it was obvious that those who enjoyed the fruits of the limited extension services were those farmers who supported the government's political activities. Moreover the UGFCC which was charged with organizing farmers into co-operatives lacked trained personnel.¹¹

Throughout the period, no separate institution or department was created to deal with extension. The extension work was partially done by UGFCC and other departments. According to Bortei-Doku, the concept of agricultural extension took a different turn when the UGFCC came into the scene.¹²

11. Geker, J.K. : Ibid p.12

12. Bortei-Doku, E. Personal Interview 2/1/81

The UGFCC was abolished after the first coup in 1966 as a result of it failing to live up to the expectation of mobilising the youth and farmers to produce more food to feed the increasing population. In its place, the ruling N.L.C. re-grouped four of the twelve division (Extension, Plant Quarantine, Seed Multiplication and Mechanization Unit) under the crop production division. This arrangement continued to operate after the second military coup in 1972, until the N.R.C. launched the Operation Feed Yourself (O.F.Y.) campaign.

From the above background, it became evidently clear that agriculture in the country failed partly as a result of lack of continuity in agricultural policy and the poor organization of the extension service. Gordon, summed up the position of the country's agriculture in the following statement:

Agriculture in Ghana has long laboured under three handicaps. The first is lack of continuity, haphazard search for revolutionary solutions which are designed to by-pass the peasant sector. The second is the fragmentation as we may call it of the Ministry of Agriculture into so many divisions that responsibility becomes too divided for effective action to be taken. The third handicap is seldom recognized as such. It is the undue concentration on national plans or production targets, often involving large scale highly capitalized production schemes of doubtful economic viability. Not only do these schemes absorb large amount of capital and manpower, but they starve the peasant sector of urgently needed materials and advisory help.¹³

Thus by the beginning of the third republic, the country's agriculture has almost collapsed. Farmers were producing in their own small way, but there were no inputs and effective extension service to supplement their efforts.

13. Gordon James : "Agricultural Extension Policy in Ghana"
Legon Agric. News Vol.3 No.1 1969.

3. THE EXTENSION ORGANIZATION TO-DAY

Under the present arrangement, the extension service in crop husbandry is under the Department of Agriculture and it is charged with the responsibility of formulating policies aimed at ensuring the optimum utilization of the country's resources for increased food production through the distribution and supply of improved seed, fertilizers, agricultural chemicals and the provision of extension education to farmers.

Administratively, the crop extension division of the Department of Agriculture is divided into three levels, namely:- (a) The National level headed by a director (b) The regional level headed by a regional agricultural officer and (c) The district level headed by a district agricultural officer. The district officer and his staff - the technical officers are in direct contact with the farmers. The staff of the extension division have varied educational background. The T.O. and some of the district officers are generally graduates of agricultural training institutes whereas some of the younger district officers, the regional officers and the director are mostly university (agricultural) graduates.

The district agricultural extension officers are responsible for the day to day administration of their districts and the preparation of production estimates and inputs supply requirements of their farmers. Their activities are co-ordinated with the regional agricultural officer. The T.Os. are requested to live with farmers in their villages and pay regular visits to the farmers' farms to educate them on new methods of farming and thereby assist them to increase their production.

Planning of the national extension programme is based on government's agricultural policy. The planning is done by the national agricultural planning committee. The regions and the districts also have their respective agricultural extension or development planning committees. Representation of the committees are drawn from government research institutes, the Universities, Social workers, departmental heads and influential personalities in the communities whose contribution are found to be essential.

The agricultural extension division is responsible for initiating and developing effective medium of communication with the farmers on new and improved farming methods. It does this by organising regional and district agricultural shows, conducting demonstration trials at the district level and the organization of meetings for farmers and paying them visits in the homes and ^{on} their farms. Ia Anyane observed that one aspect of extension service which gained importance in the early years of the colonial agriculture was exhibition and agricultural shows.¹⁴

Agricultural shows used to be a yearly affair even after independence, however this valuable extension teaching method is vanishing or not being given the much needed attention these days.

4. GHANA TOBACCO EXTENSION SERVICE

According to Ia Anyane, tobacco was introduced into the country from South America by the first European settlers (Portuguese) traders in 1482.¹⁵ They grew it in their gardens to provide leaves to smoke, chew and snuff. The practice soon spread among the indigenous people who came in contact with the Europeans as a result the cultivation of tobacco spread into the interior of the country.

14. Ia Anyane, S. : Op cit p.28

15. _____ : Op cit p.27

During the colonial administration, the cultivation of tobacco for local use continued. It is however not clear which institution carried out the basic extension function that accompanied tobacco production and development; however, two organizations which have become so much associated with tobacco production in recent years are the Ghana Tobacco Company Limited and the Pioneer Tobacco Company Limited, the latter giving birth to the former.

In 1952, the Pioneer Tobacco Company was established and it started cultivating tobacco on its own, and organized and encouraged farmers to take up the cultivation on a more commercial and profitable basis. La Anyane and Afful observed that the establishment of the company (P.T.C.) marked the birth of organised or commercial tobacco production in the country and the beginning of extension education on it.¹⁶

Since 1952, the number of acreage planted has increased many fold, although local production has not yet been enough to meet domestic requirement. Although the country still imports a considerable quantity of unmanufactured tobacco, the improvement on domestic production over the years has resulted in marked decrease in importation.

The tobacco industry underwent a number of organizational changes administratively between 1963 and 1967 in an attempt by the government to bring the production and extension work on tobacco under its control. In 1967 soon after the first military coup which toppled the civilian administration,

16. La Anyane, S. and Afful, E.N. : "A report on the Tobacco Industry in Ghana". (Unpublished report) Dept. of Agric. 1967 p.2

- 10 -

a committee was set up to review the tobacco controlling bodies. Based upon the recommendation of the two member committee, the government reorganised the administration of the industry and established the Ghana Tobacco Company in 1969 as a limited liability company in charge of the production, extension and marketing of tobacco and G.T.C. has performed this function ever since.

5. GHANA TOBACCO EXTENSION ACTIVITIES

The Extension personnel of G.T.C. is made up of a Managing Director and Production Manager who reside in Accra, the Area or Crop Managers, District Leaf Managers and Station Managers who live in the heart of the production areas. The day to day affair of the leaf stations are performed by the Station Managers who are the lowest in rank of the Extension Management personnel. The Crop Managers (Three of them) responsible for the three crop types (flue-cured, fire-cured and air-cured) and the district leaf managers are in the supervisory category and go round to ensure that the company's policies and extension activities are carried out effectively.

Next to the Station Managers are the field staff or Tobacco Assistants (T.As.) who work closely with the Station Managers in running the stations and villages. The Tobacco Assistants are assigned to a number of villages, the number depending on the number of farmers and acreage they cultivate and the general experience and capabilities of the staff.¹⁷ They live among the farmers

17. Sofranko, A.J. : et. al . "Agricultural Modernization Strategies Among Ghanaian Farmer". Technology and Culture Ed. Bernard Karsh.

in the villages and assist them to obtain inputs from the stations. They are provided with motor cycles with which they go to the villages and farms to supervise their farmers and they are responsible for ensuring that the farmers adopt and perform the right cultural practices in tobacco production. They also are responsible for ensuring that farmers input requirements are submitted to the office on time and distribution made on schedule. They allocate tractors to farmers for field preparation, select suitable sites for farmers nurseries and tobacco fields and supervise sowing, planting and the maintenance of the farms by farmers.

The Station Managers are expected to pay regular and impromptu visits to the Tobacco Assistants and farmers to ensure that the right thing is being done by both the staff and farmers. During such visits, he takes the opportunity to find out about farmers problems, progress of work and check whether farm credits or loans collected by fieldstaff for their farmers actually reach them and are used for the purpose they were requested for.

Planning for the year's activities is viewed as essential and is routinely done both with the co-ordination of the stations and head office. The staff plan their own budgets for the year based on information on financial and production resources supplied by head office. Intensive discussions are carried out between the fieldstaff and the farmers on their requirements before arriving at the final plan of the stations. The Station Managers then meet the district leaf managers and the crop managers during which stations programmes and budgets are subjected to careful discussion and scrutiny. Armed with the stations and districts budgets, the crop managers meet the national or company budget and

programmes planning committee in Accra to defend the budgets and programmes which are then submitted to the Board of Directors and Shareholders meeting for approval. The budget and programmes when voted become the Master Crop Programme or major policy of the company for the year. G.T.C. programmes are not only planned but are subject to periodic review and evaluation.

G.T.C. unlike the Ministry of Agriculture conducts its own research. It has a Senior Manager in charge of the research and training department and the department conducts and mounts demonstration farms to teach both the fieldstaff and farmers the various cultural practices and techniques in tobacco production. Despite initial remarkable achievements made by G.T.C. to improve and increase tobacco production through effective extension education to its farmers, the past few years have witnessed a marked decline and deterioration in tobacco production and lack of interest shown in tobacco growing by farmers. Though G.T.C. has internal and financial problems of its own, the idea of farmers continuous withdrawal from tobacco is a puzzle to many extension workers. This is an area which may be of great research interest.

STATEMENT OF THE PROBLEM

"(The Ghanaian Farmer)" may have the desire to increase his productivity but may lack the knowledge and skill of new agricultural techniques to implement his desire. He may have the knowledge and skill, but may lack the financial and material resources to put his idea into practice. He may have the resources, but may lack access to mechanised services of land clearing, ploughing and harrowing. He may want to adopt improved seeds, seedlings or breeding stock but find them hard to come by".¹⁸

These are some of the chronic bottlenecks to the development of the small-scale farmer in Ghana's agriculture. The Agricultural Extension Organization

18. "Small-scale farmer - Big-scale Problem" ISU report - Ghana Farmer Vol. XVIII No.1

whose staff come in close contact with the farmer and the farmers only hope of acquiring agricultural innovation has its staff grossly encumbered from bringing new ideas to all but a few of them. The reason is that, the extension staff lacks inputs and materials to enable him to communicate effectively with the farmers. The extension services have been under strong criticism from the press, the farmers and the public for woefully failing in its work. On the other hand, studies have shown that the Extension Services of some private organizations, with particular reference to Ghana Tobacco Company have made some remarkable impact on some of the very farmers ~~the~~ government extension services have failed to impress with regard to extension education. Sofranko et al observed that:

(Although), we have no data on level of contact, with extension or even use of modern inputs or services prior to their involvement with tobacco, the general tenor of farmers' remark is that tobacco production has been highly useful learning experience and close supervision by G.T.C. staff has familiarised them with the proper use of new inputs and given them a sense of efficacy in their farming operations.¹⁹

The question is, what extension delivery systems or methods are used which makes the G.T.C. achieve such a good impact that has eluded the extension services of the Ministry of Agriculture? This is the question or problem this study attempts to answer or find solutions to.

19. Sofranko, A.J. et al op cit p.13

OBJECTIVE OF THE STUDY

The main objective of this study is to compare and contrast the extension delivery systems offered by the two organizations, namely: the Ministry of Agriculture (a government controlled and financed agency) and Ghana Tobacco Company (a private agricultural agency) and to find out what makes G.T.C. extension successful more specifically:

- (a) To determine the extension teaching methods used by the two organizations in their extension delivery systems.
- (b) To determine farmers sources of farm information.
- (c) To determine the degree of contact between the farmer and the extension field staff and its effect on the impact of extension.
- (d) To ascertain farmers perception of the performance of the field staff of the two organizations.
- (e) To find out whether extension addressed itself to farmers needs and problems and their effect on productivity and finally
- (f) Based on the findings make recommendations for the improvement of extension delivery systems within the organizations.

DEVELOPMENT OF HYPOTHESES

The hypotheses developed and tested were:

1. There are no significant differences in the extension delivery system used by the Ministry of Agriculture for its food crop farmers and that of Ghana Tobacco Company Limited for its tobacco farmers.
2. There are no significant differences between farmers of the two organizations adoption behaviour and their exposure to the following extension teaching methods:

Field demonstration
Radio farm broadcast

Farmers meeting

Farm and home visits

Agricultural shows and exhibitions.

3. There are no significant differences between the level of adoption of new practices among the farmers of the two organizations as a result of their contact with extension workers.

4. There is no significant relationship between farmers adoption behaviour and their familiarity with the use of such services as

Farm credit facilities

Mechanization services

Supply and availability of inputs

Farm labour procurement.

CHAPTER IILITERATURE REVIEW

The purpose of this chapter is to review the literature related to the concept of agricultural extension, constraints to extension and agricultural development in Ghana and their relevance to the present study. Literature on agricultural extension development as far as Ghana is concerned is limited, therefore, other than published scientific journals interviews with agricultural officials, newspaper reports and personal observations will be included.

CONCEPTS OF AGRICULTURAL EXTENSION IN AGRICULTURAL DEVELOPMENT

Ghana imports of food for the past eight years have risen enormously. Our hard-earned foreign exchange is being spent on the importation of food from abroad. It is therefore a measure of one of the tasks facing agriculture during this period of economic development, the need to feed Ghana as far as possible from our own resources.²⁰ In order to provide more food at reasonable prices two things will have to be tackled:

- (a) Raise the low productivity of the Ghanaian farmer through agricultural extension education.
- (b) Remove or minimise most of the constraints (e.g. inavailability of farm inputs, provision of credit, lack of transportation and efficient markets etc.) that hinder agricultural development in the country.

Maunder, commenting on the role of extension in economic development (of a country) emphasised that extension education can and should play a vital role

20. Seven-Year Development Plan for Ghana 1963/64 - 1969/70

in the foundation and implementation of agricultural policy.²¹ Although Chang, agrees with Maunder that agricultural extension is important to increasing agricultural development, he emphasised that to have the full effect of extension, research and agricultural education would also have to be provided by government.²² These three services constitute the framework on which the government's efforts, including international technical assistance can work and increase productivity. But whether such efforts are utilized in the most effective and economic way depend on the organization and the administration of these services which are closely inter-related.

The place of extension in the organizational structure of government is a critical factor in determining its relationship with other governmental services and institutions. The type of organizational structure adapted by a country will depend upon its historical background the philosophy of the government and the understanding and importance of extension to agricultural development. Maunder, identifies three types of organizations in which extension services finds itself (a) The first and most common is the placement of the extension service directly within the Ministry of Agriculture (common specially in the developing countries) (b) The second type operated in U.S.A. and Scotland and a few other countries is the co-operative services administered in each state by official "land-grant" Universities with defining relationship

21. Maunder, H.A. (Ed) Agricultural Extension - Reference manual (F.A.O. Rome 1972) p.7.

22. Chang, C.W. Increasing Food Production Through Education, Research and Extension (F.A.O. Rome 1963) p.3.

with the department of agriculture. (c) A third type is employed by Denmark and has been followed with some variations in some countries. Here local extension services are sponsored by farm organizations with finance from the government who exercises little or no control.²³

Many countries, particularly, the developing countries are now in varying stages of extension development. A recent F.A.O. survey report on extension in Asia revealed that there are two extension concepts in actual practice, one emerging from the other. There is:

- (a) The all inclusive concept held particularly by a number of Asian countries that extension means all that a department of Agriculture does at the village level which includes procurement and distribution of improved seeds, fertilizer etc.
- (b) There is the service concept. It has been found that it is very difficult for an extension worker to gain the confidence of farmers when he acts as a teacher one day and inspector another day hence some countries in the region have taken regulatory work out of extension and limited extension function to the provision of services.²⁴

There are many different views on what extension is. According to Farquhar, the term 'Extension' was first coined in England and not in America as often thought. He noted that Agricultural Extension as is now known developed much later than other extension programmes but its origin in agricultural education, service and demonstration are as old as agriculture itself.²⁵ Chang, defined agricultural extension as an informal out of

23. Maunder, H.A. (Ed) Ibid p.34

24. Chang, C.W. Op cit. p.8-10.

25. Farquhar, R.N. "Concept & Terminology in Agricultural Extension" Agricultural Extension Reference Manual. F.A.O. Rome (Ed.) by Maunder, H.A. 1972 p.1

school educational service for training and influencing farmers and their families in crop and live-stock production management, conservation and marketing.²⁶ Concern is not only with teaching and securing adoption of a particular improved practice, but with changing the outlook of the farmer to the point where he would be receptive to and on his own initiative continually seek ways and means of improving his farming business.

Maunder by and large agrees with Chang when he says that Extension is a service or a system which assists farm people through educational procedure in improving farming methods and techniques, increasing production efficiency and income bettering the levels of living and lifting the social and educational standards of rural people life.²⁷ Both definitions clearly outline the scope and functions of extension activities. Both emphasise education of the farmer to improve on his techniques and methods of farming whereby he can better his production, management efficiency and living standards.

In its early development, agricultural extension took the form of an advisory and direct services. Lynn, makes a distinction between agricultural extension service and advisory service and observed that, the advisory services were established in the days of the colonial agriculture to explain to farmers what they should do to increase output from their holdings.²⁸ Bortei-Doku noted that the colonial agricultural advisory service had more to it than just education.

26. Chang, C.W. : Ibid p.4

27. Maunder, H.A. Op cit.

28. Lynn, C.W. Agricultural Extension and Advisory Work - with special reference to the colonies (London) H.M. Stanoner Office.

the farmer. It was designed by the colonial administrators for the sole aim of developing the agricultural crops for Western European markets.²⁹ Savile, observed that the advisory services were erroneously referred to as extension services and noted that they were not extension services in real sense of the term. They were designed to improve farming techniques and also to assist farmers to implement benevolent government plans for the development of the country's economy. The personal wishes and needs of the individual farmers and their families were seldom if ever considered.³⁰

Savile, emphasised the educational nature of extension when he says that:

The major functions of extension is to assist in developing peoples understanding and ability to think through their own problems and solve them using their own resources, manpower and materials with minimum assistance from government.³¹

He also laid emphasis on the points made by Chang and Maunder that extension is an educational process aimed at helping the farmer and his family to help themselves and that it should neither be a direct service agency nor a law enforcement agency.³²

In the opinion of Farquhar, whatever differences there is between the use of those two terms depends on the philosophies and attitudes of the extension workers and on the objectives of the organizations concerned.³³ The concept that

29. Bortei-Doku, E. : Personal Interview granted on 12/1/81 at Legon.
 30. Savile, H.A. : Extension In Rural Communities Oxford Univ. Press 1965.
 31. Savile, H.A. : Op Cit. p.1-2
 32. Savile, H.A. : Op cit. p.3
 33. Farquhar, R.N. : Curled from Agricultural Extension Reference Manual (Ed.) Maunder.

the broader function of extension work is to help people to solve their own problems through the application of scientific knowledge is now generally accepted.³⁴ If this is true then extension must be regarded as largely educational.

Extension education however differs from formal education in the sense that there is no coercion of any sort. Adult farmers cannot be forced to learn new and improved practices. They have to weigh the risks and benefits in their decision making and pay for the consequences. Extension education involves getting the farmer to change his way of life. Accordingly this change should be effected in the peoples attitude and thinking resulting in improvement in agricultural production.³⁵ To bring about change in attitude is a basic educational function of extension. However, to be able to change rural peoples outlook in solving their problems, they should be convinced that the change is necessary and they should be willing to accept the change. Dobyms observed that:

An induced technological change will succeed to a degree proportionate to the extent to which the client (system) feels a need for it, are brought into its planning and execution and feels it to be their own.³⁶

EXTENSION TEACHING METHODS

Agricultural extension services are established for the purpose of changing the knowledge, skills, practices and attitudes of masses of rural people.

34. ----- Op cit.

35. Maunder, H.A. Ibid p.3

36. Dobyms, H.F. "Blunders with Bolsas" - A case study of Diffusion of Close Basin Agriculture - Human Organization 10, 25 p.32.

Since extension is essentially an educational activity, extension programmes are educational in nature and employ educational methods.³⁷ One essential requirement about education and or teaching is the ability to communicate ideas effectively across to whoever is being taught. This means creating a medium or situation whereby an idea can be understood and analysed by the audience. Chang, observed that to teach is one thing and to get people to understand, accept and put into practice is quite another.³⁸ This is particularly true in extension teaching where the audience is always a heterogenous group of people who react differently. Nuhu observed that:

"To operate effectively as an extension agent with an audience primarily adult and illiterate, teaching methods have to be worked out in accordance with the principles of adult education".³⁹

It is necessary to allow farmers much access to visible practical activities. This will provide farmers enough insight into what is being taught. They must be acquainted with the agent to be able to ask questions and receive well thought out answers which are practical and suitable to their own condition. The essential focus of the extension worker therefore is to create a situation where others develop educationally. Paul Leagans, thinks that for an effective extension teaching the extension worker must (a) provide people with an opportunity to learn and (b) to stimulate mental and physical activity that produce the desired learning.⁴⁰

37. Maunder, H.A. Op cit. p.48

38. Chang : Ibid p.21

39. Nuhu, D.A. Factors Affecting Adoption of Innovation of Tobacco Farmers in Ejura Area. Unpublished M.Sc. Thesis.

40. Paul Leagans curled from Agric. Extension Reference Manual (Ed) Maunder p.151.

"Learning is a process or operation inferred from relatively permanent changes in behaviour that result from practice".⁴¹ Learning is an active process and it takes place in the individual. It is a known fact that human beings are different and do vary greatly in their personal psychological organizations. This is due partly to heredity and partly to the environment. Defleur observed that different environment (stimulus) provides a new learning situation. From these learning environments, values, attitudes and beliefs that constitute man's psychological make up which sets him apart from his fellows are acquired. This unique characteristics of man gives him the basis for viewing or perceiving different events from different perspectives from one person to another.⁴²

Due to this phenomenon of selectivity the rate at which different individuals learn varies. Some are slow while others are fast learners. Some learn by seeing, doing, and discussion either singly or in groups. To be able to take advantage of the different ways by which learning takes place in the individual, different extension methods are used at various stages of the adoption process - A variety of teaching methods is most effective. When there is direct contact between the adviser and the farmer and his family the conveyance of the message will be by means of the spoken word. In this case there is the possibility of an exchange of thoughts and of demonstration.

41. Herbert J. Klansmeier and Richard E. Ripple : Learning and Human Abilities (New York - Harper & Row 1971) p.7.

42. Melvin L. Defleur : Theories of Mass Communication (New York David McKay Company Inc. 1966) p.131.

Penders, in his book "Methods and Programme Planning in Rural Extension", wrote that the extension worker can prevent these disadvantages by conveying his message via the written work but then he loses his direct contact and the possibility of demonstration. The first disadvantage can be met by writing in a conversational style while demonstration can be replaced for the greater part by illustration. In various combinations these four fundamental information media form the basis for the well known information means such as newspaper, leaflets, radio, television, film and all sorts of visual aids.⁴³ They play an important part too in the various extension teaching methods which are classified into three groups on the basis of the number of people, they are designed to reach. These are (a) Individual methods, (b) Group methods and (c) Mass methods

(a) THE INDIVIDUAL METHODS	Home Visit	} Feed back
(b) THE GROUP METHODS	Farmers Meeting	
(c) THE MASS METHODS	Newsletter	

"Every combination has its special advantages and disadvantages, every purpose its special demands which determine the choice of the means to be used".⁴⁴

EXTENSION PROGRAMME PLANNING

Planning a programme is an essential part of extension work. Extension programmes should be properly planned taking into account relevant facts and information on what is to be done, the needs of the people prevailing conditions and what benefits the programme will give to the farmer. According to Maunder,

43. Penders, J.M.A. (Ed.) Methods and Programme Planning in Rural Extension (Wegeningen H. Veenman and Zonen 1956 p.144.

44. Penders, J.M.A. : Ibid p.144

extension programme development is a continuous series of process which includes planning a programme, preparing a plan of work and teaching plan, taking action to carry out the plan and determining and reporting accomplishments. It is an intensive broad effort on the part of extension service to assist the people of the country (or Extension district) to analyse their major problems and to build an educational programme directed towards the improvement of agriculture, family and community living.⁴⁵ Savile observed that the extension programme is a general statement describing what should be done and why it is needed and has a detailed statement of how it will be done and where it is done.⁴⁶ Extension programme should have objective stated clearly and must be attainable. Leagans, observed that a good objective is one that provides possible direction for large numbers of people to move some distance. Extension must help people define the directions in which they want and needed to go, and then provide assistance to them in travelling in the directions.⁴⁷

One of the major important principle of Extension programme planning is that it should involve the people to whom the programme is directed. Savile wrote that extension programme is a plan prepared jointly by the people and the extension worker with the advise of Specialist Officer.⁴⁸ Maunder said that:-

Effective organization provides a means of involving people in the programme planning process. Involvement of the people is a basic element of extension education. Participation helps to arouse interest. Involvement of the people also results in better programmes.

45. Maunder : Ibid p.180

46. Savile, H.A. : Op cit. p.23

47. Paul Leagans : "Extension Objectives" USDA Extension Services

48. Savile . Op cit. p.23

Successful programmes take into account local knowledge, habits, materials, experiences in addition to technical subject matter.⁴⁹

Contrary to this Savile observed that during the colonial extension administration planning came from top downward to the farmer instead of from the farmer developing upwards to the planners. Personal wishes and needs of the farmers were seldom considered.⁵⁰ Nuhu also observed that programme planning in G.T.C. was entirely the responsibility of the agency. The only contribution expected from the farmer is his reaction to the company's programmes and the various activities involving him. Thus farmers were only informed after the planning has been done and they were expected to basically legitimize it. Their needs and interest, advice and views were not sought.

This method of programme planning seems to create a big gap in our agricultural extension educational process which needs a thorough study. For if the people are ignorant at what is being planned for them, when their advice, needs, and priorities are not sought would they view the programme as a government one or view it as something in their own interest and theirs?

49. Maunder : Ibid p.187

50. Savile : Ibid.

CHAPTER IIIRESEARCH DESIGN AND METHODOLOGY1. SOURCES OF DATA:

The data for the study were obtained from personal interview with (a) Food Crop Farmers working under the supervision of the Ministry of Agriculture (Department of Agriculture) Extension Service and Tobacco farmers supervised by the Ghana Tobacco Company Limited and (b) The field Extension staff of the two organizations at Wenchi and Ejura Agricultural districts during the period of Mid-October to the end of November 1980.

2. DATE COLLECTION PROCEDURE:

Data were collected by interview questionnaire - This was found to be most suitable for the study in view of the fact that many of the respondents (farmers) were illiterates and it gave the interviewer room to vary questions in order to explain to respondents in the local dialects. Moser and Kalton, distinguished three broad concepts as necessary conditions for a successful interview namely:-

- (i) The accessibility of the required information to the respondent.
- (ii) The cognition or understanding by the respondent of what is required of him and
- (iii) The motivation on the part of the respondent to answer the questions accurately.⁵¹

These three conditions were considered and used by the author since it was found that the population sampled was in a position to have and give the information sought for, understand the usefulness in participating in such an interview and to co-operate in giving genuine and frank answers put to them.

51. Moser, C.A. and Kalton, G. Methods of collecting the information III Interviewing - Survey Methods In Social Investigation (1972) 2nd Edition, Basic Books Inc. New York p.271.

Hanson et al, wrote that a good sample is based on the theory that:

- (i) provides ways to determine the number of respondent needed;
- (ii) specify the chance (probability) that any person will be included in the sample;
- (iii) enable us to estimate how much error results from interviewing a sample of people instead of interviewing all of them.
- (iv) Let us determine the degree of confidence that can be placed in the population estimates made from the sample.⁵²

Backstron and Hursh wrote that a good efficient probability sample by practical definition is one that yields the desired information within expected but tolerable limits of sample error for lowest cost. Conversely, a good sample is one which at fixed cost will yield the desired information with least sampling error. What is more, for the non statistic practitioner, a sample should be simple enough to carry out in practice and for our purpose it must be easy to describe.⁵³

Cost and representativeness were the overriding consideration in sampling for this study. Thus a sample which was representative of the population and with least cost involved was a major factor in determining the sample size in the study. In this respect, random sample was found suitable for the study.

A sample list of farmers was compiled from the district agricultural extension office's farmers register for 1979, Crop Season and the Ghana Tobacco Company Limited 1980 Crop Season's registered tobacco growers ledgers using random numbers.

52. Hansen, H.M., Hurwitz, W.N. and Madow, G.W. Sample Survey Methods and Theory I - Methods and Application (New York, Willey 1953) p. 8 - 10.

53. Backstron, G.H. and Hursh, G.D. Drawing the Sample - Survey Research Minneapolis 1963 North Western University Press p.24.

A total of 120 farmers and 30 field extension staff from both organizations were compiled after random sampling, made up of 70 Ministry of Agriculture (Department of Agriculture) food crop farmers and 50 tobacco farmers. 17 field staff of G.T.C. and 13 of the Department of Agriculture were also selected for interview by random sampling. Out of these, 51 food crop farmers and 25 tobacco farmers making up a total farmers population of 76 were actually interviewed while 12 tobacco field staff and 5 Department of Agriculture fieldstaff giving an extension staff population of 17 answered the field staff interview questionnaire. This gave a response rate of 63% and 58% for farmers and field staff samples respectively.

Some farmers could not be contacted due to the fact that the period of interview coincided with the tomatoe season in the areas and some selected farmers were actively busy working on their farms and could not be disturbed in their farming activities. Also due to transportation difficulties caused by an acute fuel shortage in the area coupled with the fact that most of the field staff were enjoying their annual leave and have left their base villages, it was not possible to contact all the fieldstaff selected to take the interview hence the low fieldstaff turnout particularly for the ministry of agriculture staff. It is hoped that this will not have any significant effect on the results.

The interview was carried out by the author who fortunately had no problem with language with respect to the respondents.

3. CONSTRUCTION OF QUESTIONNAIRE AND PRETESTING

(a) Construction of Questionnaire:

Two separate questionnaires containing almost identical items but soliciting different responses from the two respondent groups namely:-

(i) farmers (ii) field extension staff were used (See Appendices A & B).

The questionnaires consisted of 5 main information soliciting sections for farmers and 3 for the extension staff. These sections were:

(i) Farmers Questionnaire:

Section I: This section consisted of information on farmers' personal and educational characteristics.

Section II: Consisted of question asked to solicit information on farmers' exposure to extension education, their contact with extension office and or staff. The purpose of visits, the usefulness of such visit to them and their impacts on farmers adoption behaviours.

Section III: Questions were aimed at getting respondents to indicate their regular sources of farm information, and the category or type of people, farmers discuss their farm problems with.

Section IV: Questions designed were aimed at soliciting information on farmers perception of extension fieldstaff, their attitude to work and performance and the organization they serve.

Section V: This section tried to get farmers to indicate their major needs and problems that contribute to limiting their productivity drive.

(ii) Fieldstaff Questionnaire:

Section I: The section was limited to questions on education and professional characteristics of staff and their period or length of engagement. Questions were aimed at getting information on fieldstaff exposure to extension activities, their involvement and experiences in extension work.

Section II: This section involved questions put to extension staff to indicate the extension teaching methods used, their applicability to their area and conditions, and how effective the methods have been and finally in.

Section III: Fieldstaff were asked to indicate the problems they encounter in their work and what they think should be done to make them more effective in their work.

(b) Pretesting of Questionnaire:

The questionnaires were pretested on farmers and fieldstaff (tobacco in this case) drawn from Ejura area. Based on the results of the pretest, some questions were rephrased.

4. DATA ANALYSIS

Responses were coded and key-punched on data processing cards. Computer programming and processing was carried out by the University of Ghana Computer Centre. The dependent variable throughout the study was Extension Services. The independent variables were extension teaching methods and services rendered by the organizations attributable to the extension services departments.

Analysis of data was limited to percentage frequency distribution. Cross tabulation ^{analysis} was also used and chi-square test applied where appropriate to determine the existence or non-existence of relationship between variables.

5. SIGNIFICANCE OF THE STUDY

Although a lot of research has been done in many disciplines in Agriculture in the country, little attention has been focussed on agricultural extension. ^{the} Mends and Watkins report, ⁵⁴ Geker ^{well as} ~~SA~~ Steenburg ⁵⁵ worked on extension training and manpower development and did not touch on extension service to the farmer. Kuranchi, ⁵⁶ Sofranko et al on the other hand did some work involving GTC and their farmers while Nuhu worked extensively on adoption of innovation of these farmers. Little attention was devoted to the extension delivery system and teaching methods in these studies. Besides, Nuhu's work was limited to Ejura area alone. Above all no work has so far been done to study and compare G.T.C. Extension staff and their counterparts in the Ministry of Agriculture in their extension contact with their farmers, their approach to work and their performances.

-
54. Watkins, M.O. & Mends, H. A Study of the Organization, Manpower Development and Training of the Ministry of Agriculture, Accra Ministry of Agriculture - 1973.
55. Steenburgh, V.N. : "An Evaluation of the National Diploma In Agriculture and Animal Health Programs given at the University of Ghana". M.Sc Thesis, University of Guelph 1975.
56. Kuranchi, P.A. : "Modal Farm Plan For Tobacco Farmers In Ejura & Wenchi District". M.Sc. Thesis, University of Ghana 1971.

The study, it is hoped will help us to have a closer insight into the extension activities of the farmers and staff of these organizations, and the problems the farmers encounter in their attempt to effect changes in the adoption of new practices. It is anticipated that the findings from the study would help the authorities concerned and policy makers to devise new extension techniques and methods of solving farmers problems.

It is the writer's view that the study will in addition pave the way for a more detailed investigation in specific areas of extension delivery systems in the future.

6. LIMITATION OF THE STUDY

Attention was primarily focussed on the type of extension services being given to the food crop and tobacco farmers and their responses to and the impact of these services in terms of contact with fieldstaff, input supply, availability and credit supply etc. The study did not attempt to evaluate the Extension Services as a whole and the present government policies for these organizations in view of the small population of the study.

Again, the study did not concern itself with evaluating the training programme for the extension personnel. It only limited itself to the extension teaching methods being used by the extension personnel and the problems that both farmers and fieldstaff face in their work.

7. ASSUMPTIONS OF THE STUDY

(1) The assumption for the study is based on the fact that effective extension service whether in the form of advisory, supply of credit, inputs, education or the adoption of new technology are essential to agricultural development.

(2) It is assumed that it is possible to select, organize and administer certain resources of technology, personnel and teaching techniques to help farmers improve on their farming techniques and living conditions.

(3) It is also assumed that agricultural development in this country can be improved when we make effective use of the peasant farmers by supplying them with the needed inputs, capital and educational facilities necessary for rural and agricultural development.

(4) Finally it is assumed that agricultural extension will only succeed in making an impact on the farmer only when other factors favourable for rapid adoption of new practices and techniques are provided to both the farmer and the agricultural extension staff or change agent .

8. DEFINITION OF TERMS

Ministry of Agriculture: Refers to the institution or organization charged with the development of agriculture and fisheries in the country by the government.

Department of Agriculture: The division within the Ministry of Agriculture responsible for delivering extension in crop production to farmers.

Ghana Tobacco Company Limited: The institution or organization charged with the development of tobacco production, and marketing among farmers in Ghana by the government.

Agricultural Extension Service: Refers to an informal out of school educational service for training and influencing farmers to adopt improved practices in crop and livestock production, management, conservation and marketing. The service in addition aims at changing the outlook of the farmer

to the point where he will be receptive to and on his own initiative continuously seek means of improving his farm business and living conditions.

Field Extension Staff: Refers to employed personnel of any agricultural organization charged with the responsibility of educating and involving the farmer in agricultural extension work.

Adoption: Is the decision to continue full use of an innovation.

Extension Officer/Change Agent: Is a professional person who attempts to influence adoption decisions in a direction that he feels is desirable. A change agent usually seeks to secure the adoption of new ideas.

Interpretation of Chi-Square Analysis: This measures the difference between the expected frequencies and the observed frequencies and is computed as $\chi^2 = \sum \frac{(O - E)^2}{E}$ where O is the observed frequency and E is the expected frequency in respect of each treatment.

In its application of association, we make use of the null hypothesis. If the null hypothesis is true then there is no association between the two characteristics. However if we can show that the results actually obtained were highly probable under such a hypothesis, we reject the null hypothesis and accept the alternate hypothesis that the treatments did in fact have a real effect. The greater χ^2 (which measures the differences), the smaller the probability of its occurring. If the probability is 5% or less the differences called "significant", and if it is 1% or less, the differences are called "highly significant".

CHAPTER IVF I N D I N G S

The chapter presents the findings based on the objectives of the study in the following areas:-

Section I: Personal, educational and professional background of respondents (farmers).

- (ii) Field Extension staff education/professional experiences and their exposure to extension work.
- (iii) Tobacco and food crop farmers exposure to agricultural extension services.
- (iv) Farmers source(s) of farm information and teaching methods.
- (v) Farmers adoption behaviour as a result of their contact with extension services and teaching methods.
- (vi) Farmers perception of field extension staff.
- (vii) Factors and problems limiting extension work.

I. PERSONAL, EDUCATIONAL AND PROFESSIONAL CHARACTERISTICS OF FARMERS

(a) Age.

TABLE I

FREQUENCY(PERCENTAGE) DISTRIBUTION OF AGE OF RESPONDENTS

AGE	FOOD CROP FARMERS		TOBACCO FARMERS	
	No.	%	No.	%
Below 20 yrs.	14	27	13	52
21 - 30 "	9	18	3	12
31 - 40 "	11	21	4	16
41 - 50 "	7	14	4	16
Over 50 "	9	18	1	4
No Response	1	2	-	-
Total	51	100	25	100

= 6.373 Not Significant at 5% level.

The data collected in Table 1 indicated that 66% of food crop farmers and 80% of tobacco farmers were below the age of 41 years. Of this 27% of foodcrop farmers and as much as 52% of tobacco farmers were in their youthful age and were below 20 years^{of age}. Looking at older people engaged in farming, it was observed that 18% of foodcrop farmers and 4% of tobacco farmers were over 50 years.

89% of the respondents interviewed were male and 11% female. There were a few unmarried men where as all the women interviewed were married and living with their husbands. Over half (58%) of the married men had one wife while 11% of the married respondents had 4 wives. It was also found that 61% of the food crop farmers had between 1 - 5 children.

Table 2 below shows that 49% of foodcrop farmers and 36% of tobacco farmers interviewed never attended school. 22% of foodcrop farmers and 40% of tobacco farmers made it up to primary and middle school. A total of 10%

TABLE 2
FREQUENCY (PERCENTAGE) DISTRIBUTION OF EDUCATION
OF RESPONDENTS

CLASS OR SCHOOL ATTENDED	FOODCROP FARMERS		TOBACCO FARMERS	
	No.	%	No.	%
No Schooling	25	49	9	36
Mass Education	7	14	3	12
Primary School	1	2	2	8
Middle School	10	20	8	32
Teacher Training	4	8	3	12
Secondary/Tech. Sch.	1	2	-	-
No Response	3	5	-	-
Total	51	100	25	100

of food crop farmers and 12% of tobacco farmers had post middle school education in secondary school and teacher training college education. Among this group many indicated they could not complete due to financial problems.

II. EDUCATIONAL AND PROFESSIONAL EXPERIENCES OF FIELD STAFF

(a) Educational Attainment

TABLE 3

FREQUENCY (PERCENTAGE) DISTRIBUTION OF STAFF EDUCATION

Educational Attainment	Min. of Agric. Staff		G.T.C. Staff		Total	
	No.	%	No.	%	No.	%
Middle School Cert.	1	20	10	80	11	65
Agric. Institute	4	80	2	20	6	35
National Dip of Agric.	-	-	-	-	-	-
Total	5	100	12	100	17	100

$\chi^2 = 6.11$ Significant at 5% level

With regard to academic qualification and experience of extension staff, 20% of the Ministry of Agriculture staff and 80% of Ghana Tobacco Company staff had middle school (leaving certificate) education while 80% of the Ministry's staff and 20% of G.T.C. staff attended and qualified from agricultural institutes or college (Table 3). 35% of ^{the} total respondents were agricultural institute graduates.

Table 4 below shows that none of the Ministry of Agriculture staff interviewed had less than 8 years of engagement as compared with 67% of tobacco field staff who had between 1 to 8 years of engagement. At least 29% of total respondents interviewed had between 9 and 12 years of engagement.

TABLE 4

FREQUENCY (PERCENTAGE) DISTRIBUTION OF STAFF ENGAGEMENT

Engagement Period	Min. of Agric. Staff		G.T.C. Staff		Total	
	No.	%	No.	%	No.	%
0 - 4 yrs.	-	-	1	8	1	6.0
5 - 8 "	-	-	8	67	8	47
9 - 12 "	3	60	2	17	5	29.4
Over 12"	2	40	1	8	3	17.6
Total	5	100	12	100	17	100

$\chi^2 = 5.581$ Not significant at 5% level

III. RESPONDENTS EXPOSURE TO EXTENSION ACTIVITIES

(a) Farmers Exposure to Agricultural Extension Services:

The extent to which farmers have been exposed to or come into contact with extension services or staff do largely influence their awareness and adoption of new practices. Farmers were asked to indicate whether they have made contact with the extension office during the year or not. Table 5 shows that 49% of foodcrop farmers as compared with 96% of tobacco farmers made contact or visited extension offices during the year. The rest of the farmers that is 51% of foodcrop farmers and 4% of tobacco farmers reported not visiting extension offices during the year. Since the chi-square test was significant at 5% we reject the null hypothesis and accept the alternate hypothesis that the treatment did in fact had a real effect.

TABLE 5

FREQUENCY AND (PERCENTAGE) DISTRIBUTION OF FARMERS CONTACT
WITH EXTENSION OFFICE

RESPONSE	FOODCROP FARMERS		G.T.C. FARMERS	
	No.	%	No.	%
Made contact this year	25	49	24	96
Made no contact	26	51	1	4
Total	51	100	25	100

$$\chi^2 = 2.810 \text{ Significant at } 5\%$$

When farmers who made contact with the extension office were asked their purpose for going there, 16% of foodcrop farmers and 20% of tobacco farmers indicated they went there for consultations or advise. 80% of the foodcrop farmers and 8% of tobacco farmers said they went there to purchase fertilizers. 30% of Ghana Tobacco Company farmers reported going to the office to get tractors to plough and 17% indicated they went there to collect payment of their tobacco sales.

TABLE 6

FREQUENCY (PERCENTAGE) DISTRIBUTION OF FARMERS RESPONDING
TO THE QUESTION "IS VISIT BY EXTENSION AGENT USEFUL TO YOU"

	FOODCROP FARMERS		TOBACCO FARMERS	
	No.	%	No.	%
Visit very useful	5	10	8	32
Visit useful	8	16	7	28
Visit not useful	16	32	3	12
Not useful at all	15	29	2	8
Do not know	7	13	5	20
Total	51	100	25	100

$$\chi^2 \text{ Not appropriate}$$

Farmers were asked to indicate whether visit to them by the extension agents were useful or not. In Table 6 above, 26% of food crop farmers and 60% of tobacco farmers reported they found the visit either useful or very useful; while 61% of foodcrop farmers and 20% of tobacco farmers did not find these visits useful to them.

TABLE 7

FREQUENCY (PERCENTAGE) DISTRIBUTION OF RESPONDENTS TO THE QUESTION "HOW OFTEN ARE YOU VISITED BY YOUR STAFF"

RESPONSE	FOODCROP FARMERS		TOBACCO FARMERS	
	No.	%	No.	%
Very Often	-	-	5	20
Quite Often	10	20	12	48
Not Often	13	25	5	20
Not at all	23	45	3	12
I can't tell	5	10	-	-
Total	51	100	25	100

In Table 7, above, 20% of foodcrop farmers and 68% tobacco farmers indicated that their staff visited them very often or quite often. 70% foodcrop farmers and 32% of tobacco farmers said their staff did not visit them often.

(b) Fieldstaff Exposure And Experiences In Extension Work:

When fieldstaff were asked to define or explain what they understand agricultural extension to be, it was noted that majority of G.T.C. staff could not explain or define the term. On the other hand the majority of Ministry of Agriculture staff had a good idea about the term agricultural extension.

60% of the ministry of agriculture staff said, their organizations' objective was to improve farmers farming techniques. 20% said their ministry's objective was to produce more raw materials to feed factories while 20% said their organizations aim was to convince farmers to adopt modern farm techniques. In contrast, tobacco staff were more specific in their organization's objective. 17% said their organization's objective was to assist tobacco farmers to increase their yields while 32% indicated that their objective was to help tobacco manufacturers to obtain more leaf tobacco.

TABLE 8

FREQUENCY (PERCENTAGE) DISTRIBUTION OF SPECIFIC EXTENSION
ACTIVITIES FIELD STAFF REPORTED BEING INVOLVED

SPECIFIC EXTENSION WORK STAFF IS INVOLVED	Min. of Agric. Staff		Tobacco Staff	
	No.	%	No.	%
Teaching farmers fertilizer application	1	20	3	25
Teaching farmers correct seedbed raising	1	20	2	17
Teaching farmers correct husbandry practices	-	-	5	42
Supervising staff and farmers	1	20	1	8
No response. Can't be specific.	2	40	1	8
Total	5	100	12	100

$\chi^2 = 4.958$ Test significant at 5% level.

When staff were asked to indicate what specific extension work they have been involved in, 42% G.T.C. staff said they have been teaching farmers correct cultural practices. 40% of the Ministry staff and 8% of G.T.C. staff

said they can't say specifically the work they have been involved. 20% of the Ministry of Agricultural staff and 8% of G.T.C. staff indicated they were in the supervisory grade and do supervise both the junior fieldstaff and farmers (Table 8).

Table 9 below shows that 40% of the Ministry of Agriculture staff supervise between 200 and 500 farmers each. Another 60% said they supervise over 1,000 farmers. On the other hand, 67% of tobacco field staff said they supervise not more than 50 farmers each. The highest number of farmers supervised by a Ghana Tobacco Company field staff was not more than 200.

TABLE 9

FREQUENCY (PERCENTAGE) DISTRIBUTION OF FARMERS
SUPERVISED BY EXTENSION AGENTS

No. of Farmers Supervised	Min. of Agric. Staff		G.T.C. Staff	
	No.	%	No.	%
1 - 50	-	-	8	67
51 - 100	-	-	1	8
101 - 200	-	-	3	25
201 - 500	2	40	-	-
501 - 1000	3	60	-	-
Total	5	100	12	100

For an extension agent, the ability to be able to reach his farmers with farm information with the least effort contributes a great deal towards his effectiveness in disseminating information to his clientele. Majority of tobacco field staff (92%) and 20% of the Ministry of Agriculture staff reported that they were able to reach all or majority of their farmers. On the other hand

80% of the Ministry of Agriculture staff and 8% of G.T.C. staff, reported that only a few of their farmers were reached by them. Again 20% of the ministry's staff and 75% of G.T.C. staff indicated that majority of their farmers live in and around the villages or towns where they reside while 80% of the extension personnel of the ministry and 25% of G.T.C. staff reported that many of their farmers live far away from the area they the staff stay. The Extension staff/farmer ratio for Ministry of Agriculture staff was one is to 200-1000 while that of Ghana Tobacco staff was one is to 50-200.

When extension staff were asked to indicate how regular or often they visited their farmers, all the G.T.C. staff reported that they visited their farmers either very often or quite often while less than half of the Ministry's staff reported in similar way. When staff were asked whether in their opinion the frequency of visits were adequate or not, 80% of the Ministry of Agriculture staff said it was not adequate while 91% of G.T.C. staff felt their visits were adequate (Table 10). Reasons

TABLE 10

FREQUENCY (PERCENTAGE) DISTRIBUTION OF RESPONSE TO
THE QUESTION "IS THE FREQUENCY OF CONTACT
ADEQUATE ENOUGH"

Response	Min. of Agric. Staff		G.T.C. Staff	
	No.	%	No.	%
Visit very adequate	1	20	11	91
Visit not adequate	4	80	1	9
Total	5	100	12	100

\bar{X}^2 = Not appropriate

given by extension staff particularly those of the Ministry of Agriculture for not being able to visit their farmers regularly were that many of them supervise too big areas and above all have no means of transport to take them to the remote areas where the farmers live.

IV. FARMERS SOURCE(S) OF FARM INFORMATION AND TEACHING METHODS

Farmers were asked to indicate their major source of information about farming. Data in Table 11 show that 43% of foodcrop farmers and 28% of tobacco farmers learned about information related to farming through the radio. About 21% of foodcrop farmers and 4% of tobacco farmers said they rely on friends and neighbours for information while farmers meeting like co-operatives and crop

TABLE 11

FREQUENCY (PERCENTAGE) DISTRIBUTION OF FARMERS MAJOR SOURCE(S) OF FARM INFORMATION

		Food Crop Farmers		Tobacco Farmers	
		No.	%	No.	%
<u>Mass</u>	Through Radio	22	43.0	7	28.0
	(Contact with Ext. Staff)	10	19.6	12	48.0
<u>Individual</u>	Friends & Religious	11	21.6	1	4.0
	Chief Farms	3	5.8	2	8.0
	(Relatives)	2	4.0	-	-
<u>Group</u>	Farmers meetings	2	4.0	3	12.0
	Can't tell	1	2.0	-	-
Total		51	100	25	100

$$\chi^2 = 8.642 \text{ Not significant at 5\% level}$$

association meetings were major source of farm information to 4% of foodcrop farmers and 12% of tobacco farmers. There was no significance between treatment test.

Both foodcrop farmers and tobacco farmers discussed their farming related problems with a number of people. As indicated in Table 12 29% of foodcrop farmers and 64% of tobacco farmers said they consult their extension workers with their problems. 27% of the foodcrop farmers and 8% of tobacco farmers said they do not consult anybody in particular;

TABLE 12

FREQUENCY (PERCENTAGE) DISTRIBUTION OF CATEGORY OF PEOPLE
FARMERS DISCUSS THEIR PROBLEMS WITH

People Farmers Discuss their problems with	Foodcrop Farmers		Tobacco Farmers	
	No.	%	No.	%
Agric. Extension Workers	15	29	16	64
Bank Officials	6	12	2	8
Relatives	3	6	1	4
Friends & neighbours	9	17	1	4
Members of Crop Ass.	4	8	3	12
Nobody	11	27	2	8
Total	51	99	25	100

$$\chi^2 = 6.43 \text{ significant at } 5\% \text{ level}$$

while 17% of foodcrop farmers and 4% of tobacco farmers said they discuss their problems with their farm neighbours and friends.

Many of the foodcrop farmers said they did not discuss their problems with the extension experts in the Ministry of Agriculture because they did not see them. Secondly, previous consultations with the extension staff on their problems yielded no meaningful results. Statistics analysis of treatment showed that there was significance and that the treatments had a real effect.

V. TEACHING METHOD USED BY FIELD EXTENSION STAFF

TABLE 13

FREQUENCY (PERCENTAGE) DISTRIBUTION OF EXTENSION
TEACHING METHODS REPORTED USED BY EXTENSION
STAFF

Teaching Methods Used		Foodcrop Farmers		Tobacco Farmers	
		No.	%	No.	%
<u>Group</u>	Farmers meeting	4	17	11	23
	Group Discussion	3	13	1	2
	Film Show	1	4	-	-
	Agric. Shows & Exhibitions	2	9	2	4
	Demonstrations	5	23	12	25
<u>Indivi- dual</u>	Visits & Personnel discussions	4	17	12	25
<u>Mass</u>	Radio Farm Broadca.	4	17	10	21
Total		23	100	48	100

$$\chi^2 = 5.013 \text{ significant at } 5\% \text{ level}$$

Extension education to farmers has to take into consideration, the number of people that has to be covered in the educational process, their level of education and the fact that different people learnt better through different teaching methods. In this study therefore, an attempt was made to find out the different extension teaching methods used by the staff to educate the farmers. Table 13 shows teaching methods reported being used by field extension staff. Field demonstration is used by 23% of the Ministry of Agriculture staff and 25% by the tobacco staff. Personal discussion by individual visits accounts for 17% of the ministry's personnel and 25% G.T.C.

staff. Farmers meetings is reported by 17% of the Ministry of Agriculture staff and by 23% of G.T.C. staff. Even though radio is reported as being used, this is on a national radio network and not by individual organizations or at district level. The group teaching methods are used by 54% tobacco fieldstaff as compared to 66% of the Ministry of Agriculture staff. The Chi-square test shows that there is a significant differences between teaching method used by the two organizations. In this case the null hypothesis is rejected and the alternate hypothesis that treatments infact have a real effect is accepted.

It is often realised that a teaching method may fail to yield much result under a particular teaching situation simply because conditions under which it is used may not be suitable or do not apply to the particular teaching situation.

TABLE 14

FREQUENCY (PERCENTAGE) DISTRIBUTION OF EXTENSION TEACHING METHOD REPORTED BY FIELDSTAFF AS APPLICABLE TO THEIR AREA

Teaching Methods		Min. of Agric. Staff		Tobacco Staff	
		No.	%	No.	%
Group Method	Farmers meetings	3	18	11	30
	Group Discussion	2	11	-	-
	Film Show	-	-	2	6
	Agric. Shows & Exhibitions	5	29	-	-
	Field Demonstrations	3	18	11	30
Individual Method	Visits & Personal discussions	4	23	12	34
Mass method	Radio Farm broadcast	-	-	-	-
Total		17	100	36	100

$\chi^2 = 11.142$ Not significant at 5% level

The fieldstaff of both organizations were asked to indicate which of the extension teaching methods used were applicable to the conditions under which they worked. Table 14 above shows that 23% and 34% of the Ministry of Agriculture and G.T.C. staff respectively thought the individual methods of farm visits and personal discussions were applicable whereas radio farm broadcast was not mentioned by any of the respondents interviewed. 76% of the Ministry of Agriculture staff as compared to 66% of the G.T.C. staff felt the group method e.g. film shows, field demonstration, farm meetings were a much more preferred method as it seems to be more applicable to their conditions

When the effectiveness of the methods were compared by scoring vis: Very Effective (2 points) Effective (1 point) and not effective (0 point). It was observed (Table 15) that 38% of the Ministry of Agriculture

TABLE 15

FREQUENCY (PERCENTAGE) DISTRIBUTION OF SCORE ON THE
EFFECTIVENESS OF EXTENSION TEACHING METHODS USED
BY STAFF

Teaching Methods		Min. of Agric. Staff		G.T.C. Staff	
		No.	%	No.	%
Group	(Farmers Meetings	3	14)	14	26)
	(Group Discussions	1	5)	-	-)
	(Film Shows	-	-)	-	-)
	(Agric. Shows & Exhibitions	4	19)	2	4)
Individual	Individual Dis. by visits	8	34)	16	30)
	Field Demonstration	6	28)	22	40)
Mass	Radio Farm broadcast	-	-)	-	-)
Total		22	100	54	100

Effectiveness Score	
Very Effective (VE)	= 2 points
Effective (E)	= 1 point
Not Effective (NV)	= 0 point

staff and 30% of G.T.C. staff scored for group teaching methods. 62% of the Ministry of Agriculture and 70% of Tobacco Staff said they found individual teaching method e.g. personal visits and contact scored the highest among the Ministry of Agriculture staff while field demonstration scored highest among the G.T.C. staff. Radio farm broadcast which was scored by farmers as their major source of farm information was found to be unapplicable to the staff and was not reported to be used by them.

VI. AGRICULTURAL EXTENSION SERVICES AND FARMERS ADOPTION BEHAVIOUR

Success in the use of extension teaching methods implies that the teaching methods produce the desired results, namely: produce some changes in the behaviour or practices of the farmer. These changes should invariably be seen in his trial and adoption practices he or she is taught. To find out how much farmers have changed as a result of their contact with extension staff and his teachings, farmers were asked to indicate what practices they have tried or adopted as a result of the introduction to extension education.

Table 16 below shows that 31% of foodcrop farmers and 12% of tobacco farmers have tried and or adopted pest control by chemical spraying. 43% of foodcrop farmers and 28% of tobacco farmers have learnt the use and application of chemical fertilizers while some tobacco farmers have tried the adoption of specific cultural practices in tobacco production such as topping and suckering (32%) and dry planting (8%) which are unique to the crop. Only 8% of the food crop farmers answered that they have not tried any practice as a result of contact with extension education. 8% of foodcrop farmers indicated that they have learnt

the treatment and storage of grains while 10% of the same group said they have learnt how to plant crops in lines.

TABLE 16

FREQUENCY (PERCENTAGE) DISTRIBUTION OF PRACTICES
FARMERS HAVE TRIED OR ADOPTED THROUGH EXTENSION
EDUCATION

Practices tried and or adopted by Farmers	Foodcrop Farmers		Tobacco Farmers	
	No.	%	No.	%
Topping & Suckering to tobacco	-	-	8	32
Dry planting & proper harvesting of tobacco	-	-	2	8
Pest control with insecticides	16	31	3	12
Techniques of fertilizer application	22	43	7	28
Weed control with chemicals	-	-	3	12
Planting Crops in lines	5	10	-	-
Correct planting time and plant population	-	-	2	8
Pest Harvest grain storage & Tran.	4	8	-	-
No attempt	4	8	-	-
Total	51	100	25	100

$\chi^2 = 12.715$ Not significant at 5% level.

VII. FARMERS PERCEPTION OF EXTENSION WORKERS

Farmers were asked to express their opinion on the work of the extension staff and the management. Table 17 shows that 43% of the foodcrop farmers reported that field staff were not helpful to them while 20% tobacco farmers made the same remark. 28% of tobacco farmers claimed their staff were not honest as against 12% by foodcrop farmers.

TABLE 17

FREQUENCY (PERCENTAGE) DISTRIBUTION OF RESPONDENTS VIEW OF
THEIR EXTENSION STAFF

Response	Foodcrop Farmers		Tobacco Farmers		Total	
	No.	%	No.	%	No.	%
Helpful and co-op.	5	10	3	12	8	11
Very hardworking	3	6	4	16	7	9
Not helpful	22	43	5	20	27	35
Care for farmers needs	2	4	3	12	5	7
Not honest	6	12	7	28	13	17
Can't tell	13	25	3	12	16	21
Total	51	100	25	100	76	100

χ^2 = Not appropriate

TABLE 18

FARMERS' PERCEPTION AND OPINION OF EXTENSION STAFF

Statements	Poles	Foodcrop Farmers Percentages			Tobacco Farmers Percentages		
		Posi- tive	Nega- tive	Neu- tral	Posi- tive	Nega- tive	Neu- tral
1. Extension has assisted farmers to improve their methods	<u>Contributed</u> not contri- buted	56.8	81.4	12.0	52.0	36.0	12.0
2. Visit by Extension staff not adequate	<u>Adequate</u> not ade- quate	11.8	82.4	5.8	76.0	16.0	8.0
3. TA/TO perform- ing his best	Doing his <u>best</u> not doing his best	9.8	62.7	27.5	72.0	24.0	4.0
4. Presence of TA/TO helpful to farmers	<u>helpful</u> Not helpful	25.5	64.7	9.8	60.0	28.0	12.0

Farmers served by both organizations were asked to express their opinion about the quality of extension education they were receiving. Table 18 above shows that, 56.8% of foodcrop farmers and 52% of tobacco farmers were of the view that extension education has improved farmers method of farming. 81.4% of foodcrop farmers and 36% of tobacco farmers had a negative view and felt extension education has not helped to improve farmers methods while 12% of both groups had a neutral stand. 82% of foodcrop farmers as against 16% of tobacco farmers felt visit by tobacco staff to them were not adequate. On the contrary 76% of tobacco farmers as against almost 12% of foodcrop farmers were positive that the visits paid to them by their extension workers were adequate. 72% of tobacco farmers as against about 10% of foodcrop farmers felt their field staff were performing at their best.

VIII. FACTORS AND PROBLEMS LIMITING EXTENSION WORK

An attempt was made to find out from both staff and farmers problems facing them which prevent them from working effectively to promote agricultural extension work.

TABLE 19

FREQUENCY (PERCENTAGE) DISTRIBUTION OF FARMERS PRESSING
NEEDS AS PERCEIVED BY EXTENSION WORKERS

Problems Mentioned	Foodcrop Farmers		Tobacco Farmers		T o t a l	
	No.	%	No.	%	No.	%
1. Lack of tractor to plough	2	40	8	67	10	59
2. Lack of labour to assist farmers	-	-	4	33	4	23
3. Lack of Agric. inputs	2	40	-	-	2	12
4. Inability to obtain credit	1	20	-	-	1	6
Total	5	100	12	100	17	100

$\chi^2 = 8.107$ Significant at 5% level

Table 19 shows that lack of tractor to plough farmers fields was mentioned by 40% of the Ministry of Agriculture Extension staff and 67% of tobacco staff, whereas unavailability of agricultural inputs such as fertilizers and insecticides were mentioned by 40% of the Ministry of Agriculture staff as problems that hinder farmers from adopting new ideas. Farm credit was mentioned (once again) by 20% of the Ministry of Agriculture staff as a farmer's problem.

When the farmers were asked about what problems hinder their work, the problems they mentioned were similar to the response given by field staff. Response given in Table 20 shows that 18% foodcrop farmers and 33% tobacco

TABLE 20

FREQUENCY (PERCENTAGE) DISTRIBUTION OF FARMERS
MAJOR PROBLEMS

Type of Problem	Foodcrop Farmers		Tobacco Farmers	
	No.	%	No.	%
Difficult to obtain seed	5	10	3	12
Lack of fertilizers	16	32	1	4
Lack of farm labour	3	6	-	-
Lack of farm inputs e.g. outlasses	3	6	1	4
Problem of getting farm credit	9	18	5	20
Problem of getting land	2	4	6	23
Unavailability of tractor to hire	9	18	8	33
Producer price not good	1	2	-	-
Lack of transportation	-	-	-	-
No Response	2	4	1	4
Total	50	100	25	100

$\chi^2 = 11.652$ Significant at 1% level.

farmers complained of lack of tractor to hire to plough their fields. 32% of the foodcrop farmers and 4% of tobacco farmers reported difficulty in obtaining fertilizers to use as their major problem. Again 18% of foodcrop farmers and 20% of tobacco farmers said they have problem of obtaining farm credit. Other problems mentioned as limiting farmers performances were unavailability of farm inputs like cutlass, (farm)labour, land, good seed or planting materials. Statistically there was high significance between treatment (at 1% level).

TABLE 21

FREQUENCY (PERCENTAGE) DISTRIBUTION OF MAJOR PROBLEMS
OF FIELD EXTENSION STAFF

Problems Mentioned	Min. of Agric. Staff		G.T.C. Staff	
	No.	%	No.	%
Lack of tractors to hire to farmers	3	60	9	75
Lack of means of transport	4	80	8	66
Poor pay and service condition	4	80	5	40
Lack of help and assistance from Employers	2	40	5	40
Unavailability of farm inputs	4	80	3	25
Frequent transfers	-	-	3	25
Lack of frequent visit from boss	1	20	2	17
Lack of Farm labour	1	20	1	8
	N=5	-	N=12	-

* Percentage calculation based on Number of respondent mentioning item to the total sample of group (N)

χ^2 = Not appropriate here.

When field staff were interviewed about problems affecting their work, again unavailability of farm inputs came up as their major problem for 80% of the Ministry of Agriculture staff as against 25% of tobacco field staff (See Table 21). Lack of tractor to hire was reported by 60% of the Ministry of Agriculture staff and 75% of Tobacco Staff. Means of transport to use was mentioned by 80% of Ministry of Agriculture staff and 66% by G.T.C. staff. Poor pay and service conditions was also mentioned by both extension staff of the two organizations.

TABLE 22

FREQUENCY (PERCENTAGE) DISTRIBUTION OF JOB SATISFACTION
BY RESPONDENT (STAFF)

Response to Job Satisfaction	Min. of Agric. Staff		G.T.C. Staff	
	No.	%	No.	%
Satisfied with job	3	60	7	58
Not satisfied with job	2	40	5	42
Total	5	100	12	100

χ^2 = Not appropriate here

On the question as to whether staff were satisfied with their present job or not, 60% of the Ministry of Agriculture staff and 58% of tobacco staff interviewed indicated that they were satisfied with their present job so far while 40% of the Ministry's staff and 42% of G.T.C. staff responded they were not satisfied with their job as it is now (Table 22). Majority of the staff of both organizations however indicated that there were opportunities available in their present job to develop their talents.

It came out from the interview that there were widespread complaints by farmers that extension staff use most of their time ~~On~~ on their own farms and also use their positions to deprive them of inputs such as fertilizers, insecticides and seeds. When fieldstaff were asked for their comments on such allegations as to whether they were true or valid, majority of the staff from both organizations admitted that some of the allegations were in fact true and valid. However, some staff refuted some of the allegations as untrue and without basis.

CHAPTER VDISCUSSION OF FINDINGS1. PERSONAL, EDUCATIONAL AND PROFESSIONAL CHARACTERISTICS OF FARMERS:(a) Age and Marital Status:

The findings revealed that farmers engaged in tobacco cultivation were younger than those in foodcrop farming, 80% of tobacco farmers as against 66% of foodcrop farmers were below 40 years of age. It can be argued that tobacco cultivation makes more use of scientific methods than foodcrops and since younger people are more inclined to formal education than older people, young farmers are more likely to take to tobacco growing than to foodcrops. Generally, it was found that the sample of farmers interviewed were younger than the (normal) average age of cocoa farmer which according to Gyekye is estimated at 55 years or more by the Ministry of Agriculture.⁵⁷ In his study on farmers co-operatives, Gyekye noted the average of the cocoa farmer, Akpeteshie distillers and foodcrop producer to be 51, 41 and 48 years respectively.⁵⁸

The problem of "age" among farmers in Ghana ^{has} become serious. Okali et al. showed that the rate of abandoning cocoa farms is relatively higher among older farmers than their relatively younger counterparts.⁵⁹ Even though the study did

57. Gyekye, L.O. : Co-operative as Instrument for Rural Development in Ghana. (1980) Unpublished M.Sc. Thesis.

58. Gyekye, L.O. : p.8

59. Okali, C. Gyekye, L.O. & Mabey, S. (1974) - Report on the Socio-Economic Characteristics of the Ashanti Cocoa Rehabilitation Project Area, Legon, ISSER.

not compare the decline of productivity with age, age is viewed as a negative factor in farming as it reduces the farmers ability to work and manage his farm properly.

It was observed that there were more men engaged in tobacco and food farming than women. The ratio of male to female in both tobacco and foodcrop (10:1 and 8:1 respectively) were quite close to the cocoa farmers average of 9:1.⁶⁰ All the women interviewed were married and living with their husbands. The fact that there were few women registered as farmers may mean that even though they assisted their husbands, they themselves do not own farms. Okali and others found distinct differences in farm ownership and the involvement of women in the three zones she studied. While women in Mampong district were equally involved as the men in ownership of cocoa and foodcrop farms, women in Bekwai district concentrated more on foodcrop production while in Konongo district incidence of women ownership of farms was very restricted.

Foodcrop farmers, it was noted had more children per farmer than tobacco farmers. This propensity to have more children as observed among foodcrop farmers may be seen as a security measure for farm labour. The low propensity to have children among tobacco farmers may be due to the fact that most of them are young and have just started to give birth while most of the foodcrop farmers are older and had more children. This fact is also supported by the number of wives per farmer observed among foodcrop farmers.

60. Okali et al

(b) Educational and Professional Characteristics
of Farmers:

There was a high incidence of educational attainment among tobacco farmers (52%) than among foodcrop farmers (36%). The percentage of farmers without any formal education was higher among foodcrop farmers (49%) than among tobacco farmers (36%). It may be implied therefore that young people are more inclined to have formal education than older people since it has been shown that tobacco farmers were younger than the foodcrop farmers. This could be the reason for the differences in educational attainment of the two groups. Another reason may be that tobacco cultivation requires more scientific method than foodcrops.

II. EDUCATIONAL AND PROFESSIONAL EXPERIENCE OF FIELD STAFF

Educational and professional experience is a major contributing factor to effective extension work. Data show that the Ministry of Agriculture extension staff had more training in agricultural extension education than their counterparts in the Ghana Tobacco Company. Qualification from an agricultural institute is the basic requirement of the Ministry of Agriculture for the employment of its extension staff. G.T.C. on the other hand, did not place any strict educational requirement on the recruitment of its staff since, the staff employed or recruited are given one year on the job intensive orientation in tobacco extension work. Thus the training of G.T.C. staff which seems to lay too much emphasis on tobacco production may predispose them to lack detail or broader knowledge in extension work involving other crops.

Findings show that the Ministry of Agriculture staff have longer years of engagement as compared to those of G.T.C. staff. Some of them have never been transferred from their base station since engagement on the job. One ministry staff reported having spent 10 years at his present station since his engagement. On the other hand, G.T.C. staff are frequently transferred to other stations and regions. This it is believed by the authorities help them to acquire new experiences in solving different problems in different geographical areas. It is believed that when field staff is kept too long in one area, there is the tendency, for him to become relaxed in his work especially where supervision is weak. The staff also become too familiar with the problems in the area and tends to take things for granted.

Personal interview with some G.T.C. authorities indicated that frequent transfer of the staff was deliberately instituted as a check to prevent staff becoming relaxed and growing tobacco or other crops and to prevent collusion with their farmers. Sofranko et al, also observed that possible diversion of farmers input to tobacco staff farm cause G.T.C. authorities to prevent their staff from growing tobacco themselves.⁶¹ G.T.C. staff though individually complained about the frequent transfer as interfering or disrupting their children education, felt and admitted that they get more experience from coming to grips with new situations as a result of the transfers. It is suggested that however good the intention of G.T.C. authorities may be in regard to the present transfers consideration should also be given to the staff children education problem.

61. Sofranko et al, p.5

III. RESPONDENTS EXPOSURE TO EXTENSION ACTIVITIES

(a) Farmers Exposure to Agricultural Extension Services:

Analysis of data shows that more tobacco farmers than foodcrop farmers visited or made contact with either their extension office or extension staff. The high percentage of tobacco farmers making contact with the tobacco office is obvious, since at the beginning of each crop season, farmers who want to grow tobacco have to be registered at the tobacco office, collect materials and inputs and are required to settle or reschedule their previous debts. The tobacco farmers are therefore more inclined to report to the extension office for one reason or another.

Out of the 51% of foodcrop farmers who said they have not made any contact during the season with either the extension staff or the extension office, majority of them when asked why they have not found it expedient to visit extension office said they had nothing to do there and saw no reason why they have to waste their time to be there.

When farmers who made the effort to contact extension office or their staff were asked what prompted them to take such approach or decision it was noted that 16% of the foodcrop farmers and 20% tobacco farmers went there for consultation or advice. 80% of foodcrop farmers went there for the purpose of purchasing fertilizers, insecticides or other inputs, while a third of the tobacco farmers went to their extension/^{office} to request for tractors to plough their fields. 60% of tobacco farmers felt that the visits to them by extension agents were very useful or useful as compared to 61% of foodcrop farmers who felt they have not benefited in any way from visits or contacts with their extension staff (Table 6).

Lionberger, noted that a farmer must perceive a need to adopt a practice. He is not going to make the effort to adopt unless it is worth the risk.⁶² Wilson et al, observed that there was a close relationship between farmers contact with extension teaching or other exposure to extension information and the adoption of recommended farm and home practices.⁶³ The result of this study shows that farmers go to extension office for the purpose of getting some inputs. It can be concluded that the degree or extent to which rural farmers are exposed to extension activities through contact by extension staff, personal visits to office and or on farm largely influences their adoption behaviour. There is therefore a greater need to expose farmers to such activities that could bring them into focus with such extension activities in our effort to change farmers adoption practices.

Tobacco farmers it can be assumed felt their needs satisfied hence the reason why majority of them 96% as compared to 49% of foodcrop farmers reported making contact with the extension office or their staff in their area (Table 5). At any rate, what is being suggested is a need to "sell" extension service to the farmer. They must perceive something worth while before they could consider it necessary and worth the effort and sacrifice of their time. Of course if it is the extension officer who visits the farmer, there is no expenditure of time on the part of the farmer.

62. Lionberger, F.H. - Adoption of New Ideas and Practices (1960)
The Iowa State University Press, Ames Iowa p.12.

63. Wilson, M.C. and Gallup, Gladys : Op cit.

(b) Field Staff Exposure and Experience in Extension Work:

The Ministry of Agriculture staff as compared to the ~~GTC~~ staff indicated a more general objectives of their organization in the improvement of farmers practices. ~~GTC~~ field extension staff activities were therefore more tailored in line with such specific objectives as teaching farmers correct tobacco husbandry practices like topping and suckering, dry planting and curing procedures which were unique to tobacco production.

The ability of an extension agent to be able to reach his farmers with farm information with the least effort contributes a great deal to his inclination to disseminate information to his farmers. Findings in Table 9 show that the majority of G.T.C. staff were able to reach their farmers than their counterparts in the Ministry of Agriculture. This ability by G.T.C. staff to reach their farmers were contributed to largely by firstly, the fact that majority reported living closer to the farmers than those of the Ministry of Agriculture staff. Secondly, the G.T.C. staff it was noted had fewer farmers to handle than their Ministry of Agriculture counterparts. Thirdly, it was observed that most of the G.T.C. staff were mobile and had access to means of transport to work with. On the contrary, the Ministry of Agriculture staff is poorly equipped in reaching the large population of his farmers who live in remote areas.

The effectiveness of extension staff is enhanced by a manageable staff-farmer ratio which makes effective supervision of farmers possible. In an article from Span in 1969, about Kenya's agricultural extension services, it was found that Kenya's rapid agricultural development was made possible by the contribution of a very low extension staff-farmer ratio; one extension worker to 450 farmers as compared to 2,000 or more farmers to one extension staff in

other
many African countries. 64

Sofranko et al, found in 1974 that close supervision of tobacco farmers by G.T.C. staff was possible because of their low tobacco assistant-farmer ratio and the extensive orientation programme tobacco assistant had to undergo. 65

It must be emphasised that even though G.T.C. has made progress as a result of low staff-farmer ratio, it is considered that the ratio is too low and underutilizes the staff. Conversely, too high a ratio as existing in the Ministry of Agriculture overtaxes its staff and render them ineffective as extension agents. It is the writer's view that an attempt should be made by both organizations to bridge the ratio gap by finding a manageable and convenient staff-farmer size to avoid the present situation of either underutilizing staff or overtaxing them.

The staff of the Ministry of Agriculture in Table 10 indicated that they were not able to make frequent visits to their farmers and attributed their failure to the large number of farmers to supervise, confirming that they are overtaxed.

IV. FARMERS SOURCE(S) OF FARM INFORMATION

Data in Table 11 show a high percentage of food crop farmers reported that (use of) radio is a major source of farm information than tobacco farmers.

64. Gordon James : Agricultural Extension in 1960 Kenya. Extract from "SPAN" Vol.12 No.1 1969 in Legon Agric. News, Vol.3 No.1 1969.

65. Sofranko et al

Almost half of tobacco farmers reported seeking information by contacting their field staff. The next major source of farm information for foodcrop farmers apart from their field staff is through friends and their farming neighbours. On the whole radio followed by contact through extension staff, friends and neighbours in that order were the main sources of information to foodcrop farmers while contact through extension staff, radio and farmers meetings were the major source of information for tobacco farmers. No significant relationships were found between these information sources among the two extension organisations.

The high percentage of foodcrop farmers reporting the use of radio as a source of information is encouraging because the radio keeps them in tune with activities outside their locality and out of isolation with urban dwellers. This is probably the only mass method of communication which the farmer may have access to or can afford to obtain. This is particularly true and necessary in view of the fact that field staff reported not being able to visit ^{frequently} their farmers who live in remote areas.

The reliance on tobacco staff by tobacco farmers for information seems to have been contributed to by the fact that field staff are easily available to the farmers as a result of the low staff - farmer ratio. It may be assumed that tobacco farmers appreciated the role their staff play as such have found them capable of giving them information both related and unrelated to the crop they grow. This statement seems to be corroborated by the high percentage of tobacco farmers (64%) who reported they discussed their farm problems with their tobacco field staff (Table 12).

Though the percentage in the other categories of people whom farmers discuss their problems with were low, it is interesting to note that again about 17% of the foodcrop farmers and 10% of tobacco farmers said they consult friends and relatives with their farming problems while 14% of foodcrop farmers and 18% of tobacco farmers said they do not consult anybody about their problems. It is possible the latter group did not feel the need to discuss their problems or that they simply felt they were capable of solving their own problems.

Farmers meetings were frequently held with the tobacco farmers by G.T.C. staff because it is a policy of the organization to have it every month whereas the Ministry of Agriculture does not insist on such a method, hence the less number of farmers meetings held by its staff.

V. TEACHING METHODS USED BY FIELD EXTENSION STAFF

Table 13 shows that field demonstration accounts for 23% and 25% of the teaching methods reported used by field extension staff of the Ministry of Agriculture and Ghana Tobacco Company respectively. Personal discussions through visits by extension staff was also used by 17% of the Ministry of Agriculture staff and 25% of G.T.C. staff. Group teaching method namely:- farmers meetings, group discussions etc., together contributed to 68% and 54% of the teaching methods used by the Ministry and G.T.C. staff respectively, while radio the only mass teaching method was mentioned by 17% and 23% of the Ministry of Agriculture and G.T.C. staff respectively.

Even though radio is reported here as being one of the teaching methods used, its usage is on national network rather than local. The other mass method, newspapers, TV etc. were not mentioned and this may be due to the fact that rural farmers do not have access to them. One disadvantage to the use of radio is that the method does not lend itself to a two-way communication and therefore the

individual farmer cannot relay his problems under the specific situations he or she operates for consideration and immediate solution. Its greatest advantage however is the awareness it creates by providing information of widespread interest.

Lionberger, wrote that a lot of research has been done to show that mass media, particularly radio, TV and newspapers are most useful as sources of initial information.⁶⁶ Savile, also observed that mass method of giving information is usually designed to create awareness and interest in new ideas among people.⁶⁷ Many of the farmers indicated that they took great interest in the Ghana Broadcasting Corporation (G.B.C.) radio farm programmes occasionally because they teach them about new farming methods and new ideas. It is felt that the potential of this awareness and interest creating teaching method is underutilized and farmers personally complained about the time factor as being too short. It must be emphasised here that however useful mass media is and for that matter radio as a potential source of teaching farmers about new methods of adoption, it should be recognised as an "aid" to the extension worker rather than as a prime mover of farmers to action.

Group teaching methods unlike mass method are especially effective in moving people from the interest stages to trial stages of accepting new ideas. When the reaction of the group is favourable, the majority of its members are most likely to proceed to the adoption stage. Both the Ministry of Agriculture and G.T.C. staff showed a high percentage of the use of farmers meetings. It was observed that agricultural shows are mostly used by the Ministry of Agriculture

66. Lionberger, F.H. : Op cit.

67. Savile, H.A. : Ibid.

staff and rarely used by G.T.C. staff as a teaching method. Farmers meeting according to G.T.C. staff are held at least monthly not only to brief farmers about the time to sow seedlings, to plant, to cultivate and to market produce, but also to find out whether farmers are doing the right practices and are learning to solve the problems they face in the adoption of those practices.

Unlike the mass teaching method, group teaching methods therefore give the farmers the chance to participate and get involved in debate, decision making and planning process, and is an effective means of exchanging ideas and stimulating other farmers to action.

Individual teaching method, represented by farm visits or personal contact and discussion has a low percentage usage by both the Ministry of Agriculture and G.T.C. staff (Table 14) as compared to group method. This method is instrumental in getting farmers to adopt new practices. The personal influence of the extension worker, his confidence in himself and the farmer are vital in securing co-operation and participation from the farmer. Despite its greatest advantage as a prime mover for action, the method is costly and time demanding especially when the means of reaching the farmer is lacking.

Table 14 shows that majority of fieldstaff from both the Ministry of Agriculture and Ghana Tobacco Company reportedly found individual teaching methods more applicable and suited to their area than group mass methods. This is very encouraging because it shows that both the staff and their organizations realise that to get new ideas to farmers, field staff should make personal contact with them. There should be a two-way communication for the exchange of ideas. Even though this is time consuming and uneconomical, it improves farmers confidence in extension staff and the effectiveness of the workers. The findings also show that individual teaching method through personal visits is a single most widely used

teaching method by the majority of the field staff. Field demonstration was reportedly also widely used by both organization to educate their farmers to the adoption of new practices.

In Table 15, field staff were asked to score for the effectiveness of the teaching methods they use. In scoring, the staff were asked to be guided by the following:- (1) The success of the method in influencing people to make a desired change or practice and (2) the amount of teaching efforts expended on the method. Findings show that visit by personal contact and call of staff scored highest among Ministry of Agricultural staff followed by field demonstration and farmers meetings. Tobacco field staff scored highest in field demonstration followed by personal visit or contact and farmers meetings. It appears both the Ministry of Agriculture and G.T.C. staff find personal contact and field demonstration the most effective means of teaching their farmers about farm innovation.

Radio broadcast which farmers considered their major source of farm information was not scored by extension staff as very applicable to their use in their locality. It may be assumed therefore that its actual influence or impact on farmers to make desired change in adoption might have been difficult for staff to access as compared with the other teaching methods simply because it only tends to create awareness and not move farmers to action as mentioned earlier.

It must be emphasized here that the total influence of a particular teaching method may be large because of the emphasis placed upon it in the extension teaching plan. Conversely, the total influence of a method may be relatively small owing to the little use made of it in the extension teaching plan. Although, there is no data on the amount of effort or time expended on the various teaching methods, the general impression by farmers is that the amount of time allocated to radio farm forum by G.B.C. is too short.

It was observed that farmers exposure to extension teaching invariably predisposes them to adoption of new practices. Table 16 shows that many food crop farmers reported having learnt the use of chemical fertilizers and insecticides in their farms as a result of being introduced to them by extension agents. Tobacco farmers also mentioned fertilizer application, and sucker control in tobacco as the major practices they have adopted and found very beneficial.

VI. FARMERS PERCEPTION OF EXTENSION WORKERS

Table 17 gives an indication of farmers perception of their field staff. The high percentage (43%) of foodcrop farmers indicating that their staff were not useful to them was discouraging. Dishonesty of field staff was mentioned by 28% of tobacco farmers. Only 16% of foodcrop farmers and 15% of tobacco farmers gave a good impression of their field staff. It seems there is a general farmers mistrust of extension staff in the two organisations particularly when it comes to the question or matters relating to money, either in purchasing produce or in the distribution of farm inputs and credit. Tobacco farmers complained of cheating by their fieldstaff though such allegations were denied by staff. This seems to confirm earlier studies by Nuhu on dishonesty among tobacco fieldstaff.

Foodcrop farmers on the other hand complained about their fieldstaff cheating and diversion of inputs meant for farmers into private hands and favourites of the staff thereby denying farmers of the much needed inputs which they were compelled to buy at prohibitive prices. Such mistrust reduces the credibility of extension staff and expose them to severe criticisms. Attempt should therefore be made to minimize such mistrust and steps taken to revive farmers confidence in extension staff.

Although farmers had misgivings about their extension staff, over half of them (both foodcrop and tobacco farmers) felt that extension education has contributed a lot to the improvement of farmers performances (Table 18). While 31% of foodcrop farmers and 36% of tobacco farmers felt extension education has not done much for the farmer. However, a high percentage of foodcrop farmers (82.4%) as compared to 16% of tobacco farmers indicated that visit paid to them by their extension staff were not adequate.

The mere fact that farmers remarked that visits were not adequate shows that most of them regard frequent contact with fieldstaff and attending extension calls as very important. However they reliased that these calls and contacts with extension staff from experience should be more frequent if they are to produce positive impact on them. They seem very disappointed at the irregular and at times no visit paid by their extension staff particularly at the time when they are most needed. As much as 62% of foodcrop farmers felt their staff were not doing their best as compared to 24% of tobacco farmers. Majority of tobacco farmers 72% were satisfied with their fieldstaff performances while 64% of the foodcrop farmers reported being dissatisfied with their staff performances on their job. Work by some researchers showed that farmers were able to assess the impact of extension visits on their performances. For example, Victorio noted that farmers cited ignorance of farm technology because of the fact that extension workers did not visit them as a result they were dissatisfied with their production.⁶⁸ Again Castello⁶⁹ showed that there was a significant positive relationship between contact with extension worker and adoption of recommended rice practices in

68. Victorio, P.R.: A study on the Selda System, MAT thesis (econ.) Notre Dame University 1971 in All in a Grain of Rice by Castello G. 19

69. Castello, G. : Op cit.

Philippines and that rice farmers attributed the decline of their yields to the absence of technicians (extension agents) and lack of production inputs.⁷⁰

The conclusion that can be drawn from the finding in Table 18 is that in the opinion of the farmers, tobacco fieldstaff can be said to be performing their duties better than their counterparts in the Ministry of Agriculture. There is evidence to support that this better performance on the part of G.T.C. staff seems to have been enhanced by the timely regular and adequate provision of the necessary inputs and also by better supervisory work and not by the fact that the tobacco fieldstaff are superior in intelligence than their counterparts. When supervision is lacking most fieldstaff relax. As Sofranko et al noted, closer supervision of G.T.C. staff and the provision of facilities make them more effective.

VII. FACTORS AND PROBLEMS LIMITING EXTENSION WORK

When staff were asked about problems limiting their extension work, Tobacco fieldstaff indicated that lack of tractors to plough their farmers fields and farm labour were the major problems they perceive to be preventing their farmers to increase production. The Ministry of Agriculture staff on the other hand, mentioned in addition to tractors the unavailability of farm inputs and credit as the main(perceived)limiting factor to increase their farmers production (Table 19). These items mentioned by the staff were emphasised by the farmers when they were asked to indicate the problems or factors that prevent them from working effectively. Other items or factors mentioned to a lesser degree by the farmers particularly tobacco farmers were land acquisition and unattractiveness of producer price (Table 20).

70. Sofranko, A.J. el al

Tobacco Farmers it was observed did not consider farm inputs like fertilizers, insecticides and credit as problems limiting their productivity. A close look at the operation of G.T.C. revealed that these problems have been anticipated and taken care of in that they are supplied to the tobacco farmers at the right time and in sufficient quantities. With respect to lack of tractors and farm labour, it was noted that lack of spare parts and the general scarcity of labour force on the market were the reasons for the deteriorating situation. Even in this respect, the G.T.C. authorities try as a help to farmers to hire private tractors and labour for their farmers so that the cost is settled from the proceeds of tobacco sales. Thus G.T.C. authorities for a long time have made it a policy that their farmers are provided with the necessary requirements that make the adoption of new improved methods necessary. This supports Sofranko et al claim that most of the traditional bottlenecks to increase production have been anticipated and minimised by the Ghana Tobacco Company Limited.⁷¹

On the contrary, it was observed that with the exception of supply of fertilizer and chemicals, by the extension department of the Ministry of Agriculture, the foodcrop farmers have to make their own individual efforts without the extension department's help in procuring, tractors, farm labour, other farm inputs and farm credit. While it is not being advocated here that farmers should be spoon fed (as the attitude of G.T.C. may seem to create) it must be emphasised that farmers have to be given some incentives and breathing space in their effort to adopt new technologies which in some instances are beyond their means. The risks involved in farming require that farmers should be motivated to increase production and one such motivating factor is giving farmers some incentive such as

71. Sofranko, A.J. et al Ibid.

providing them with the much needed inputs and soft credits.

Foodcrop farmers complained of insufficient and cumbersome procedure in obtaining farm credit. There were complaints that farmers had to bribe their way before loans could be issued to them. This complaint should be given serious attention as it poses a big problem to farmers. Of course the question of credit to farmers much as is stimulating and important must be approached with caution. Most banking institutions when personally confronted with the issue as to farmers complaint of not being given enough credit at the right time mentioned farmers refusal to repay loans as a bottleneck to future loans being issued to other farmers. G.T.C. authorities claim they had to write off huge farmers loans as "bad debt" because farmers failed to repay the loans. This confirms the reason why banks are very reluctant to give out loans to farmers.

In the writer's opinion, credit is essential to farmers development and expansion of their farms and it should be worked to fit into the extension activities and must be easy to obtain without one having to bribe a bank official. It is the opinion of the writer that giving farmers credit without showing them how to make effective use of it, ensuring adequate utilization of farm labour and extension staff or loan officers failing to make follow-up often result in misuse of the loans, over indebtedness to the farmer and huge losses to the credit institutions. It is therefore suggested that farmers must be educated on effective utilization of credit.

In an interview with fieldstaff about problems they face, both the Ministry of Agriculture and G.T.C. fieldstaff listed among other things, lack of inputs, and machinery (Table 21) to their farmers, poor service conditions, lack of means

of transport and too frequent transfers (in the case of G.T.C. staff) as their major problems. The nature of agricultural extension requires that staff should be mobile to be able to reach farmers in remote areas. It is therefore imperative that extension staff should be mobile. Service conditions should be critically examined and complaints of cancellations of transport allowance to extension officers (or management) should be given a critical look. Extension staff should be made satisfied in their job by providing them with the tools and materials of the right kind to work with. It is the writer's view that no matter how efficient an agent is, his effort will come to nothing if he is (left to rot and) not given the adequate tools and incentives to make him do his job effectively.

CHAPTER VISUMMARY. CONCLUSIONS AND RECOMMENDATIONSSUMMARY:

This study attempted to examine and compare the effectiveness of the extension delivery systems and teaching methods of two organizations, namely:- the Ministry of Agriculture (a government controlled agency) and the Ghana Tobacco Company Limited (a private production agency), that are made available to their farmers. It also tried to study the extension staff of the organizations approach and attitude to work and their problems.

Data were collected from respondents in seven areas. The first being personal, educational and professional characteristics of the two sample groups farmers and staff. The second, farmers exposure to extension services. The third section was field staff exposure to and experiences in extension work. The fourth section of investigation was concerned with farmers source(s) of farm information. Fifth was Extension teaching methods being used by field staff. Sixth was farmers perception of extension workers and lastly, factors and problems limiting extension work in the organizations.

It was anticipated that this study might provide some insight into farmers responses to extension work in the organizations concerned and the constraints to the provision of effective extension education to the farmers as viewed by both the farmers themselves and the field extension staff whose responsibility it is to educate farmers. It was also hoped that the study would lay a foundation for subsequent research in the area.

HYPOTHESIS TESTED

The general hypothesis tested was:

There is no significant difference in the extension delivery method used by the Ministry of Agriculture for its foodcrop farmers and that of Ghana Tobacco Company Limited for its primarily tobacco farmers. The main hypothesis had sub-hypothesis and these were examined individually in the analysis.

DATA COLLECTION AND ANALYSIS

Data for this study were obtained from personal interview with 51 foodcrop and 25 tobacco farmers and 17 extension staff of the two organizations in Wenchi and Ejura districts from Mid-October to early November in 1980.

Analysis of the data was limited to frequency percentage distribution for simplicity and clarity. Cross tabulation were also used and chi-square test applied where appropriate to determine the existence or non-existence of relationships between variables.

SUMMARY OF FINDINGS

I. PERSONAL, EDUCATIONAL AND PROFESSIONAL CHARACTERISTICS OF FARMERS:

The study revealed that tobacco and foodcrop farmers interviewed were younger than the normal average of farmers particularly cocoa and co-operative farmers, with tobacco farmers being younger than the foodcrop farmers. Age is viewed as a negative factor in farming. More men than women were engaged in tobacco and foodcrop farming. Foodcrop farmers it was revealed had more children/family than their tobacco farmers and this serves as a security against farm labour.

Educational attainment of tobacco farmers was higher than foodcrop farmers and since tobacco farmers were younger than their foodcrop farmers, it may imply

that young people are more inclined to have formal education than older ones. It is believed that the higher educational attainment of tobacco farmers coupled with youthfulness influenced their adoption behaviour than their foodcrop counterparts.

II. EDUCATION AND PROFESSIONAL EXPERIENCES OF FIELD STAFF

Findings revealed that the Ministry of Agriculture extension staff have more broader training in agriculture than G.T.C. staff. However it was observed that G.T.C. staff were given intensive drill on the job to make up for formal agricultural education lost in agricultural college and or institute.

Majority of Ministry of Agriculture staff had longer years of engagement than their G.T.C. counterparts. There were much frequent transfers of G.T.C. fieldstaff. It was observed that this was done intentionally by G.T.C. authorities to get or expose their staff to problem identification and solution in other growing areas. However this probably good intention on the part of the authorities is detested by the staff who complained that it disrupted their family and children education. On the other hand it was noted that less frequent transfers of the Ministry of Agriculture staff give way to too much familiarity and laxity on the part of the staff.

III. RESPONDENTS EXPOSURE TO EXTENSION ACTIVITIES

(a) Farmers:

It was found that tobacco farmers visited or made contact more often with their extension staff than their food crop counterparts. Visit to the tobacco office to be registered, collection of farm inputs and production materials, and occasional general farmers meetings, might have been the main contributing factors that brought tobacco farmers more often in touch with their extension staff.

It was found that most food crop farmers also went to their extension office mainly to purchase farm input specifically fertilizers and since they were not available most of the time, they found it unnecessary and waste of time to pay frequent visit there. Above all majority of them reported that their contact with their extension staff have not been useful since they were rarely visited by the staff.

It was concluded that frequency of visit to farmers and the degree of their exposure to extension activities largely influenced their adoption behaviour. Furthermore, tobacco farmers very often had their needs and wants satisfied hence the reason why more visits to the extension office were made unlike their food crop counterparts.

(b) Field Staff:

Ghana Tobacco Company staff reported being able to reach their farmers more than the ministry of agriculture staff. This it was observed was possible because of the fact that G.T.C. staff lived closer to their farmers, had fewer farmers than their counterparts in the Ministry of Agriculture to attend to and to and were better provided with means of transport to run their work. In other words, there was a lower staff-farmer ratio in G.T.C, than in the Ministry of Agriculture. As much as this is good for G.T.C, in their supervision work, it was thought the G.T.C. staff were underutilized while the Ministry of Agriculture present too high staff-farmer ratio overtax their staff.

It was suggested by the author that a convenient and manageable staff-farmer ratio should be found to avoid the extreme staff-farmer ratios the two organizations presently have to make effective and economic utilization of their fieldstaff possible. The findings also confirmed earlier research works that closer supervision of G.T.C. farmers by their staff was due to the low staff/farmer ratio.

IV. FARMERS SOURCES OF FARM INFORMATION

More foodcrop farmers reported radio as their major source of farm information while majority of tobacco farmers indicated contact with their staff as their chief source of information. Other sources of obtaining information by both foodcrop and tobacco farmers were through friends, neighbours and farmers meetings.

It was suggested that the use of radio, a major source of farm information to rural people should be encouraged especially where farmers have no access to other means of getting information.

Tobacco farmers reported also the frequent use of farmers meeting as a means of tapping farm information. This it was noted has been made possible through greater emphasis of use of farmers meeting as a teaching method by G.T.C. authorities.

It was found that majority of both G.T.C. and the Ministry of Agriculture staff used group teaching methods namely: demonstration, farmers meetings and agricultural shows mainly in their educational instructions to their farmers. Individual teaching method by visits and personal contact was the single highly used teaching method by both groups of staff.

G.T.C. staff scored highly for the use of farmers meeting. There were significant differences between methods used among the two sample groups of staff. Radio though used extensively as a source of farmers information was not used as a teaching method by fieldstaff because it was found to be inaccessible to them. Majority of staff of both groups found group teaching methods more applicable and suitable than individual and mass methods. However majority of the Ministry of Agricultural staff felt they found personal contact more suitable as a teaching method followed by demonstration and farmers meeting. On the other hand, tobacco staff recorded demonstration more effective followed by individual contact by visits and farmers meetings.

It was concluded by the author that group teaching method particularly demonstration and farmers meetings should be intensified as it helps in reaching many people and the fact that it yields quicker results by stimulating many farmers to action.

V. FARMERS PERCEPTION OF EXTENSION STAFF

Farmers perception of extension staff was marked with mixed feelings. While tobacco farmers felt satisfied with their fieldstaff performances, they criticised them for their dishonesty and cheating. On the other hand, foodcrop farmers were dissatisfied with their staff's performances and complained about their staff cheating and diverting inputs to their favourites and friends. This attitude of staff it was observed tends to reduce farmers confidence in them. Majority of farmers appreciated the role extension education played in their education but regretted that it has not made much impact on them.

VI. FACTORS AND PROBLEMS LIMITING EXTENSION WORK

It was observed that majority of foodcrop farmers and their staff felt that lack of tractors, farm inputs, and credit were the major setback in increasing farmers productivity. Findings revealed that most of these setbacks have been anticipated by G.T.C. authorities and they have made some serious efforts to minimize them. Despite the effort made, the tractor and farm labour problems were still apparent. Foodcrop farmers in addition, complained of inadequate credit and the beaurocratic bottlenecks they had to surmount to secure farm loans.

Almost all the field staff of the two organisations listed lack of inputs, poor service conditions for staff, too frequent transfers, and lack of means of transport as major factor limiting their effectiveness in their job. It is suggested that the authorities critically look into these problems and try and

find solutions to them to enable extension staff put up their maximum.

CONCLUSION:

From the findings it was concluded that G.T.C. extension services to their farmers were more effective in terms of provision of production inputs and the extension teaching methods used than those of the Ministry of Agriculture.

The study revealed that foodcrop and tobacco farmers interviewed were younger than the average Ghanaian farmer particularly in comparison with cocoa farmers, with tobacco farmers being younger than food crop farmers. Tobacco farmers had higher educational attainment than their foodcrop farmers. Thus it was concluded that the higher educational attainment of tobacco farmers coupled with youthfulness might have influenced their adoption behaviour than their foodcrop members.

On educational and professional characteristics of their staff it was noted that G.T.C. staff received less formal training in basic agriculture education but seems to make up this loss in formal agricultural education through intensive on the job training offered by G.T.C. The Ministry of Agricultural staff it was noted stayed too long at their base station without transfer resulting in possible relaxed attitude to work. G.T.C. authorities in attempt to possibly prevent this and to get their staff to gain more experience from different locations, make too frequent transfers of their staff which greatly affects the staff's social and family set up.

The various activities tobacco farmers have to go through in the cultivation of tobacco such as registration of growers, debt and loan reschedules input requirement and supply allocation, marketing and buying procedures predispose them to making frequent visits to the extension office and more contact with extension activities than foodcrop farmers.

G.T.C. staff it was observed, performed better than their Ministry of Agriculture counterparts in terms of the ability to visit or reach their farmers with extension information and adoption practices. This situation seems to have been greatly enhanced by (1) G.T.C. low staff farmer ratio as compared to too high ratio of the ministry of agriculture. (2) G.T.C. staff are more mobile and (3) thirdly the fact that G.T.C. staff activities are regularly monitored than those of the Ministry of Agriculture staff. This finding confirms earlier work which showed that closer supervision of G.T.C. farmers by G.T.C. staff was due to the low staff-farmer ratio.

It was found that majority of foodcrop farmers used radio as their major source of farm information while tobacco farmers capitalising on the strong relationships and link with their fieldstaff used visits, personal contacts and farmers meetings as means of securing information. This has been made possible as a result of emphasis placed by G.T.C. authorities on these channels as effective teaching methods.

The study revealed that both G.T.C. and the Ministry of Agriculture use group teaching methods particularly, demonstrations, farmers meetings, agricultural shows as forms of educational instructions with their farmers. However, personal contact through individual staff visits was found to be highly used by G.T.C. staff. Significant difference was found between the teaching methods used.

Group teaching method was found most suitable and applicable to majority of both staff. While the Ministry of Agriculture staff found personal contact a more effective teaching method, G.T.C. staff recorded demonstration and farmers meetings as their most effective teaching methods.

Both groups of farmers it was noted realised the positive contribution extension played in their farming education and adoption of new practices, but were disappointed by the extension staff particularly those of the Ministry of Agriculture who they said had performed below their expectation. With respect to farmers perception of extension staff, tobacco farmers though satisfied with their staff performance, were strongly critical of staff dishonesty and cheating. Foodcrop farmers were however dissatisfied with their staff performances and criticised them for cheating and diversion of inputs to their favourites and friends.

Lack of tractors, unavailability of fertilizers, insecticides, cutlasses, and lack of and or insufficiency of farm credit were the major limiting factors to farmers increased productivity. Though most of these problems have been well taken care of by G.T.C. authorities on behalf of their farmers in such a way that the farmers are better placed and have less problems regarding inputs and credit supply.

Lack of transportation, poor service conditions, lack of inputs and lack of concern shown by their bosses to them were problems mentioned by staff as hampering their work, though tobacco staff it was found were better off than their counterparts.

Both organizations, it was observed were more concerned about the technical and economic benefits farmers can derive from extension services than on the social development of the farmer and his family. As a result, teaching methods and extension programmes designed were more service rather than educational oriented.

Undoubtedly, some credit for G.T.C. extension progress has been attributed to its staff-farmer contact with one staff serving less than 200 farmers compared with over 1,000 farmers by the Ministry of Agriculture staff, G.T.C. it seems has

concentrated on building a more effective extension staff than the Ministry of Agriculture.

However, it must be concluded that the main lesson of G.T.C. success story if we may call it so as the study shows is not the extension staff effectiveness alone. Agricultural extension has been shown to be successful only when other factors favour the rapid adoption of new improved technology. Having to deal with a monocrop like tobacco with its specialised techniques, the provision of inputs at the right time and the intergration of modern production systems like fertilizers, insecticides, weedicides, chemical for sucker control, effective marketing and pricing systems have in the writers view been the contributing factors.

RECOMMENDATIONS

The following recommendations based on the findings of the study were made:

1. There is an urgent need for staff to re-examine their responsibility and role to the farmer. Extension staff should make more effort to visit their farmers and educate them on the adoption of improved practices.

2. A convenient staff-farmer ratio that is aimed at making effective utilization of field staff and resources available should be found particularly in the Ministry of Agriculture where its farmers are widely scattered with just a few staff ill-equipped with means of reaching them.

3. Radio was found to be a potential source of information to farmers in remote areas and this great potential of creating awareness should be tapped. Other teaching methods like demonstration, farmers meeting and personal contacts should also be exploited to improve on farmers adoption behaviour. However radio should be used as an "aid" and not as a prime mover of people to action.

4. Group teaching methods should greatly be encouraged and improved upon as they help reach more people at a time and stimulate other people to action.

5. There is an urgent need for authorities to make effective supervision of extension staff a reality to keep staff on their toes.

6. The part credit and provision of mechanised services play in these farming areas is important. There is a need therefore to develop effective institutions to provide such services to farmers. These should provide positive inducement to the improvement of farm techniques.

7. It is also strongly recommended that a positive and serious effort should be made to get farm inputs like fertilizers, insecticides improved seeds, cutlasses to farmers at the right time and at reasonable prices for use. Inputs should never be allowed to be a constraint to farmers adoption or use of new practices.

8. It is recommended that field staff should be provided with the necessary tools with which they can perform their work effectively. One cannot see how extension staff can be expected to perform well when they lack means of transport to visit farmers and there is no interest shown by their bosses to improve their salary and condition of service.

9. It was observed by the author that tobacco farmers as well as other cashcrop farmers have been withdrawing from the growing of these crops in favour of foodcrops because the cash crops are heavily dependent on labour and modern farm inputs and that returns on some of these cash crops are not commensurate with the labour and effort put in by the farmers. On the other hand, the increasing urban population coupled with increasing demand for food for home consumption has made foodcrop farming more profitable in terms of cash returns.

It is therefore recommended by the author that to keep the tobacco and other cash crop industries running, attempt should be made by G.T.C. and the industries concerned to devise means of attracting farmers to their cultivation by providing more production incentives in these areas. The following incentives were therefore suggested and recommended:

(i) The tobacco and the other cash crop producing agencies should endeavour to plough for farmers' cash crop fields as well as their foodcrop ones so that farmers could continue to cultivate their foodcrop for home consumption and at the same time grow the cashcrops to feed the industries and to supplement their farming income.

(ii) Producer prices for cash crops should be made very attractive in comparison with those of foodcrops. Both the level and the dependability or stability of prices for farm products influence the degree to which they provide incentives to farmers to increase production.

(iii) Attractive and soft credits should be made available to cash crop farmers to induce them to grow cash crops.

(iv) Extension work in the cash crop cultivation should be reviewed and enhanced. This should aim at giving strong positive inducement to the improvement of farming techniques, farmers institutions and organization in the respective areas concerned and must be supported by the related agencies, and should be closely linked with such associated services as farmers co-operatives, marketing and agrarian reform programmes.

(v) Marketing of cash crops should be improved and made easier in such a way that spot cash payment are paid for products purchased and lastly

(vi) Farmers efforts should be recognized, appreciated and rewarded by both the organizations concerned and by the government and general public. Public recognition is never a substitute for economic incentives, but it can help to increase farmer's productivity.

B I B L I O G R A P H Y

1. Adomako, Albert. : "Agricultural Policy" Statement by Commissioner of Agriculture at 1968 Eastern Region Agricultural Show at Koforidua. Legon Agricultural News Vol.2 No.3, 1969.
2. Backstrom, G.H. and Hursh, G.D. : "Drawing the Sample". Survey Research Minneapolis 1963. North Western University Press.
3. Bortei-Doku, E. : "A Fresh Look at Traditional Small Scale Farmer". The Ghana Farmer - Vol.XVIII No.1
4. Castello, G.T. : "All in a grain of rice". South East Asian Regional Centre For Graduate Study and Research In Agriculture 1975.
5. Chang, C.W. : Increasing Food Production Through Education Research and Extension. (FAO) Rome 1963.
6. Defleur, M.L. : Theories of Mass Communication N.Y. David Macey Co. Inc. 1966.
7. Dobyynn, H.F. : "Elunders with Bolsas". A case study of Diffusion of Close Basin Agriculture. Human Organization 10.25.
8. Dumor, E.E.K. : "Development of Agricultural Extension". A search for Strategy. A paper delivered at International Seminar on Socio-economic Problems of Rural Development U.C.C., 1976.
9. Farquhar, R.N. : "Concept and Terminology in Agricultural Extension" - Agricultural Extension Manual (FAO) Rome (Ed.) By Maunder H.A. 1972.
10. Geker, J.K. : "A Study of Pre-service Professional Development needs for Agricultural Extension Officers In Ghana". (Unpublished Ph.D. thesis). Michigan State University 1976.
11. Gordon, James : "Agricultural Extension Policy in Ghana" Legon Agricultural News Vol.3 No.1 1969.
12. Gordon, James : "Agricultural Extension in 1960 Kenya". Extract from "SPAN" Vol.12 No.1 1969. Legon Agricultural News Vol.3 No.1

13. Gyekye, L.O. : "Co-operative as Instrument for Rural Development in Ghana". (Unpublished M.Sc. thesis) University of Ghana 1980.
14. Hansen, H.M. Hurwitz, W.N. and Madow, G.W. : Sample Survey Methods and Theory "Methods and Application" N.Y. Willey 1953.
15. Klansmeier, H.J. and Ripple, R.E. : Learning and Human Abilities N.Y. Harperd Row 1971.
16. Kimmerling, B. : "Subsistence Crop, Cash Crop and Urbanization Some material from Ghana, Uganda and the Ivory Coast. Rural Sociology Vol.36, No.4 1971.
17. Kuranchie, P.A. : "Modal Farm Plan for Tobacco Farmers in Ejura and Wenchi areas of Ghana" M.Sc. Dissertator University of Ghana, 1971.
18. Kwapong, A.A. : "Agricultural Education and Training Ghana - Legon Nov., 1970 Legon Agricultural News Vol.4 No.2 1973.
19. La Anyane, S. : Ghana Agriculture, Oxford Univ. Press 1963.
20. La Anyane, S. and Aful, E.N. : "A report on the Tobacco Industry in Ghana". (Unpublished report) Dept. of Agriculture, 1967.
21. Leagans, Paul : Extension Objectives USAID Extension Service..
22. Lionberger, F.H. : Adoption of New Ideas and Practices The Iowa State Univ. Press Anes, Iowa 1960.
23. Lynn, C.W. : Agricultural Extension and Advisory Work with Special Reference to the Colonies (London) H.M. Stanoner Office.
24. Maunder, H.A. : (Ed.) Agricultural Extension Reference Manual (FAO) Rome 1972.
25. Moser, C.A. and Kalton, G. : "Methods of Collecting the Information" III Interviewing. Survey Methods In Social Investigations 2nd Ed. Basic Books Inc. N.Y. 1972.
26. Nuhu, D.A. : "Factors Affecting Adoption of Innovation of Tobacco Farmers in Ejura Area. (Unpublished M.Sc. Thesis) University of Ghana, Legon 1976.

27. Okali, O., Gyekye, L.O. and Mahey, S. : "Report on Socio-Economic Characteristics of the Ashanti Cocoa Rehabilitation Project Area. ISSER Legon 1974.
28. Renders, J.M.A. : (Ed.) Methods and Programme Planning in Rural Extension. Wageningen H. Veenman and Zonen 1956.
29. Steenburgh, Nancy V. : An Evaluation of the National Diploma In Agriculture and Animal Health Programmes Given at the University of Ghana. M.Sc. Thesis - University of Guelph 1975.
30. Sofranko, J.A. Frederick C. Fliegel and Fletcher, W.R.: Agricultural Modernization Strategy among Ghanaian Farmers Technology and Culture (Ed.). Bernard Karsh.
31. Watson, M.O. and Mends, H. : A Study of Organization, Manpower Development and Training of the Ministry of Agriculture, Accra - Ministry of Agriculture 1973.
32. Wilson, M.C. and Gallup Gladys : "Extension Teaching Methods". U.S. Dept. of Agriculture Extension Service Circular 495 May 1954.
33. Victorio, P.R. : "A Study of the Selda System. MAT Thesis in Economics. Notre Dame University 1971.

APPENDIX AINTERVIEW OF CASH CROP FARMERS IN WENCHI
AND EJURA AREASINTRODUCTION

Dear Farmer, I am talking to farmers in this village and many parts of the country. We are conducting a study to find out what you and other farmers know about Agricultural Extension Services, their involvement in agricultural extension work and how they are benefiting from the services rendered by agricultural extension organizations in the country.

We have picked you because we are particularly interested in (Tobacco, Yam, Maize, Groundnuts, Cotton, Garden Eggs etc.) farmers. And want to find out how we can best assist you and others in your farming work.

Rest assured that your answers will not, under any circumstances be given to anyone. Your replies will be held in strict confidence. What I do need is your help on the questionnaire. Above all, I would be grateful if you will be frank and give careful thought to the questions I will ask you.

Thank you.

DEMOGRAPHIC DATA

1. What is your age?
 1. Less than 20 years
 2. Between 20 - 30 years
 3. Between 31 - 40 years
 4. Between 41 - 50 years
 5. Over 50 years.
2. What was the highest class you reached at School?
 1. Had no schooling
 2. Attended mass education
 3. Elementary School Class 1 - 3
 4. Middle School Standard 1 - 7
 5. Teacher Training
 6. Secondary School
 7. Technical College
 8. Post-Sec.
 9. Others (Specify)
3. Sex: Male () Female ()
4. Marital Status: Married () Single () Divorced ()
5. If Married No. of Children :
6. If Married No. of Wives :
7. Religion:

CASH CROP FARMERS EXPOSURE TO AGRIC. EXTENSION

8. What is your principal crop you grow for sale?
 1. Maize ()
 2. Yam ()
 3. Cassava ()
 4. Groundnuts ()
 5. Garden Eggs ()
 6. Tobacco ()
 7. Tomatoes ()
 8. Fibre ()
 9. Cotton ()
9. What is your average acreage of this crop you grow yearly:
10. What other crops do you grow in addition to your principal crop:
Please list them with acreage, 1, 2, 3.

11. Comparing the growing of crops in your area in terms of labour, Income returns, and work involved which of the crops mentioned in '8' do you consider profitable. Please rank them.
- | | | |
|----------------|--------------------|-----------------|
| 1. Maize () | 4. Groundnuts () | 7. Tomatoes () |
| 2. Yam () | 5. Garden Eggs () | 8. Fibre () |
| 3. Cassava () | 6. Tobacco () | 9. Cotton () |
| | | 10. Cocoa () |
12. Rank order 3 most difficult crops to grow: 1. 2. 3.
13. Rank other 3 easiest crops to grow: 1. 2. 3.
14. (a) Do you know of the Agric. Extension Office of Ministry of Agric/
Ghana Tobacco Company Office in your district: Yes No
- (b) Which of these two Extension offices are you more associated with?
- (c) How far is, the one you are associated with from your village?
- (d) Have you been in touch with this office or its staff this year
Yes No
15. How many farmers to you supervise?
16. What specific work have you been involved with your farmers this season?
17. Are you staying in the same village with your farmers or you have to travel to reach majority of them?
1. Majority in town where I stay
 2. Majority outside town where I stay.
18. How do you reach those (majority) farmers outside where you stay with information?
19. Is it possible to reach all your farmers?
1. All reached
 2. Majority reached
 3. Few reached
20. How many times a farming season do you visit each farmer?
21. Is this adequate enough?
22. If no what makes it impossible for you to make frequent visits?
23. Effective Extension work rest on adequate planning and execution.
- (a) Do you participate in the planning of your local or district Extension Programmes? 1. Yes 2. No
- (b) Who make the major decisions in your local extension office?

(a) Do you think planning at the local level takes into account the interest and needs of the farmers?

24. Is it necessary that people providing leadership in agricultural extension programmes should be specialists.
25. Many extension agents use different methods in communicating ideas to farmers. Could you please tell me which of the methods below you have been using in your locality: By ticking ()
1. Teaching through local farmers meeting
 2. Field demonstrations
 3. Group discussion
 4. Radio Broadcasts
 5. Film shows
 6. Bulletins and Agric. Newsletters
 7. Agricultural Shows
 8. Personal discussions during visits with individual farmers
 9. Others specify.

26. Which of these methods in 27 have you found to be applicable to your area and are considered effective. List them in order of (a) Applicability (b) Effectiveness

<u>Applicability</u>	<u>Effectiveness</u>
1.	1.
2.	2.
3.	3.

27. Have you made any attempt to try some of the advice(s) or informations you obtain about the crops you grow in your farm Yes No
28. If Yes, which advice or practice did you try?
29. Are you still practicing it (them) in your farm work?
30. Are you satisfied with the results you get?
- | | |
|-------------------|------------------|
| 1. Very satisfied | 3. Not satisfied |
| 2. Satisfied | 4. Not certain |
31. Have you tried to discuss your farm problems with Agric. Extension workers or people you think can help you solve them?
- | | |
|-----|----|
| Yes | No |
|-----|----|

32. Which of those people do you discuss your farm problems with?
1. Agric. Extension workers
 2. Farm friends and neighbours
 3. Members of Crop Association
 4. Relatives
 5. Bank Officials
 6. Other specify
33. If a farmer wants to try a new seed or fertilizer, it will be better for him to see the advice of an Agric. Extension Officer/Expert than for him to rely on his own discretion. Please tick (x) which you think is in line with your view:
1. Strongly agree ()
 2. Agree ()
 3. Not sure ()
 4. Disagree ()
 5. Strongly disagree ()
34. What are some of the new things you have learnt through the help of Agric. Extension workers which have helped you in your farming?
35. Listed below are some of the factors farmers take into consideration before they decide to try a new practice. Please rank them in order of importance to you:
1. Whether the new practice will bring in more income
 2. Whether my family will support me in doing it
 3. Whether it is easier than old practice
 4. Whether it will have money and resources to do it
 5. Others specify
36. Do you think that Extension teaching by Extension Services have contributed to help farmers improve on their methods of growing Tobacco, Maize, Garden Eggs and other crops:
- | | | |
|-----|----|------------|
| Yes | No | Can't tell |
|-----|----|------------|
37. How has Agric. Extension helped you to change your old ways of farming? Please explain.
38. We need more literate people to go into farming now because farming is becoming more scientific and complex than before? Please say whether you agree to this view or not:
1. Strongly agree
 2. Agree
 3. Not sure
 4. Disagree
 5. Strongly disagree
39. If somebody works in a farm and makes a good income, it is better than working in a factory or office?
- (a)
1. Strongly agree
 2. Agree
 3. Not sure
 4. Disagree
 5. Strongly disagree
- (b) Please explain in brief why you answer so in 39.

40. People say that the rural youth are leaving the villages and farming work to seek employment in the cities, leaving only the old people to farm and causing food production to decline. Do you agree or disagree to this?
41. What in your view is the cause of this exodus of rural youth to the cities?
42. Do you think it is going to affect farming in future? Yes No
43. How? Please explain in detail.

FARMERS PERCEPTION OF EXTENSION WORKERS

44. What is it that you like about your extension officer (TA/TO)?
45. Is the presence of Extension staff helpful to you?
46. How often are you visited by your extension staff?
1. Very Often 2. Quite Often 3. Not at all
47. In your opinion is your extension staff (TA/TO) doing his best to help his farmers?
1. Doing his best 2. Is not doing much 3. I don't know
48. What qualities listed below do you expect of your extension staff (TA/TO)? Please rank them in order of importance to you:
1. Honesty 5. Practical man
2. Confidence 6. Initiative
3. Knowledgeable & Competence 7. Pay regular visits to know farmers problems
4. Respectful
49. What is your opinion about the authorities your local TA/TO reports your problems to? Do you think they are:
(a) Co-operative and Helpful (d) Do not care about farmers problems
(b) Unreasonable (e) Do care about farmers but find it difficult to help them.
(c) Understand farmers problems
50. (a) Have you been visited by your local TA/TO's boss from Accra, Kumasi or Sunyani this year? 1. Yes 2. No 3. I can't remember.
(b) If yes how many times? 1. Once 2. Twice 3. Thrice or more.
51. Is it necessary that he visits you and your extension staff TA/TO at times?
1. Yes 2. No 3. Don't know
(b) Why?

52. For farmers to be able to produce more food, and cash crops, they need the supply of farm inputs. Which following organisation (a) The Government (b) Ministry of Agriculture (c) Ghana Tobacco Company Limited (d) Farmers Co-operative Societies (e) Individual farmers (f) The Commercial Banks. Do you think should be responsible for the supply of the following inputs?

<u>Item</u>	<u>Organization</u>
1. Fertilizer	
2. Cutlasses & Hoes	
3. Tractors	
4. Credit	
5. Seed	
6. Land	
7. Labour	
8. Transport	
9. Others, Specify	

53. Please rank the items below which you find very difficult to obtain in your farming operations:

1. Seed	6. Land
2. Fertilizer	7. Tractor
3. Farm Labour	8. Market for produce
4. Cutlass	9. Transportation
5. Loans	10. Good price for commodity.

APPENDIX BINTERVIEW OF EXTENSION STAFF OF THE MINISTRY OF AGRICULTURE
AND GHANA TOBACCO COMPANY LIMITEDINTRODUCTION

Dear Staff, I am talking to field extension staff, TA, TO, STO/STA etc. of both the Ministry of Agriculture and the Ghana Tobacco Company Limited in this area and other parts of the country who are involved in extension work with farmers. I want to conduct a study to find out how they go about their work as Agricultural Extension Officers with farmers, the problems they are encountering in their work and in the field.

It is our hope that the outcome of this research will help us to know more about what actually is going on in the field and will help the authorities in the planning of future extension programmes.

Rest assured that your answers will not under any circumstances be revealed to anyone. Your replies will be held in strict confidence. What we need is your help in the interview. Above all, I shall be grateful if you will be frank and give careful thought to the questions you will be asked before answering them.

Thank you.

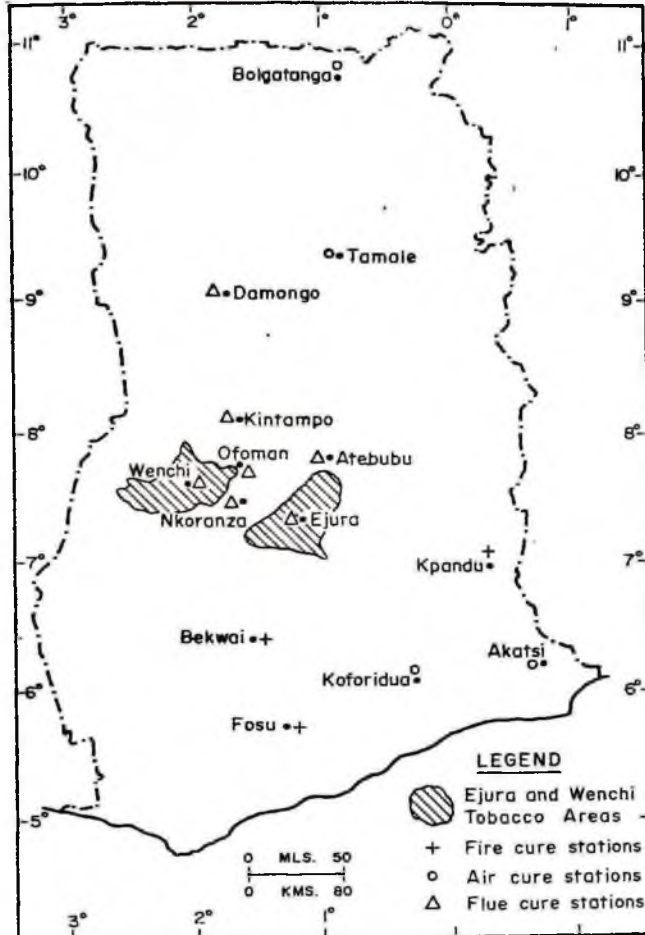
EXTENSION STAFF QUESTIONNAIREDEMOGRAPHIC RECORDS

1. Age
2. Sex: Male () Female ()
3. Marital Status: Married () Single ()
4. Department or Organization Employed
5. Rank:
6. Standard of Education attained before becoming an extension staff.
7. Agricultural College/Farm Institute etc. attended with period of attendance
8. How long have you been engaged as an extension worker.
9. How long have you been in your present station
10. Have you been engaged in any extension programme with the farmers in your area? Please specify the particular programme:
11. Now can you tell me what Agricultural extension is all about.
12. What is the objective of your organization?
13. Do you think these objective(s) is (are) being actively achieved?
14. If yes, what indicators have you to show?
15. If no, Why?
16. What are the problems you are encountering in your work as a field Extension worker? Please list them:
17. How many farmers do you supervise?
18. What specific work have you been involved with your farmers this season?
19. Are you staying in the same village with your farmers or you have to travel to reach majority of them?
20. How do you reach those (majority) farmers outside where you stay with information?
21. Is it possible to reach all your farmers? 1. All reached
2. Majority reached 3. Few reached
22. How many times a farming season do you visit each farmer?
23. Is this adequate enough?
24. If no what makes it impossible for you to make frequent visits?
25. Effective Extension work rest on adequate planning and extension:
 - (a) Do you participate in the planning of your local or district extension programmes? 1. Yes 2. No
 - (b) Who make the major decisions in your local extension office
 - (c) Do you think planning at the local level takes into account the interest and needs of the farmers?
 - (d) If yes, how can you tell?

26. Is it necessary that people providing leadership in agricultural extension programmes should be specialists?
27. Many extension agents use different methods in communicating ideas to farmers. Could you please tell me which of the methods below you have been using in your locality: By ticking ()
1. Teaching through local farmers meeting
 2. Field demonstrations
 3. Group discussion
 4. Radio Broadcasts
 5. Film Shows
 6. Agricultural Shows
 7. Personal discussions during visits with individual farmers
 8. Others specify.
28. Which of these methods in 27 have you found to be applicable to your area and are considered effective. List them in order of (a) Applicability (b) Effectiveness
- | <u>Applicability</u> | <u>Effectiveness</u> |
|----------------------|----------------------|
| 1. | 1. |
| 2. | 2. |
| 3. | 3. |
29. How do you get to know about your farmers problems?
30. What factors do you take into consideration in selecting extension teaching methods by which agricultural ideas are communicated to your farmers?
31. Good extension education requires a thorough understanding of the people to be taught. Do you agree or disagree?
1. Strongly agree
 2. Agree
 3. Not sure
 4. Disagree
 5. Strongly disagree
32. What do you consider to be your farmers most important and pressing needs?
33. Which is easy: (a) Teaching farmers through the help of their local leaders (b) Teaching individual farmers
34. Why? Please explain your answer:
35. Which of these barriers to change (obstacles to accepting of new ideas) do you find as the greatest problem in your area?
1. Cultural and Traditional barriers
 2. Illiteracy and Education barriers
 3. Religious barriers
 4. Language barrier
 5. Others please specify.

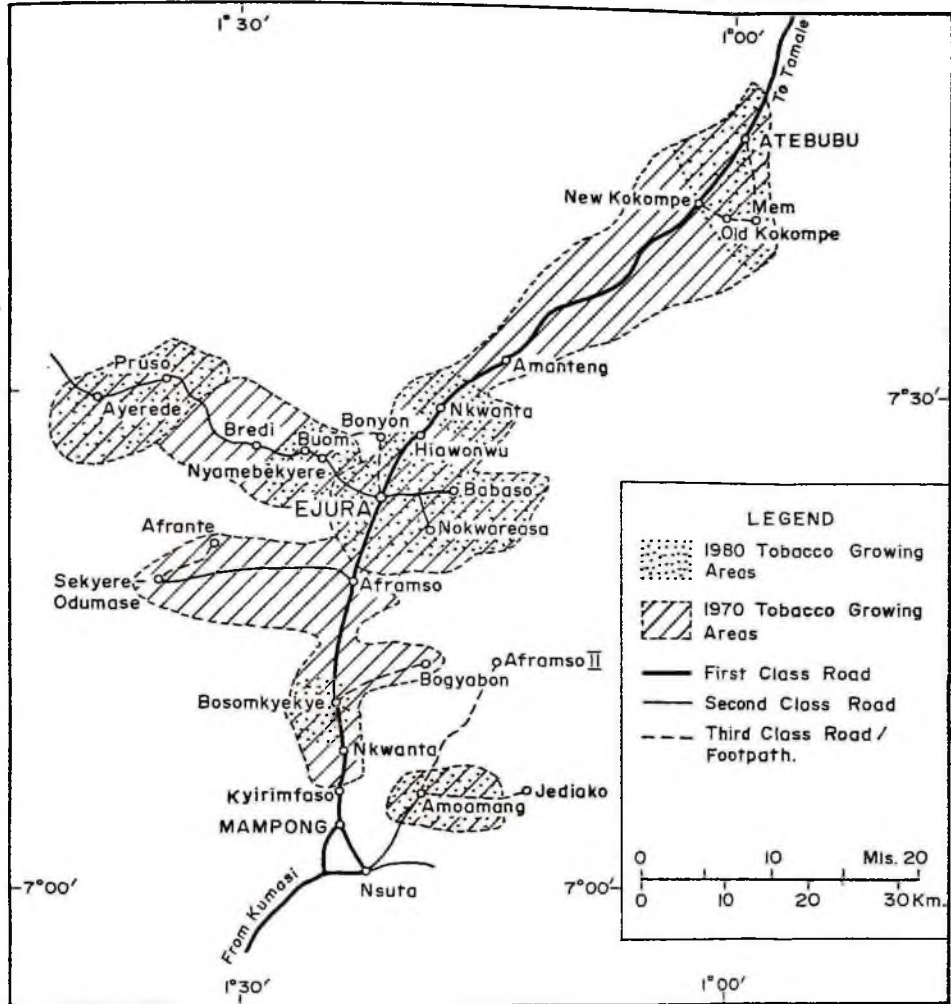
36. Do you have any farmers crop association or co-operative in your area?
- Can you tell me specifically what they do?
 - Are you involved in its running?
 - Do you think they are helpful to the farmers
37. Which of these leadership qualities do you feel are important requirement to a good extension worker. Please rank the 3 most important of them:
1. Knowledgeable in subject matter
 2. Interest and desire to help farmers
 3. Initiative of extension officer
 4. Good organizing ability
 5. Hard work
 6. Problem solving ability
 7. Others specify
38. How I want to talk to you on your job as an Extension worker.
- Please tell me whether you are satisfied with the job you are doing presently
 - Do you intend to continue this occupation or you want to change it: 1. Continue 2. Change it 3. Uncertain
 - Why do you want to change
 - If you want to change what work do you intend to switch to
39. (a) Do you think it is necessary to have a higher education like a University Diploma or Degree to be a good extension worker?
- Why do you think so?
 - At this stage of your career would you like to have any additional education or training in extension?
 1. Yes
 2. No
 3. Don't know
 - Have you attended any training or refresher course since you joined your present employers? Yes No
 - If yes, have you found it/them helpful? Yes No
40. Do you feel there are opportunities in your present job to develop yourself as an extension worker?
41. Farmers complained that extension staff spend their time in their own farms/business instead of supervising farmers. Is this allegation valid?
1. Valid
 2. Not Valid
 3. Sometimes Valid
 4. Do not know
- Farmers complain that extension staff compete with them for the supply of inputs like seed, fertilizers and labour. Is this true or not? 1. True 2. Not true 3. Sometimes true 4. Do not know.
42. (a) How often do your extension boss from Kumasi, Sunyani or Accra visit your area in a year? 1. Once 2. Twice 3. Thrice or more
- Do you think it is necessary that your boss should visit your area?
43. What are the problems you face in your work? Please list them:
- 1.
 - 2.
 - 3.
 - 4.

APPENDIX C
TOBACCO STATIONS IN GHANA, 1977



Source: G.T.C. Head Office, Accra.

APPENDIX D EJURA TOBACCO GROWING AREA



APPENDIX E WENCHI TOBACCO GROWING AREA

