

AN IMPACT ASSESSMENT OF THE AGRICULTURAL EXTENSION
SERVICES TO FARMERS; A CASE STUDY OF DANGME WEST
DISTRICT, GHANA

RESERVE

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ABSTRACT

Agriculture is the backbone of Ghana and about half of the country's population are classified as farming population. It is therefore necessary to put a lot of effort in developing this sector to the optimum so as to benefit the farming population and the country as a whole. Efforts have been made to provide credit to farmers, marketing facilities and any other assistance that has been deemed appropriate. It should however be noted that without adequate know how of combining and managing the various factors of production (land, labour, capital) there will not be much improvement in agricultural production. This necessitates educating the farming population on better farming methods so as to achieve the best out of the available resources. Research institutions and extension services are charged with this task. The objective of this study was to assess the impact of the Agricultural extension service in the district.

Data was collected from both secondary and primary sources. Secondary sources included mainly library research and primary sources involved administering questionnaires to farmers and extension workers in the district. Guided interviews were conducted with key persons at the District Agricultural office and the Department of extension services.

The Questionnaires and Interviews were aimed at finding out the activities of the Agricultural extension services, the problems being faced and effectiveness as viewed by both

farmers and extension personnel.

The major finding was that although effort has been made by the extension personnel to do a good job, the majority of the farmers are not receiving extension services. Inadequate transport facilities and absence of a conducive socio-economic framework for extension workers were identified as major causes of inefficiency of the Agricultural extension services. Other findings are also given in the report.

Based on these findings, recommendations are offered for improving these services in the district and in the country as a whole. The major recommendations are based on improvement of supervision, mobility and morale of extension workers. In order to sensitise farmers and make them more receptive to innovations, community development activities and formation of local organisations have been recommended.

TABLE OF CONTENTS

	Page
TITLE PAGE.. .. .	i
ACKNOWLEDGEMENT .. .	ii
ABSTRACT.....	iii
TABLE OF CONTENTS .. .	iv
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
LIST OF MAPS.....	xii
CHAPTER ONE.....	1
1.1 GENERAL INTRODUCTION.....	1
1.2 STATEMENT OF THE PROBLEM.....	4
1.3 OBJECTIVES OF THE STUDY.....	6
1.4 SIGNIFICANCE OF THE STUDY.....	7
1.5 SCOPE OF THE STUDY .. .	8
1.6 RESEARCH METHODOLOGY.....	8
1.6.1 Data Collection.....	8
1.6.2 Sampling Techniques.....	9
1.7 ORGANISATION OF THE STUDY.....	
CHAPTER TWO.....	11
CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW.	
2.1 THE HISTORY OF AGRICULTURAL EXTENSION SERVICES.....	11
2.2 CONCEPT AND LITERATURE REVIEW.....	12
2.2.1 Agricultural Extension Services.....	12
2.2.2 Linkages Between Agricultural Extension Service and Research.....	13
2.2.3 Extension Methods.....	16
2.2.4 Logistical Framework.....	19
2.2.5 Agricultural Extension Offering.....	19

TABLE OF CONTENTS (CONT'D)

	Page
2.3 AGRICULTAL EXTENSION SERVICES IN GHANA.....	21
CHAPTER THREE.....	25
THE STUDY AREA	
3.1 GENERAL BACKGROUND.....	25
3.1.1 Location and Size.....	25
3.1.2 Demographic Characteristics.....	25
3.1.3 Economic - Activities.....	26
3.2 BIOPHYSICAL CONDITIONS.....	26
3.2.1 Relief.....	27
3.2.2 Drainage.....	27
3.2.3 Temperature.....	27
3.2.4 Rainfall.....	27
3.2.5 Vegetation.....	29
3.2.6 Soils.....	29
3.2.7 Land Suitability for Agriculture.....	30
3.3 PRODUCTION FACTORS.....	31
3.3.1 Land Tenure System.....	31
3.3.2 Farm Labour.....	31
3.3.3 Farm Inputs.....	32
3.3.3.1 Seeds.....	33
3.3.3.2 Fertilizers.....	33
3.3.3.3 Other Agrochemicals.....	33
3.3.3.4 Farm Machinery.....	33
3.3.3.5 Farm Finance.....	33
3.3.3.6 Storage and Marketing.....	34
3.4 FARM SYSTEM.....	35
3.4.1 Cropping Pattern.....	35

TABLE OF CONTENTS (CONT'D)

3.4.2	Livestock Farming.....	37
 CHAPTER FOUR		
	Page	
	ANALYSIS.....	38
4.1	ORGANISATION AND OPERATION OF AGRICULTURAL EXTENSION SERVICE IN THE DISTRICT.....	38
4.1.1	Organisational Set Up.....	38
4.1.2	Staff Disposition and Working Facilities.....	39
4.1.3	Extension Techniques Employed in the District....	43
4.1.4	Linkage with Research Institutions.....	44
4.2	SOCIAL ECONOMIC PROFILE OF FARMERS.....	45
4.2.1	Age-sex Structure.....	45
4.2.2	Education Structure.....	46
4.2.3	Farmers Experience and Skills.....	48
4.3	IMPACT OF EXTENSION SERVICES.....	50
4.3.1	Sources of Information.....	50
4.3.2	Contact with Agricultural Extension Services...	53
4.3.2.1	Agricultural Extension Personnel.....	53
4.3.2.2	The contact Farmer.....	57
4.3.3	Innovations From Extension Services.....	58
4.3.4	impact of Innovation on Crop Yield.....	60
	OVERALL ASSESSMENT OF EXTENSION SERVICES.....	63
4.4.1	Problems Related to Dissemination.....	63
4.4.2	Problems related to Adoption.....	64
4.4.3	Assessment of Extension Workers Performance....	66
 CHAPTER FIVE		
	MAJOR FINDINGS AND RECOMMENDATIONS.....	71
5.1	MAJOR FINDINGS AND RECOMMENDATIONS.....	71

TABLE OF CONTENTS (CONT'D)

	Page
5.1.1 Findings Related to Organisational Structure and Disposition.....	71
5.1.2 Findings Related to farmers.....	72
5.1.3 Findings Related to Extension Services to Farmers and other sources of information.....	73
5.1.4 Findings related to Dissemination and Adoption.	74
5.2 RECOMMENDATIONS.....	76
5.2.1 Expanding Extension services.....	76
5.2.2 Motivation of Extension Workers.....	78
5.2.3 Improvement Research Extension Linkages.....	79
5.2.4 Improving Farmers Welfare.....	80
5.3 PROGRAMMES.....	82
 CHAPTER SIX	
SUMMARY AND CONCLUSIONS.....	85
APPENDIX.....	88

LIST OF TABLES

	Page
TABLE 1.1 GDP BY KIND OF ECONOMIC ACTIVITY.....	2
TABLE 1.2 PERFORMANCE OF NON-TRADITIONAL AGRICULTURAL EXPORTS.....	3
TABLE 2.1 EXTENSION CONTACT AMONG CO-OPERATORS AND NON-CO-OPERATORS.....	22
TABLE 2.2 INTENSITY OF EXTENSION CONTACT.....	23
TABLE 3.1 POPULATION OF DANGME WEST DISTRICT BY LOCAL COUNCIL AREAS.....	25
TABLE 3.2 SOURCE OF FINANCE USED IN FARMING.....	34
TABLE 3.3 YIELDS OF MAJOR CROPS IN THE DISTRICT.....	36
TABLE 4.1 EXTENSION WORKERS' QUALIFICATION AND RANK.....	41
TABLE 4.2 AGE/SEX STRUCTURE OF FARMERS.....	46
TABLE 4.3 EDUCATIONAL STRUCTURE ACCORDING TO AGE OF RESPONDENTS.....	47
TABLE 4.4 FARMERS' EXPERIENCE.....	48
TABLE 4.5 RELATIONSHIP BETWEEN SKILLS AND LITERACY OF RESPONDENTS.....	49
TABLE 4.6 SOURCES OF AGRICULTURAL INFORMATION.....	52
TABLE 4.7 SOURCES OF INFORMATION WITHIN THE VILLAGE.....	53
TABLE 4.8 FARMERS ACQUAINTANCE WITH AGRICULTURAL EXTENSION WORKER.....	54
TABLE 4.9 FREQUENCY OF CONTACT BETWEEN AGRICULTURAL EXTENSION WORKERS AND FARMERS.....	56
TABLE 4.10 ADOPTION OF INNOVATIONS BY FARMERS.....	58
TABLE 4.11 FARMERS WITH RECORDED INCREASE IN YIELD.....	61
TABLE 4.12 FREQUENCY OF VISIT BY EXTENSION WORKER AND SUCCESSFUL APPLICATION INNOVATION.....	62
TABLE 4.13 REASONS FOR NOT ADOPTING NEW INNOVATIONS.....	66
TABLE 4.14 ASSESSMENT OF USEFULNESS OF VARIOUS SOURCES OF INFORMATION.....	68

LIST OF FIGURES

	Page
Figure 1 - Relationship Between Research, Farmer and Extension Services.....	14
Figure 2 - Organisation of the District Extension Service..	40

LIST MAPS

	Page
Map 3.1 Location of Study District in National Context...	25a
Map 3.2 Relief and Drainage.....	28
Map 3.3 Land Suitability.....	30a

CHAPTER ONE

1.1. GENERAL INTRODUCTION

Agriculture plays a big role in the socio-economic aspect of Sub-Saharan African Countries, accounting for 33 percent of the region's Gross Domestic Product (GDP), 66 percent of labour force and 40 percent of total, exports.¹ This region has however experienced stagnation and decline in overall economic growth since 1961. This has been characterised by weak agricultural growth, a decline in industrial output, poor export performance, climbing debts and deteriorating social indicators,² institutions and environment.

Since 1970 agricultural output has grown at an average rate of 2 percent per annum while average population growth rate has been 3 percent per annum for the same period and Gross Domestic product (GDP) has grown at a rate of 3.4 percent per annum.³

In order to achieve food security, provide jobs, and register a modest improvement in the living standards of the inhabitants, economies in Sub-Saharan Africa must grow by at least 4-5 percent annually and food production should expand from the recorded 2 percent per annum to 4 percent per annum to cope with the increasing population and generate income.⁴

In contrast to past development strategies which emphasised urban industrialisation, agriculture will be seen as the primary foundation for development in the 1990 decade.

-
1. The World Bank. Sub-Saharan Africa : From crisis to sustainable growth (publication summary) Washington D.C. 1989 pg.2.
 2. The World Bank. Sub-Saharan Africa pg. 2.
 3. The World Bank. Sub-Saharan Africa pg. 3.
 4. The World Bank. Sub-Saharan Africa pg. 3.

In Ghana the agricultural sector is the largest contributor of the country's economy, and consists of five main production activities namely growing of food crops, production of industrial raw materials, animal production and cocoa production.

The sector supports the country's farming population of 7.5 million people (out of 14.9 million) and employs 66.5 percent (5 million people) of the country's total labour force. ¹ Currently only 4 million out of 13.6 million hectares of the country's arable land (that is 29.9 percent) are under agricultural activities indicating a ² potential for expansion.

Economically agriculture contributes a big fraction of the country's Gross Domestic product (GDP) as illustrated in table 1.1.

TABLE 1.1 GDP BY KIND OF ECONOMIC ACTIVITY (IN PERCENTAGES)

SECTOR	YEAR				
	1984	1985	1986	1987	1988
AGRICULTURE	53.9	51.6	50.7	48.4	47.2
AGRICULTURE AND LIVESTOCK	39.5	36.8	35.1	33.4	33.3
COCOA PRODUCTION AND MARKETING	6.6	7.1	8.0	7.8	6.9
FORESTRY AND LOGGING	6.1	5.8	5.6	5.4	5.2
FISHING	1.8	1.9	2.1	1.8	1.7
SERVICES	37.2	38.0	38.5	40.2	40.8
INDUSTRY	11.6	13.0	13.3	14.1	14.8
IMPORT DUTIES	1.0	1.2	1.3	1.3	1.3
LESS BANK CHARGES	(3.7)	(3.8)	(3.8)	(4.0)	(4.1)
TOTAL	100	100	100	100	100

Source : Ministry of Agriculture, Accra.

Although the contribution of the agricultural sector has declined over the years, the leading role of this sector is significantly clear from the table 1.1.

1. Ministry of Agriculture, Statistics and census division Agriculture in Ghana : Facts and Figures Accra 1991 pgl .

2. Ministry of Agriculture. Agriculture in Ghana p. 1.

In the year 1988 cocoa alone contributed 6.9 percent points out of the contribution from the agricultural sector.

Agriculture is a major source of foreign exchange through exports of cash crops and surpluses and through savings on locally produced products which would otherwise be imported. Cocoa exports accounted for 60 percent of the exports earnings in 1988/89, while earnings from non-traditional agricultural exports (example cocoa waste, pineapple, kolanuts cotton seeds) are increasing steadily as illustrated in table 1.2 below.

TABLE 1.2 PERFORMANCE OF NON-TRADITIONAL AGRICULTURAL EXPORTS (VALUES IN MILLION US \$)

SECTOR	YEAR			
	1986	1987	1988	1989
AGRICULTURAL NON - TRADITIONAL EXPORTS	17.3	18.7	27.1	31.1
TOTAL NON - TRADITIONAL EXPORTS	23.8	27.9	42.3	34.7
TOTAL EXPORTS	749.3	826.2	838.0	830.0

SOURCE : Ministry of Agriculture Accra.

From the above table it can be observed that over half of the non - traditional exports are agricultural products.

In addition to the above contributions, this sector supports the country's agro-based industries (for example cocoa processing, edible oil, tobacco and rubber industries) by producing 60 % of the raw materials and it is the main source of the country's food requirements.

1. Republic of Ghana : Economic Recovery program 1984 - 1986 (vol. 1 October 1983) pg.4.
2. C.K. BROWN : Land Reform the small scale farmers and food self sufficiency in Ghana " Towards Food Self Sufficiency in West Africa."

1.2 STATEMENT OF THE PROBLEM.

Despite the fact that agriculture plays a leading role in Ghana's economy, it is faced with a number of constraints which have cumulated in low productivity of this sector. The low productivity can be reflected among other things, by the fact that in 1988, 66.5 percent of the country's total labour force produced only 47.2 percent of the total GDP (table 1.1) the balance of the GDP (52.8 percent) was produced by only 33.5 percent of the labour force.

In addition to this, average yields of major crops are still below optimum average yields. Agricultural productivity must be at a level which can support the country's food, industrial and export demands. Currently Ghana's population is growing ten times faster (3.2 percent per annum)¹ than the output of the agricultural sector (0.3 percent per annum)². The low productivity of the Agricultural sector was noted as one of the major problems in the study district (Dangme West).

A socio-economic survey carried out in the study district showed that ; -(a)- over half of the working population (57.5 percent) in the district is employed in the agricultural sector and it is the main source of economic earnings. (b) as much as 45 percent and 15 percent of the population have earnings below the National

-
1. Ministry of Agriculture : Agriculture in Ghana pg 1.
 2. Kamara James " An Evaluation of the Impact of Land Tenure System on Agricultural Development In West Gonja, Ghana" (M.Sc. Thesis) U.S.T Kumasi 1990 pg 7.
 3. SPRING II Dangme West District Workshop Report 1990/91

(56,480 cedis) and Hardcore (28,240 cedis) poverty line respectively. Based on these evidences it is assumed that a significant proportion of the farming population have incomes below the poverty line. Stemming from this ; a number of factors were identified as contributing to low farmers incomes :-

(a) - storage facilities available to the farmers are neither sufficient nor efficient to keep farm produce in good condition.

(b) - Adequate marketing facilities were not available to farmers hence inducing farmers to sell their crops very cheaply.

(c) - A major factor identified was low productivity of the agricultural sector in the district. The major causes of low productivity were : -

(i) Insufficient capital for farmers to invest in the farming activities, this factor plus the problem of inadequate credit facilities in the district makes it difficult for farmers to intensify and expand their farming activities.

(ii) Inadequate and unreliable input supplies such as pesticides, fertilizers and tractors are a cause of frustration for farmers in an effort to produce more. In addition, these inputs are at a cost which cannot be afforded by most farmers.

(iii) Poor extension services have led to persistent use of traditional farming technology in the district. The major farming system is bush and fallow with hoe and cutlass as the main farming tools. Land shortage have reduced fallow periods thus interfering with the natural process of replenishing and maintaining soil fertility.

Coupled with this there exists pests and disease infestation requiring modern control techniques.

The same survey revealed that 72.3 percent of farmers in the district were not receiving agricultural extension services. This problem stems from a number of other problems facing extension services in this district.

a) The extension worker to farmer ratio is high (1:1,000)¹ making it difficult to cover all the farmers in the district. In comparison the National extension ratio is (1:2,500)² and the required optimum is 1.800.³

b) Agricultural extension workers possess a relatively low professional background which negatively affects their efficiency. c) Lack of efficient logistic support to extension service in form of transport, remunerations and working conditions.

Extension services are particularly important because most farmers do not have a professional agricultural background and many have never been to school.

1.3 OBJECTIVES OF THE STUDY

The major objective of this study was to examine the effectiveness of the agricultural extension service and its impact on farmers in the Dangme West District.

The specific objectives were :

a - to examine the means and methods as well as the

1. District Agricultural Office Personnel, Jane Mijumbi Dodowa May 1991.

2. Deputy Director Agricultural Extension Services, Jane Mijumbi May 1991.

3. Atsu S.Y. The focus and concentrate Programme in the Kpandu and Ho districts: Evaluation of an Agricultural Extension Programme ISSER. Legon 1974 p.31.

organisational structure employed in the Agricultural extension service in the district.

b - To examine the effectiveness of the Agricultural extension services as regards.

- i) the number of farmers contacted
- ii) the level of adoption of recommended farming practices
- iii) the level of productivity achieved by recipient farmers.

c - To identify problems related to

- i) the dissemination of innovations .
- ii) adoption of innovations.

d - To develop strategies and make recommendations towards the improvement of the process of dissemination and adoption of innovations.

1.4 SIGNIFICANCE OF THE STUDY

The gap between developed and developing countries could be highly attributed to application of improved technology in the production sector, agriculture inclusive. Application of new technology by farmers increases agricultural production. This technology is usually generated at research institutions and conveyed to farmers through the agricultural extension services. The more proficient the extension agents are at performing their job the greater will be the impact on the farmers. This study is directed at assessing this impact and give proposals for improvement of the agricultural extension services to farmers.

If the recommendations are adopted it means that farmers can make use of improved agricultural techniques and increase their productivity. Simple crop husbandry

Practices like timely planting, crop spacing, crop sanitary
 an increase yield per unit area without spending a great
 deal of money.

Increased productivity will increase food supply,
 surpluses may be sold to earn an income for the farmer.

The higher the production the more the surplus and the
 higher the income. Increased incomes will be utilized to
 improve the standard of living and savings may be invested
 in other agro or non-agro activities.

Finally these proposals may be adopted and replicated
 in other parts of the country with the intention of
 improving agricultural extension services.

1.5 SCOPE OF THE STUDY

The Dangme West district was selected because it forms
 the research area for the Spring programme 1990/91.

The study was directed at the farmers, Agricultural
 extension workers and the District Agricultural office.
 This study covered various aspects of agricultural
 extension in the district as perceived by the farmers,
 Agricultural extension workers and the district
 Agricultural office. Owing to limitations of time and
 money only six settlements were selected for the study.
 This is compensated by the fact that there is a strong
 homogeneity among the farmers in the district with respect
 to their socio-economic activities.

1.6 RESEARCH METHODOLOGY

1.6.1 Data Collection

Data for this study was collected from three main
 sources, secondary sources, consultations and a field

survey directed to farmers and extension workers.

Secondly sources provided documentary evidence on agricultural activities in the district and the Nation as a whole. It also provided information on past experiences with agricultural extension in various countries which was used as a basis of comparison in this study.

Consultations were carried out with key persons at the Ministry of agriculture, Accra and the District Agricultural office, Dodowa, to obtain information on the organisation and operation of Agricultural extension services.

Lastly questionnaires were administered to selected farmers and extension workers in the district.

1.6.2. Sampling Techniques

Three zones out of four Agricultural extension zones in the district were selected to conduct the field survey. The selected zones were old Ningo, Asutsuare and Dodowa.

Two settlements were selected by simple random sampling from each zone giving a total of six settlements from which respondents were selected by accidental sampling. The deficiencies of this procedure are compensated by the fact that farmers in the district have a fairly strong socio-economic homogeneity. Questionnaires were administered to 90 farmers (15 from each settlement), of which 81 were ordinary farmers and nine were contact farmers. In addition eight agricultural extension workers out of 35 workers in the district (29.9 percent) were interviewed.

1.7 ORGANISATION OF THE STUDY

The study is organised in six chapters. Chapter one deals with the general introduction, statement of the problem, objectives of the study, significance of the study, scope of the study and research methodology.

Chapter two deals with the conceptual framework and a literature review on past studies in other countries.

Chapter three is devoted to the description of the study area with emphasis on Bio-physical and socio-economic characteristics of the district.

Chapter four analyses the existing agricultural extension services in the district and inco-operates the views of the farmers and the agricultural extension workers. It also includes a brief analysis of the social characteristics of the interviewed farmers.

Chapter five deals with major findings recommendations. The study ends with summary and conclusions in chapter six.

CHAPTER 2.

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

2.1. THE HISTORY OF AGRICULTURAL EXTENSION SERVICES

" Farmers like other people hesitate to believe and act on theories or even facts until they see with their own eyes the proof of them in material form" this view was

¹
expressed by Isaac Roberts, one of the initiators of agricultural extension services in the United States of America.

²
In his book "The reluctant farmer" Roy Scott analyses the beginnings of extension services in the United States. The services were initiated through farmers' efforts to improve farming methods. Information on innovation was circulated among fellow farmers through farmers associations and periodicals. In addition, agricultural institutions were founded to develop new technologies and to disseminate it to the farmers. The concept of agricultural extension services therefore rose out of a need for educating farmers on better farming techniques through contact with professional agriculturalists.

The modern co-operative agricultural extension service is a product of evolution and experimentation. It's development represented a victory of change and progress over traditionalism and apathy.

1 and 2 Roy Scott The reluctant Farmer (Urbana; Illinois press 1970 p.3

2.2. CONCEPT AND LITERATURE REVIEW

2.2.1. Agricultural Extension Service

Many times "agricultural extension service" is confused with agricultural advisory services. The latter was set up after the Second World war to advise farmers on how to improve production.

Advisory services had no concern for the socio-economic welfare of the farmers which is a major feature of extension services. Extension services is defined by

¹ Williams and others as a "voluntary out of school educational programme for adults consisting of relevant contents derived from reseachers in the physical, biological and social sciences and synthesised into a body of concepts, principles and procedures"

Extension services are therefore related to various socio-economic sectors namely health, industry, literacy, Agriculture and others. Each discipline requires an extension service to educate the rural communities on how to better their living conditions. Saville ² defines agricultural extension services as

" a community development activity with an agricultural bias and an educational approach to solving problems of the rural communities".

Agricultural extension teaches farmers how to improve their standard of living on their own initiative and engineers socio-economic development in rural areas by educating the people on better farming techniques and other skills aimed at improving the socio-economic welfare of the communities. (For example

-
1. Williams and others A manual Agricultural Extension Workers in Nigeria (University of Ibadan, Nigeria 1984) pg. 11.
 2. Saville A.H. Extension in Rural Communities (Oxford University Press 1965)pg 2.

nutrition, hygiene, marketing, loan acquisition and others). These aspects of agricultural extension services makes it an important tool in rural development.

¹
 Roling has observed that the objectives of the agricultural extension services should include among other things, provision of income generating opportunities to farmers, increasing equity in rural areas, broad integrated rural development and countervail exploitative forces. This means that agricultural extension service cannot be divorced from other extension services or other factors which affect rural development. Roling suggests a "genepool" of extension approaches which can combine various aspects of development to facilitate rural development. Such an approach has been implemented in Nigeria where an integrated extension approach combines, among other things agriculture, home economics and youth movements.

The constant change in agricultural production technology necessitates agricultural extension services to be in contact with research institutions responsible for developing techniques through well established linkages.

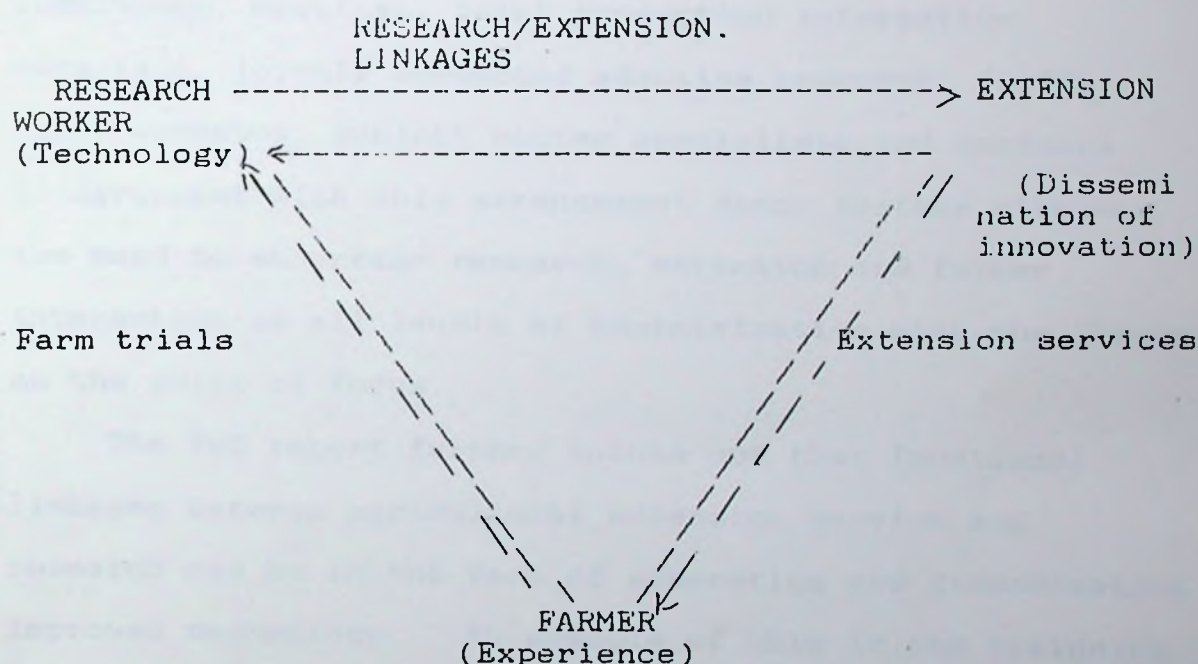
2.2.2 Linkages Between Agricultural Extension Service and Research.

²
 Saville observed that extension services bridge research to farmers by conveying information and ideas to and from both sides. Research provides solutions for

1. Roling Niels "Alternative approaches in Extension "
Progress in Rural Extension and Community Development
 vol (1982) pg 96.

farmers problems and also supplies practical proposals to implement government policies. Farmers on the other hand implement on the field the proposed technologies and give their experiences. This relationship can be visualised as illustrated in figure 1.

Figure 1. RELATIONSHIP BETWEEN RESEARCH, FARMER AND EXTENSION SERVICES



source : Author

The farmer should be the focus of the whole system with research programmes being based on farmers experience in line with Government policies, and agricultural extension services as disseminator of information. This relationship necessitates a free flow of information (as indicated by the arrows) and appropriate linkages between research and agricultural extension services.

1

Benor and others observed that extension should use the findings and support of research to educate farmers and to help them solve their problems. Similarly research should be guided by extension services in formulating research programmes and in exposing issues that become apparent from field observations.

2

A report by Food and Agricultural Organisation (FAO) points out that institutional linkages in Asian countries (India, Pakistan) are located at appropriate levels of administration set up in the form of co-ordinating committees, meetings, joint production information materials, jointly conducted adoptive research, fields days, workshop, subject matter specialists and seminars. In agreement with this arrangement Benor further stresses the need to encourage research, extension and farmer interaction at all levels of administration with the farmer as the point of focus.

The FAO report further points out that functional linkages between agricultural extension service and research can be in the form of generating and disseminating improved technology. An example of this is the training and visit system whereby training is done at research institutions followed by visits to farmers and feed back to research by extension workers. Constraints encountered in the set up involve, organisational, orientational and resource constraints.

1. Benor and Baxter Training and visit Extension (World Bank 1984) pg.3.

2. Food and Agricultural Organisation "Linkages of Agricultural Extension Research in selected countries of Asia" Report of the Export Consultation on Linkages of Agricultural extension with Research and Agricultural Education.

(FAO Bangkok Thailand October 1985) pg. 2.

Benor explains that research and extension are frequently the responsibility of separate organisations. Each organisation sets out individual plans of action making it difficult to prioritise and co-ordinate research programmes that are beneficial to the farmer. The author further points out that traditional orientations of research and extension are adverse, extension services are field oriented while research is oriented to laboratory and on-station activities. Such differing orientations do not facilitate the required appropriate interaction.

Lastly constraints in funding of institutional linkages were cited by the FAO report. In view of the foregoing constraints the report recommended the establishment of policies, laws and funding to facilitate agricultural extension service and research linkages.

2.2.3. Extension Methods

Agricultural extension service has the task of disseminating useful and practical information related to the improvement of the socio-economic welfare of the farmer with special emphasis on agricultural issues.

¹
Williams observes that the extension services should in addition help farmers to put this information into practice through carefully planned and organised programs. The author stresses the need of involving farmers as much as possible in developing relevant extension programs.

It has already been pointed out in Section 2.1 that farmers are rational people and do not adopt an innovation unless they are sure it will produce good results. It is

1. Williams A manual for Agriculture pg. 68

therefore advisable to use a variety of methods to cultivate farmers' interest, convince them and to help in applying the innovation.

Williams categorises these methods into three categories namely mass media, group contact and individual contact. Mass media involves the use of television, radio, cinema and others to attract attention and stimulate interest for further information. In developing countries many rural communities use radio as source of information. A study conducted in Ecuador and Paraguay by Higgs¹ showed that 80 percent of the respondent farmers considered the radio to be an important source of Agricultural information, contrary to this, extension workers in these countries did not consider the radio to be of significant importance to extension work, hence they did not make optimum use of this tool. Mass media has the advantages of being cheaper to use, quicker, high fidelity of message and possibility of high expertise input. Radio can be used by illiterate farmers and remote farmers who would otherwise not be contacted by the extension worker.

The major drawback on the mass media is the initial cost to the farmers. Some rural farmers may not be able to purchase radio or television set. In addition to this Television requires rural electrification.

Group contact methods are suitable to bring information about innovation and moving an individual through the desire stage to conviction.

1. John Higgs "Extension studies in Paraguay and Ecuador" Training for Agriculture and Rural development (FAO, Rome 1975) pg. 99.

Group methods include meetings, demonstration, short courses of instruction and discussions. Demonstrations are particularly important to convince farmers. Method demonstrations show farmers how to do something and result demonstration show the results of a new technology.

Higgs reports that extension workers in Ecuador and Paraguay preferred to use group methods in order to come in contact with as many farmers as possible. Williams however points out that group methods are not as effective and as convincing as individual contact methods. Individual contact method has the advantage of two way interpersonal communication, this can be telephone calls, office calls and farm visits. Farm visits are more convincing to the farmers since the problems can be pointed out and discussed at the time of contact. Individual contact methods however requires a lot of time and personnel. It is also necessary to make a number of contacts before the farmer can be convinced.

In a study on relationships between Nigerian farmers¹ and extension workers, farmers felt that the extension workers did not pay the regular visits to help them to put into practice new technologies, a similar view was felt by farmers in Ecuador and Paraguay. Therefore individual contact methods can only be effective with enough extension workers to visit individual farmers as frequently as necessary. For effective extension work all the three categories of extension methods (mass media, group method,

1. S.K.T. Williams Rural Development in Nigeria
(University of Ife, Ileife Nigeria pg. 9.

individual contact) should be enhanced to educate farmers. This necessitates appropriate logistic support to be available to the extension workers.

2.2.4 Logistical Framework

1

Roling has examined the conditions under which extension workers had to operate in during the post independence era. In many cases extension workers had to work under bosses with conflicting directives. Field workers had to put up with lack of technical information, lack of efficient means of transport, unfavourable farm extension ratio, unpaid allowances arbitrary treatment and nearly always absence of promotion prospects. The study conducted in Ecuador and Paraguay showed that the social framework was not suitable for extension workers. The workers were not appreciated by the farmers neither were they recognised by the Government. There was a general lack of demonstration materials, audiovisual aids and transport. The study revealed that three quarters of the workers wanted to resign due to poor working conditions and prospects. For this matter Roling agrees with Higgs that Governments should avail extension workers the necessary logistic support especially transport, demonstration materials and visual aids. In addition to this, workers should be motivated in the form of training, allowances and promotions to create job satisfaction.

2.2.5 Agricultural Extension Offering

Various views have been expressed as to what the

1. Roling - Alternative approaches in extension pg. 106.

extension service should offer to the farmers. Two field experiments carried out in Tetu, Kenya and Zaria, Nigeria¹ have shown that small farmers can effectively be involved in agricultural development if the extension offering is carefully designed to fit their narrow margins for manoeuvre, if the extension methods are adopted to reach them and if the distribution of inputs are carefully planned by the extension services. Agricultural extension service offering may include information (recommendations, advice and instruction), goods (inputs) and services (processing of loan application)

One opinion is that the services should only offer advice and instruction while distribution of inputs and services are left to other departments or commercial firms. When extension is limited to communication and other elements of production are left out, one runs into limiting factors not covered by the extension. For instance if farmers are advised to use fertilizer but it is not available, the work of the extension worker becomes ineffective.

In other instances Extension closely co-ordinates with other departments which are responsible for supplying inputs to ensure that inputs are available to the farmers.

example of this is the Rural Credit Scheme in Uganda whereby farmers are provided with both inputs and extension services from Uganda Commercial Bank.¹ High success has been reported on this approach because the farmer has both professional advice and inputs at his disposal. The major problem with this arrangement is that it is not easy to organise, as it involves arranging different packages for different enterprises.

The choice of what to offer therefore rests on individual organisations but notwithstanding the problems to be overcome, a ministry of agriculture which is serious about embracing small producers as a target group must pay attention to the development of an appropriate offering.

2.3 AGRICULTURAL EXTENSION SERVICES IN GHANA

From colonial times Agricultural extension service in Ghana has been based on various and conflicting policies with successive Governments. Agricultural advisory services started in 1900 with Trained instructors trained at Aburi College. The main interest and emphasis was on export crops, oil palm, rubber and cocoa. The modern agricultural extension approach with emphasis on education and input supply began in 1958 in the Central and Western Regions.

The staff were transferred to United Ghana farmers' Co-operative Council from 1962 to 1965. In 1966 the Johnson² report recommended the "Focus and concentrate" policy.

1 Credit: "A key to Agricultural input "

African Farmer vol. 1 No.3 (April 1990) pg.12

2. Atsu S.Y. The focus and concentrate programme in the Kpandu and Ho districts Evaluation of an Agricultural extension program. ISSER Technical Publication Series No. 34 (Isser/Legon Accra 1974) pg.99

This policy was advanced with the view of utilizing the available scarce resources (personnel, inputs) to achieve optimum benefits. The report recommended focussing attention on specific crops and specific locations and concentrating available resources on the selected crops and locations. A study was conducted by Atsu¹ in the Kpandu and Ho districts to assess the impact of this programme. The programme organised farmers into local co-operatives as to draw them closer to the extension worker. Impact was measured by number of visits by either extension worker to farmer or farmer to extension worker. The results of the assessment study are illustrated in tables 2.1 and 2.2

Table 2.1. EXTENSION CONTACT AMONG COOPERATORS AND NON COOPERATORS

TYPE OF CONTACT	PERCENTAGE AMONG CO-OPERATORS	PERCENTAGE AMONG NON- CO-OPERATORS
NO CONTACT	7	51
FARM VISIT BY TECHNICAL OFFICER	6	2
OFFICE VISIT BY FARMER	14	16
BOTH FARM VISITS AND OFFICE VISITS	73	31
TOTAL	100	100

Source : Atsu "Evaluation of Agricultural extension programme.

From tables 2.1 and 2.2 it can be observed that contact was more frequent among co-operators than non-cooperators, illustrating the usefulness of local organisations (like co-operatives) in facilitating extension services. Atsu concludes by pointing out that the focus and concentrate

1. Atsu S.Y. The focus and concentrate programme

TABLE 2.2 INTENSITY OF EXTENSION CONTACT

NUMBER OF VISITS DURING THE YEAR	CO-OPERATORS	NON- CO-OPERATORS
No of visits	13	54
Less than 10	45	33
10 - 19	13	5
20 - 49	12	3
50 or more	17	5
Total	100	100
Number of Farmers	85	172

Source : Atsu "evaluation of an extension programme"

policy had undoubtedly brought about a great contact between the extension workers and farmers but none of the farmers seemed to have received as much attention from the extension agents as one would expect. In other words the programme failed to provide the concentrated extension services necessary for its successful implementation.

In other parts of the country where this programme was not implemented, farmers continued to receive Agricultural extension services from various departments, (for example Crop department, Irrigation, mechanisation and others). However Extension Services from various departments proved inconvenient to the farmers. This led to the creation of Extension Services Department three years ago (in 1988). This unified extension system ensures that the fieldman is well versed with all respective aspects of agriculture and subject matter specialists are stationed at District level to instruct and advise the field personnel. In an attempt to narrow down the gap of the large extension/farmer ratio,

the extension services Department has adopted the use of contact farmer. It is planned that each extension worker can visit 40 contact farmers who will in turn contact and advise nine farmers each. This will enable more farmers to get access to extension services.

The approach adopted by the extension department is the training and visit technique which is the latest model being recommended by the World Bank to developing Countries. It however requires, efficient transport, low extension agent -farmer ratio and availability of subject matter specialists to operate efficiently on its fixed schedule. However, conservative estimates indicate that extension agent farmer ratio is one to several thousands (1: 2,500) and a majority of these field level agents have no means of transport.

CHAPTER THREE

THE STUDY AREA

3.1. GENERAL BACKGROUND

3.1.1. Location and Size

The district is located in the greater Accra Region and covers a total area of 1.442 square kilometres. The district shares boundaries with the North Tongu district in the North East, Yilo Krobo district in the North and North west, Akwapim district in the west, Dangme East District in the East, Tema district in the south west and a coastline of 37 kilometres in the south. It is positioned between parallel $5^{\circ} 45'$ and $6^{\circ} 05'$ North and 0° Meridians $0^{\circ} 05'$ and $20'$ west (see map 3.1).

3.1.2. Demographic Characteristics

The population census report of 1960, 1970 and 1984 show that the district's population growth rate (2.1 per cent) is below the national population growth rate (2.6 percent).

TABLE 3.1 POPULATION OF DANGME WEST DISTRICT BY LOCAL COUNCIL AREAS

LOCAL	TOTAL POPULATION			ANNUAL GROWTH RATE		EST. POP.
	1960	1970	1984	1960-1970	1970-1984	1990
SHAI	12,002	11,007	12,976	-0.8	1.2	13,939
OSUDOKU	9259	9,709	14,984	0.4	3.1	17,999
DANGME	21,578	32,190	42,499	4.1	2.0	47,770
TOTAL	42,839	52,906	70,369	2.1	2.1	79,708

Source : Computations from 1960, 1970 and 1984 census report.

* Trend Projections using 1970-1984 Annual growth rates.

1. SPRING II Dangme West District Workshop Report. 1991.

This is due to the fact that the district is becoming less attractive resulting in high rates of out migration. Out migration is more prominent in the Shai local council where between 1960 and 1970 a negative growth rate of -0,8 percent per annum was recorded (see table 3.1) The district total population is 79,708 of which 51.8 percent are females and 48.2 percent are males. Sixty eight percent of this population live in rural areas while 32 percent live in the Semi Urban settlements like Dodowa Prampram, Old Ningo and New Ningo.

3.1.3 Economic-Activities

Due to the predominant rural population, 58.6 percent of the people are employed in farming followed by Trade 22.1 percent. Settlements along the river Volta and the coast line (for example Prampram, Old Ningo) engage in fishing activities (6.4 percent). Industry and services employ 4.5 percent and 8.4 percent respectively.

3.2. BIOPHYSICAL CONDITIONS

3.2.1. Relief

Except for a few inselbergs and isolated hills scattered in the area the relief is gently undulating and the height is generally below 70 metres above sea level. Prominent relief features include Nyokonyo inselbergs (427 metres) which appear conical in shape with a number of outliers close to the North around Asutsuare and Osuwem and the Shai hills found on the Western side of the district. The Akwapim mountain range serves as a boundary on the North-western parts of the district (see map 3.2)

3.2.2. Drainage

The general pattern of drainage in the district is dendritic with most of the streams taking their source from the Akwapim range (which also serves as a watershed) and flowing in the North west - south east direction into lagoons on the coast. (see map 3.2) Flowing over a fairly low terrain, most of the streams have curved wide valleys for themselves which are left dry for most parts of the year. The lower Volta flows through the extreme North eastern portion of the district. Repeated flooding and recession of the Volta over the years has resulted into the formation of a number of inland lakes notably Kasu, Nyabia, Dzibar and Nyafia. Underground water potentials in the district are quite low and efforts to locate underground water facilities have only been successful in Dodowa and Agomeda.

3.2.3 Temperature

The South Eastern coastal plains where this district is located is one of the hottest and driest places of Ghana. Temperatures are high for most parts of the year especially during the main dry season (November-March). The absolute Maxima and Minima range between 28^o C-40^o C. Absence of cloud cover for most parts of the year gives rise to high rates of evaporation which leaves most parts of the district dry and with parched soils. However high temperatures and evaporation rates are a valuable potential for the salt making industry along the coast.

3.2.4 Rainfall

Rainfall is generally very low. The major rain season is between the months of April and July and between

September and November.

Mean annual rainfall ranges from 762.5 mm on the coast to 1220 mm to the North and North east close to the foothills of Akwapim Range. The rainfall is typically unreliable resulting in common periodic crop failures which make rainfed agriculture a risky enterprise. In addition, the short erratic thunderstorm nature of the rains expose the uncovered soil to dangers of top soil sheet erosion.

3.2.5 Vegetation

The predominant vegetation type found in the district is short grass savannah, interspersed with shrubs and short trees. Thickets and light forests are common along some streams and along the foothills of the Akwapim Range especially around Dodowa Ayikuma and Agomoda areas. Large strands of Borassus palm are found around the Northern positions of Dodowa and Ayikuma. Isolated stands of baobab trees are common all over the plain. In the Volta flood plain areas, tall swampy grass and tall grass savanna with isolated patches of thickets and trees represent the main vegetation type.

3.2.6 Soils

The district is composed of soils of varied nature occurring in complex associations. The commonest soil types are classified as Akuse series and extend from east of Doryum covering the central and eastern parts of the district and from the Volta flood plains in the North as far as Prampram in the south. These soils are generally Black grey clays and become compact and crack when dry and heavy and plastic when wet. This makes it difficult for hand cultivation. On the foothills of Akwapim Range and

around the isolated hills occurs accumulations of slope wash soils known as the Oyasifa series. The soils are very good for cultivation of crops.

The Amo-Teffee series composed of rich alluvial deposits are common in the Volta flood plains and can also be observed along other major streams. On the eastern parts of the District around Agortor, Dawa and Ningo occurs the Agaw-tow series. These are grey brown loamy soils with impervious clay sub soil which forms a hard pan underneath. These soils have low water holding capacity and dry up easily. They are generally not suitable for cropping and most of the area is left for grazing. Lying on the southern Section of these series along the road to Ada are the Toje Agawtaw series which are easily workable and more suitable for cropping. The coastal area is predominantly coastal sand-dunes with a series of saline lagoons.

3.2.7 Land Suitability for Agriculture

The districts flat terrain provides a potential for large scale mechanization and ox-plough while the prominent inselbergs and hills can be reserved for agroforestry and forestry which is beneficial to wildlife and the environment.

Great irrigation potentials are offered by the River Volta and other prominent streams. Irrigation of the volta plains would enable crop production for most part of the year. These plains possess the most fertile soils in the district and therefore present a high potential for Agricultural development. Various crops such as rice,

sugercane and vegetables can be cultivated on these soils. Irrigation of Akuse soils series has successfully been achieved by the Dahwenya Irrigation Scheme. The soils have proved highly productive especially in cultivation of rice, maize and various vegetables. The areas lying east of Dodowa are especially suitable for drought resistant crops such as millet, pepper, okro, cowpea, soyabean, cotton and water melons while coastal sandunes have been successfully cropped with coconut.

The Agortor and Dawa areas with relatively poor soils is mostly suitable for livestock farming. From these observations it is certain that despite the fact that soils in the district have fairly low fertility levels and also - remain dry for most parts of the year due to the unreliable and deficient nature of the rainfall there are still enormous potentials for agricultural development and expansion. Drought resistant crops can be cultivated in areas without irrigation facilities and irrigated areas can be cropped for most part of the year with vegetables, rice and sugar cane. Developing these potentials will be especially beneficial for the district farming population and for the whole district at large.

3.3 PRODUCTION FACTORS

3.3.1 Land Tenure System

Land ownership is either private or communal. 38.5 percent of farmers own land privately through inheritance or purchase. Communal land is allocated by chiefs or family heads.

A few farmers in the district (5.2 percent) have obtained their land through lease.

In cases where land is allocated by chiefs or family heads some payment has to be made in the form of share cropping or fixed rent. The share cropping ratio is usually $\frac{2}{3}$ of the harvest for the tenant and $\frac{1}{3}$ for the landlord.

Farmers have problems in acquiring new pieces of land due to land shortage and cost of land. For this matter most farmers acquire plots of land far from their homestead. The distance from homestead to farm varies from less than one kilometre to ten kilometres, average being 2.4 kilometres. Farm sizes range from less than one hectare to well over ten hectares averaging 2.5 hectares. Farmers normally have more than one plot of land located in various locations. However farmers with larger plot sizes tend to have a lesser number of scattered plots while farmers with smaller plots tend to acquire more plots of land. This is done in an attempt to plant as many crops as possible.

3.3.2 FARM LABOUR

Household and hired labour is the commonest type of labour available on the farm. Normally there is no clearcut payment for household labour but hired labour is paid in cash or kind. The amount of money or goods spent on labour varies from season to season and availability of labour. Labour shortages are common especially during land preparation and weeding. This constraint is particularly important because it delays critical farming activities like land preparation and planting. Such delays can result

3.3.3 Farm Inputs

3.3.3.1 Seeds

Local crop varieties are the most popular in the district. As much as 62.7 percent of farmers use local seed while 15.7 percent use improved seed and 21.7 percent use both local and improved seed. Local seed is usually kept over from the previous crop and improved seed is purchased from either the Department of Agriculture or open market.

3.3.3.2 Fertilizer

Industrial fertilizer is used by 71.4 percent of the farmers, a further 9.4 percent use farm yard manure and 19.2 percent do not use any form of fertilizer.

Industrial fertilizer is normally purchased on the open market but farmers complained of unreliability of supplies and high costs.

3.3.3.3 Other Agrochemicals

Emanating from the fact that pests and disease are a major problem and labour shortages are common at weeding time, farmers are encouraged to use agrochemicals. Pesticides, fungicides and herbicides are used by 47.1 percent, 16.2 percent and 15.4 percent of farmers respectively. The remaining farmers do not make use of these agrochemicals due to untimely availability, high cost or total lack of knowledge about the use and relevance of agrochemicals.

3.3.3.4 Farm Machinery

The commonest farm machinery available in the district is a medium sized tractor with an engine power

TABLE 3.1a

USE OF VARIOUS FARM INPUTS BY FARMERS IN THE DISTRICT

INPUTS	PERCENTAGE OF FARMERS USING THE INPUTS
SEED	
Local Seed	62.7
Improved Seed	15.7
Both Local and Improved Seed	21.7
FERTILIZER	
Industrial Fertilizer	71.4
Farm Yard Manure	9.4
AGROCHEMICALS	
Pesticides	47.1
Fungicides	16.2
Herbicides	15.4
FARM MACHINERY	
Hired Tractors	73.0

Source : SPRING DANGME WEST WORKSHOP REPORT.

of 125 horse power. As much as 73 percent use or hire tractors for ploughing. There are however difficulties in accessibility to tractors especially during the ploughing season when demand is high. A smaller tractor, the komota (powertiller) is used by rice farmers and for transporting farm produce to storage centres. Farm machinery is especially important to counteract labour shortages during land preparation.

3.3.3.5 Farm Finance

Funding farming activities is one major problem faced by farmers in the District. The most important source of farm finance is personal savings. Farmers also acquire finance from relatives, friends, private money lenders and from banks as illustrated in table 3.2. Funds are essential for intensifying and expanding farming activities. Most new technology requires money to buy the recommended inputs.

Table 3.3 SOURCE OF FINANCE USED IN FARMING

SOURCE OF FINANCE	Percentage of farmers
Own savings	66.7
Relatives and Friends	15.0
Private money lenders	8.7
Credit from Bank	5.7
Others	3.0
Total	100.00

Source: SPRING II West Dangme Workshop Report

3.3.6 Storage and Marketing

Farmers sell perishable goods immediately after harvest. Crops like pepper, maize and rice are sundried stored and marketed when prices are favourable. The

traditional Barn is the most popular storage method but some farmers store their crops on roof tops of houses. Farm produce is usually sold at the farmgate as a means of avoiding transportation costs to market centres and to reduce destruction during storage. Under such circumstances farmers are offered minimum prices by the middlemen. This greatly reduces farmers earnings.

3.4 FARMING SYSTEMS

3.4.1 Cropping Pattern

Over the years farmers in this district have selected farming systems to fit in the biophysical, climatic social and economic situations. The hot climate coupled with short rains and absence of adequate irrigation facilities has encouraged farmers to cultivate drought resistant crops. However in wetter areas and with introduction of irrigation schemes, farmers are able to grow a variety of crops like rice, vegetables and sugarcane. Therefore climatic conditions have been major factors in determining the type of crop to cultivate. Soil fertility levels have been maintained over the years by rotational bush fallow cropping system. The land is cropped for a continuous period of three to five years and then left to fallow for two to four years. With shortage of land the fallow periods are shortened. This depletes soil fertility and contributes to low productivity. Although the hoe and cutlass are still the major tools on the farm, more and more farmers are hiring

tractors during land preparation. Farmers who are able to hire tractors cultivate more land and are more likely to achieve better timing of farm activities especially planting. This may not be possible where manual labour is employed. Timing in farm activities is particularly important with rainfed agriculture. Delays in planting may mean failure of the whole crop. Due to the above factors, farmers in dry areas of the district tend to cultivate more of cassava, water melon, pepper, cowpea and okro. Irrigation schemes have been particularly helpful in the cultivation of rice and vegetable. In addition to this farmers in wetter areas grow plantain and sugarcane. Most of the farmers (6.3. percent) grow

Table 3.4. YIELDS OF MAJOR CROPS IN THE DISTRICT

CROPS	ACREAGE UNDER CUL- TICATION	DISTRICT ACHIEVABLE YIELD TON / HA	NATIONAL ACHIEVABLE YIELD TON / HA.
MAIZE	4,000	2.5	5.0
RICE	1,500	2.6	3.0
SORGHUM	300	0.8	2.5
COWPEA	2,000	1.0	-
CASSAVA	5,000	10.0	28.0
OKRO	1,500	4.5	-
TOMATO	1,500	10.0	-
WATER MELON	500	17.5	-

Source: District Agricultural Office Dodowa 1991

*Policy Planning Monitoring and Evaluation,
Ministry of Agriculture 1988.

and sugarcane. Most of the farmers (63. percent) grow crops in pure stands -monocropping while the rest practice mixed cropping. However with the exception of rice, average crop yields in the district are much below National average (see table 3.3).

The relatively low productivity per unit area can be improved by use of better farming techniques.

Agricultural extension services are particularly important to educate farmers on better farming technology so as to achieve higher yields.

3.4.2. Livestock Farming

Generally there is a tendency that almost every household keeps a small number of animals either to serve as a source of dietary protein or to be marketed when mature to augment their household incomes.

A significant portion of farmers rear animals as a main occupation and are engaged in crop farming as a secondary occupation. Livestock farmers rear cattle, sheep, goat, pigs and poultry. Most farmers allow their animals to feed freely in the environs but 31.8 percent provide supplementary feed. Animal health and hygiene services are seldom provided by the veterinary personnel. Apparently greater emphasis is on curative treatment rather than preventive control. The commonest animal diseases are foot and mouth disease and typanosamiasis these diseases are aggravated by presence of tsetsefly (which is a vector of typanosamiasis) and infestations of lice, ticks and worms.

CHAPTER FOUR

ANALYSIS

4.1 ORGANISATION AND OPERATION OF AGRICULTURAL EXTENSION SERVICE IN THE DISTRICT

4.1.1 Organisational Set Up

The overall head of the agricultural extension services in the district is the district agricultural officer located at the district capital, Dodowa. This office heads three major sections namely livestock, health and production, crop services (manned by subject matter specialists) and extension services. The extension services are operated through four subdistricts (which make up the four agricultural extension zones) namely Asutsuare (in the North), Dawhenya (central), Old Ningo (south) and Dodowa (west). Each subdistrict is headed by personnel appointed by the District agricultural officer.

The Organisational structure (figure 2) is such that the chain of command is top-down with a down-up feed back. Instructions from the District Agricultural officer, are conveyed to the subdistrict co-ordinators who in turn instruct field workers. The field workers are in contact with contact farmers and ordinary farmers. Farmer's views and problems are collected by the contact farmers. These issues are reported to the district Agricultural office through the zonal co-ordinators for appropriate action. Feed-back flow of information

follows a similar route but field workers complained that the feed-back process is slow. This chain of command is not rigid, all extension workers and farmers are free to contact the District office directly.

The district agricultural officer visits field workers once or twice a month. On the other hand, personnel in charge of sub-districts visit the District office on weekly basis. Regular supervision of field workers is carried out by the co-ordinators on weekly basis and reports are submitted on monthly basis by each extension worker to the district office.

4.1.2. Staff Disposition and Working Facilities

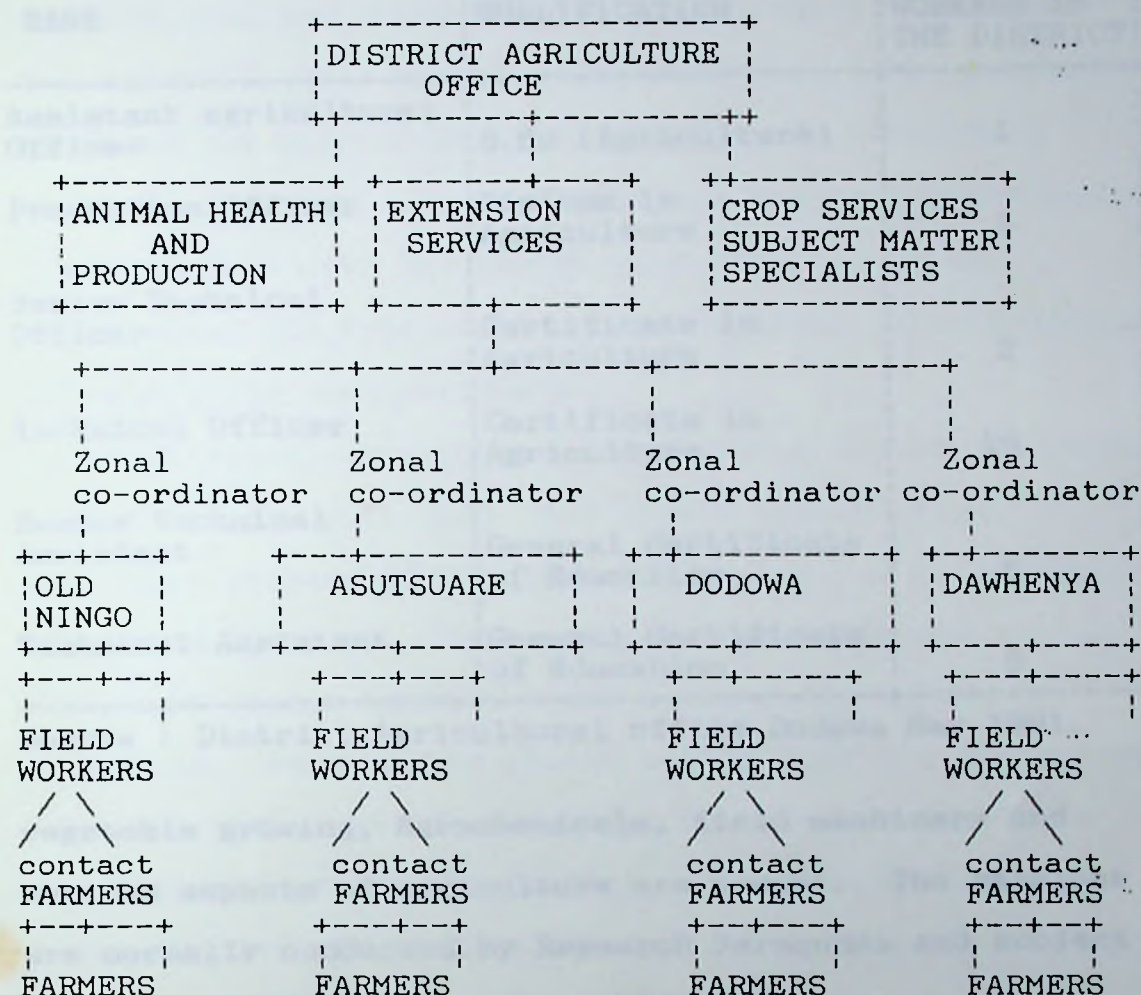
The district employs a total of 35 extension workers. Professional qualification of staff vary from general certificate of education to University degree as detailed out in table 4.1.

Only four extension workers have a relatively competent professional background with three Diploma holders and one degree holder.

Eighteen extension workers have a Certificate in Agriculture and thirteen workers with a general certificate in Education do not have an agricultural professional background.

Only one respondent has attended formal further training leading to a higher qualification and five out of eight interviewed extension workers felt their professional education was not sufficient to cope with the

Figure 2 ORGANISATION OF THE DISTRICT EXTENSION SERVICE



Source : District Agricultural Office, Dodowa May 1991.

work, while three felt their qualification were sufficient and did not need further training. The relatively low professional background of extension workers affects their efficiency at work. This is to some extent compensated with the inservice training sessions held regularly in the district. All interviewed workers have attended inservice training courses at district or regional levels where a variety of subjects ranging from

Table 4.1 EXTENSION WORKERS: QUALIFICATION AND RANK

RANK	ACADEMIC QUALIFICATION	NUMBER OF WORKERS IN THE DISTRICT
Assistant agricultural Officer	B.Sc (Agriculture)	1
Production Officer	Diploma in Agriculture	3
Senior Technical Officer	Certificate in Agriculture	2
Technical Officer	Certificate in Agriculture	16
Senior Technical Assistant	General Certificate of Education	8
Technical Assistant	General Certificate of Education	5

Source : District Agricultural office Dodowa May 1991.

vegetable growing, Agrochemicals, field machinery and various aspects of agriculture are taught. The sessions are normally conducted by Research Personnel and subject matter specialists.

RESERVE

The study revealed that extension workers were discontented with the various working facilities namely accommodation, transport, remuneration and other logistic support.

All interviewed extension workers are not born in the district, this poses two problems, namely language barrier and accomodation. Language barriers necessitate the use of interpreters when communicating with farmers. In which case the the possibility of misinterpreting the

message cannot be ruled out.

Secondly since the district is not a home district for most workers, they have to acquire some temporary accomodation. Six out of eight extension workers, rented quarters and complained of high rents and inadequate housing allowance. Accomodation was such a big problem for field workers with the result that some had to be accomodated far from their places of work. This ultimately affects their work perfomance.

Transport was another major problem facing extension workers in the district. Out of the thirty five extension workers in the district seven had motorbikes and eight had bicycles. The remaining twenty depend on public transport (mammy trucks) which are unreliable and expensive. Some of the remote settlements are not served by mammy truks and the extension workers are unable to reach these settlements on foot. For this matter, extension workers tend to concentrate on the most accessible areas and on fewer farmers. Travel and transport allowance is given to field workers, but all respondents were of the opinion that it was not enough to cater for their monthly transport requirements. In addition to the travel and transport allowance workers are given housing and lunch allowance. All allowances are packaged together with the monthly salary. Salaries are based on the qualification of the workers and ranged from 15,000 cedis to 35,000 cedis.

With an average of 20,000 cedis per month. All

respondents were of the view that remunerations were not sufficient and suggested Salary increases ranging from 50 per cent to 450 per cent.

Field workers are provided with protective clothing, rubber boots, measuring tapes and stationery. These observations reveal that the government has made effort to cater for the needs of the extension workers by providing transport, allowances and other logistic support. It is however clear from the workers responses that facilities provided by government are not sufficient. As has been observed many do not have personal means of transport, accomodation and remunerations are insufficient. Extension workers complained of complete lack of audio-visual aids and demonstration materials. With these constraints, performace of duty by extension workers is much affected.

In addition to the above constraints workers complained of lack of appreciation by farmers and government, lack of promotion and lack of further trainning opportunities. As observed in a similar study in Ecuador and Paraguay (section 2.4) these conditions have contributed to creation of generally demoralised Agricultural extension personnel in the district.

Extension workers were of the view that they can do their work better if these problems are solved.

4.1.3. Extension Techniques Employed in the District

The district employs the trainning and visit extension method. Fieldworkers are trained during workshops and seminars, in addition subject matter specialists advise

field workers as necessary.

The field workers work with contact farmers and ordinary farmers. It was however observed that interviewed workers were not sure of the role of the contact farmer and as such, contact farmers have not been utilised to maximum capacity.

The commonest means of instructing farmers is by discussion through individual contact, meetings and to a lesser extent field demonstrations. As already noted in the last section (4.1.2) field workers complained of lack of demonstration materials and visual aids.

It was observed that field workers did not draw up specific programmes with farmers. All special programme and activities were organised at district level. These include farmer's forums promotion of grain production (grain week) and farmer's prize giving competitions. These programmes although being highly motivately to farmers lack the element of target group (farmers) participation when they are being drawn up. It was also observed that the smaller farmers were not encouraged to participate in such programs.

With the exception of mobile cinema shown occasionally, mass media is not officially utilised as a means of disseminating information to farmers.

4.1.4 Linkage with Research Institution

Research personnel are usually invited to give lectures to agricultural extension workers during workshops and seminars conducted at the District office. In addition, research publications are sent to the

district but this is done on an irregular basis. Farmers problems are analysed and forwarded to research by the crop services section.

Currently two research institutions are carrying out agro based research in the district, namely CIDA (centre for International Development Aid) and crop services based at crop research institute Kumasi. Trials have been conducted on agroforestry, cassava, tomato and beans.

Research programs in the district are drawn exclusively by research institutions without liasing with the extension service on farmers' problems in the district.

This unco-ordination is especially agravated by the fact that research and extension services are institutionally separated. The former is under the Ministry of Science and technology while the latter is under the Ministry of Agriculture. With the current arrangement farmers are not reaping the best benefits from research. As discussed in chapter two, research programs should be based on solving farmers' problems within Government policies. Failure of which may result in technology which is either not appropraite for the farmers or not easy to apply.

4.2. SOCIAL ECONOMIC PROFILE OF FARMERS

4.2.1. Age-Sex Structure

The age of respondent farmers range from 23 years to 80 years. The youth and middle aged make up 58.9 per cent of the population while the elderly (45 years and above) constitute 41.1 per cent as illustrated in table 4.2. The

average age of farmers was 43.7 years.

This means that a significant portion of farmers are still strong enough to cope with the farming activities.

It was also observed that males make up 77.8 % of the farming population while females account for 22.2 per cent as illustrated in table 4.2.

Table 4.2 AGE / SEX STRUCTURE OF FARMERS

AGE GROUP (IN YEARS)	MALES	FEMALES	TOTAL	PERCENTAGE (%)
Below 25	2	0	2	2.2
25 - 34	20	7	27	30.0
35 - 44	20	4	24	26.7
45 - 54	15	5	20	22.3
55 - 64	3	2	5	5.5
65 - 74	5	2	7	7.8
75 +	5	0	5	5.8
Total	70	20	90	100
Percent	77.8	22.2	100	

Source : Authors Investigation May 1991.

From this table it can be observed that very few farmers are below 25 years of age. This is due to schooling and migration of youths from rural to urban areas. It contrasts with the older generation which started farming in the early youth and have accumulated a long farming experience (section 4.2.3).

4.2.2. Education Structure

A significant proportion (40 per cent) of respondents have no formal education and are illiterate. Among this illiterate group 36.1 per cent fall into the age cohort of 35 - 44 years and 16.7 per cent are 25 - 34 years of age. This means that 52.8 per cent of illiterate farmers are among the most active age group. It could be

argued that this relationship is due to the fact that since the majority of farmers are in this age group, there is a higher probability of getting an illiterate person. By comparison with other Cohorts, Cohort 45 - 54 years accounts for 22.3 per cent of farmers and 11.1 percent illiteracy rate while Cohorts 55 - 64 years and 65 - 74 years account for 5.4 percent and 7.8 percent of farmers respectively with an illiteracy rate of 11.1 per cent each, as illustrated in table 4.3. The high illiteracy among the most active age group affects their level of perceiving innovations and adopting them. Due to illiteracy, they can not make use of written material to expand their knowledge.

TABLE 4.3 EDUCATIONAL STRUCTURE ACCORDING TO AGE OF RESPONDENTS.

AGE GROUP (IN YEARS)	LEVEL OF EDUCATION					TOTAL
	NEVER	PRIMARY	MIDDLE SCHOOL	SENIOR SECONDARY	TECHNICAL/ UNIVERSITY	
LESS THAN 25	2	-	-	-	-	2
25 - 34	8	2	12	5	-	27
35 - 44	11	4	7	1	1	24
45 - 54	4	3	8	3	1	19
55 - 64	4	1	-	1	-	6
65 - 74	4	-	2	-	1	7
75 and above	3	-	1	1	-	5
Total	36	10	30	11	3	90
Per cent.	40	11.2	33.3	12.2	3.3	100

Source : Authour's investigation May 1991.

The table shows that 11.1 per cent of farmers have been to primary school and 48.9 percent have gone up to middle school level and above. The latter group of farmers is a potential which can be utilized in spreading innovations among the community. By virtue of their educational level, this particular group can utilise written material which their fellow counterparts cannot do.

4.2.3. Farmer's Experience and Skills

Respondents indicated significant farming experience ranging from 1 year to 70 years with an average of 20.7 years as illustrated in table 4.4.

TABLE 4.4. FARMERS EXPERIENCE

EXPERIENCE IN YEARS	NUMBER OF RESPONDENTS	PERCENTAGE (%)
1 - 10	26	28.9
11 - 20	30	33.3
21 - 30	19	21.1
31 - 40	4	4.4
41 - 50	6	6.7
50 +	5	5.6
TOTAL	90	100.0

Source : Authors Investigation May 1991.

Expectedly experience varies with age and when the farmer started farming, however the majority had an experience of 11 - 20 years of farming. It can also be observed from the table that 71.1 percent of farmers have been engaged in farming for more than ten years. A long experience will ultimately affect farming in two ways -

farmers tend to concentrate on three or four crops selected after a series of trial and error. Secondly the more experienced the farmer is the more sceptical he is with adopting innovations and has a tendency of relying on the acquired experience. This reflects the rationality of farmers in decision-making and adopting technologies.

Coupled with the rich experience, 62.2 percent of respondents possess a variety of Secondary skills (like trading, tailoring, carpentry and others) which contribute to the farmers earnings. This is an indication that earnings from farming are not enough to cater for all their needs.

A comparison with respondents' educational status shows that secondary skills are more frequent among educated farmers than uneducated farmers as illustrated in table 4.5.

TABLE 4.5 RELATIONSHIP BETWEEN SKILLS AND LITERACY OF RESPONDENTS.

	LITERATE		ILLITERATE	
	NUMBER OF RESPONDENTS	PERCENTAGE	NUMBER OF RESPONDENT	PERCENTAGE
SKILLED	39	72	17	47
UNSKILLED	15	28	19	53
TOTAL	54	100	36	100

Source : Author's Investigation May 1991.

As much as 72 percent of literate respondents possessed other skills as opposed to 47 percent of illiterate respondents. This implies that most educated farmers have secondary occupations which boost their

incomes. These farmers are then in a better position to pay for agricultural inputs (as discussed in section 4.3.3) and to apply new Technologies.

In addition to this 51.1 percent of respondent belong to local organisations namely political (16.7 percent) Religious (26.7 percent) and social (7.8 percent) organisations. It was also observed that half of the respondents in local organisations were literate and half are illiterate. However no significant relationship was observed between local organisations and other aspects of the farmers' activities. It was however noted that farmers in social organisations were all literate. This is because social organisation activities necessitate reading and writing.

4.3 IMPACT OF EXTENSION SERVICES

4.3.1 Sources of Information

Respondents obtained information on Agricultural issues from various sources namely radio, mobile cinema, Newspapers, leaflets, agricultural shows, research stations agro chemical sales men, television and agricultural extension services(table 4.6).

The radio was the most popular, 70 percent of respondents listen to agricultural programmes on radio. However the radio is not used officially by the agricultural extension service department as a means of disseminating information to farmers. These programmes are produced by the effort of Ghana broadcasting co-

operation. Next to the radio was the mobile cinema with 34 % respondents.

Respondents were of the opinion that cinema should be shown more frequently. It was also noted that cinema had been shown in only two settlements out of the six selected settlements indicating that some settlements had not had a chance to view the cinema. Articles in Newspapers were read by 27.8 percent respondents while 12.2 percent read pamphlets with agricultural information. The Newspapers and pamphlets are useful only for literate farmers.

Information from research institutes, salesmen and television was not common among farmers. This is due to the fact that farmers do not have the chance of visiting research institutions, as observed by Williams that research institutions tend to operate on a level which does not encourage interaction with farmers.

Television was only limited to farmers in electrified settlements and who could afford to buy it. Since most of the agrochemicals are supplied through the agricultural department, advertising salesmen were not common in the settlements.

Only 30 percent of respondents received information from agricultural extension services as detailed out in section 4.3.2. (see table 4.6).

It can be observed from the table that farmers obtained information from two or more sources but thirteen

Table 4.6 SOURCES OF AGRICULTURAL INFORMATION

SOURCE OF INFORMATION PERCENTAGE	NUMBER OF RESPONDENTS	PERCENTAGE
Radio	63	70.0
Mobile Cinema	31	34.0
Newspaper	25	27.8
Agricultural extension Services	27	30.0
Leaflets	11	12.2
Agricultural shows	17	18.9
Demonstration plots	6	6.7
Research station	9	10.0
Salesmen	9	10.0
Television	6	6.7
None	13	14.4

Source : Author's Investigation May 1991.

(14.4 percent) respondents did not have any source of agricultural information. In addition to the above sources of information, it was observed that farmers consulted and acquired information from fellow farmers and other people in the village. As much as 47.8 percent of respondents gave some sort of advice to other farmers and 74.4 percent sought advice from other people in the village namely other farmers, relatives, close friends, and to a lesser extent traditional and political leaders (see table 4.7). The latter two categories are looked upon as the elite and hence farmers do not approach them frequently for advice. This is in agreement with the observation by Williams that farmers tend to accept advice rendered in an atmosphere of mutual trust and respect; this is usually by people who are close to them and who can understand their problems.

The relationship among farmers is particularly

important when selecting contact farmers. Benor and others have observed that farmers who are politically active, progressive or do not demand mutual respect from the community should not be selected as contact farmers since they cannot understand farmers' problems.

Table 4.7 SOURCES OF INFORMATION WITHIN THE VILLAGE

SOURCE OF INFORMATION	NUMBER OF RESPONDENTS	PRCENTAGE
ANOTHER FARMER	39	43.3
FRIEND	30	33.3
RELATIVE	19	21.1
TRADITIONAL LEADER	5	5.6
POLITICAL LEADER	2	2.2

Source : Author's Investigation May 1991.

4.3.2.1 Contact with Agricultural Extension Services

4.3.2.1. Agricultural Extension Personnel

As has already been noted in the preceeding section, 70 percent of respondents did not receive agricultural extension services. This is in agreement with the findings of the district workshop report where it was noted that ¹72.3 percent of farmers in the district were not receiving agricultural extensionservices. It is also in agreement with findinsgs in the west Gonja district where 69.5

1. SPRING II Dangme West District workshop report 1990/91.

percent of farmers did not receive agricultural extension services in 1989.¹

Few respondents knew the agricultural extension worker (42.2 percent), or his residence (26.7 percent), or his office (27.8 percent) and only 22.2 percent paid visits to the agricultural extension worker as indicated in table 4.8.

TABLE 4.8 FARMERS ACQUAINTANCE WITH AGRICULTURAL EXTENSION WORKER.

TYPE OF ACQUAINTANCE	NUMBER OF RESPONDENTS	PERCENTAGE
KNOW THE EXTENSION WORKER	38	42.2
KNOW HIS RESIDENCE	24	26.7
KNOW HIS OFFICE	25	27.8
VISITED BY EXTENSION WORKER	27	30.0
VISIT EXTENSION WORKER	20	22.2

Source : Author's Investigation May 1991.

These findings are a pointer to the fact that the Agricultural extension workers have not been established effectively in the communities they are serving. This makes it difficult for the majority of farmers to seek professional advice whenever it is needed.

As observed in section 4.3 farmers will ultimately turn to fellow farmers or other individuals to obtain the necessary advise.

1. SPRING II West Gonja Distirct workshop report 1989/90.

Although no significant relationship was observed between local organisations or farmsizes and extension services, it was observed that all chiefs who were interviewed enjoyed the services of the agricultural extension worker. It was also noted that 74.1 percent of respondents receiving extension services have attended school while 25.9 percent have not attended school. A similar observation was made by Higgs in Ecuador and Paraguay where 92 percent of farmers receiving extension services were literate (chapter 2). These findings are a pointer to favouring the elite (Elite bias). This is disadvantageous to the uneducated farmer who requires more help than the educated.

Visits by the extension worker to the farmer varied from weekly, monthly and seasonal basis, Eleven farmers, seven of whom are contact farmers were visited on weekly basis, six farmers were visited on monthly basis and ten on seasonal basis. Similary reciprocating visits by farmers are on weekly (four farmers) monthly (six farmers) and seasonal (ten farmers) basis as detailed out in table 4.9. It was noted that all farmers paying reciprocating visits had already been visited by the extension worker, indicating that it is the extension worker who made the initiative to establish contact with the farmer. Farmers normally did not take the initiative to establish contact with the extension worker even if they knew him. This is reflected by the fact that 42.2 percent of farmers know the

extension worker but only 30 percent receive his services. As noted in section 2.2.3. the frequency of contact between extension worker and farmer is directly related to the rate of adopting innovations. This is further discussed in section 4.3.4.

TABLE 4.9. FREQUENCY OF CONTACT BETWEEN AGRICULTURAL EXTENSION WORKERS AND FARMERS.

FREQUENCY	VISITS OF EXTENSION WORKER TO FARMER.	VISITS OF FARMER TO EXTENSION WORKER
WEEKLY	11	4
MONTHLY	6	6
SEASONAL	10	10
TOTAL VISITS	27	20

Source : Author's Investigation May 1991.

It can be observed from the table that farmers who are visited on seasonal and monthly basis tend to visit the extension worker on a similar seasonal and monthly basis respectively. Among the eleven farmers visited on weekly basis only four repaid reciprocating visits indicating that these farmers were satisfied with the extension worker's weekly visits.

4.3.2.2. The Contact Farmers

Out of the eighty one ordinary farmers interviewed only five were aware of the existence of contact farmers, four of these knew his residence, three are visited by the contact farmer.

Interviewed contact farmers were of the view that they were playing their roles effectively and were in constant contact with farmers. This claim was rejected by most farmers and disapproved by the fact that only three respondents were receiving advise from contact farmers.

Furthermore, contact farmers claimed to be catering for a number of farmers ranging from 10 - 100 farmers per contact farmer, however it was clarified by the district agricultural officer that the officially established approach is nine farmers per contact farmer.

These observations indicate that : -

- Contact farmers were not sure of their roles and scope of duty.
- The contact farmer approach is not well established among the farmers.

It was also noted that half of the extension workers interviewed were not sure of the contact farmer approach.

The failure of contact farmer to operate as fore planned by the agricultural extension department indicated that fewer farmers will be contacted than had been planned (section 2.3). This is one of the major reasons as to why as much as 70 percent of respondents were not receiving extension services. There is therefore a need to

strengthen this approach by proper selection and training of contact farmers to enable it's sucess.

4.3.3. Innovations from Extension Services

All farmers visited by Agricultural extension workers had been advised on various aspects of farming like land preparation, planting, weeding, chemical use, disease control, storage, marketing and new crops. According to the farmers the most easily adopted innovation were chemical use, disease control, planting, land preparation and weeding.

Reasons advanced for these attitudes were that the effects of chemical use and disease control were easy to see, on the other hand land preparation, planting and weeding techniques were simple and easy to understand.

TABLE 4.10 ADOPTION OF INNOVATIONS BY FARMERS

TYPES OF ADVICE	NUMBER OF RESPONDENTS RECEIVING ADVICE	NUMBER OF RESPONDENTS APPLYING ADVICE
LAND PREPARATION	19	18
PLANTING	21	20
WEEDING	11	10
CHEMICAL USE	23	23
DISEASE CONTROL	18	17
STORAGE	9	9
MARKETING	3	2
NEW CROPS	14	5

Source : Author's Investigation May 1991.

It can be observed from table 4.10 that new crops were not easily adopted by the farmers. This is reflected by the fact that out of fourteen respondents receiving advice on new crops only five had applied the knowledge. Farmers feared the uncertainties involved in cultivating new crops and varieties.

Advice on marketing and storage issues was not very common and almost all farmers complained of poor marketing facilities. Extension workers were of the view that proper planting and chemical use are not popular among farmers because chemicals involve high costs and complicated measurements, on the other hand proper planting is seen by farmers as a waste of time.

Seven out of eight extension workers agreed that farmers easily adopted simple techniques of cultural practises like timely weeding.

The above observations revealed conflicting views between farmers and agricultural extension workers. The reason for this could be that extension workers have not actually identified farmers needs and problems. One extension worker was of the opinion that adoption of new ideas by farmers depended on the level of education and income.

According to this view, better educated farmers understand faster and higher income farmers were in a better position to cover the expenses involved in applying new technology. This argument is strengthened by observation made earlier on in section 4.1.2, that 74.2 percent of those receiving extension services have been to school and 25.9 percent

have not been to school. In addition to this more educated farmers have alternative occupations (section 4.2.3) to supplement their income, making it relatively easier for them to cover the expenses involved in applying new technologies. The study revealed that farmers advised each other on general agricultural issues like planting, pest control, input supply, finance, chemical use and related agricultural problems. The validity of this information is discussed in the next section.

4.3.4 Impact of Innovation on Crop Yield

Yield increases as a result of applying new technology were recorded by 31 (34.4 percent) respondents. Among farmers who recorded yield increases sixteen had been advised by the agricultural extension worker, five were advised by a fellow farmer, seven were advised by a friend and three got advice from newspapers (see table 4.11). Substantial yield increases were achieved through fertilizer application, proper planting and pest control. From table 4.11 it can be observed that farmers got advice from different sources. As much as 59.3 percent of farmers receiving advice from Agricultural extension services had recorded increases. In cases whereby advice was taken from a friend, fellow farmer or newspapers the results are less successful. Although the radio is very popular, no farmer had recorded increase in yield by applying an innovation from the radio.

TABLE 4.11 FARMERS WITH RECORDED INCREASE IN YIELD

SOURCE OF ADVICE	NUMBER OF RESPONDENTS RECEIVING ADVICE	NUMBER OF RESPON- DENTS WITH INCREASE IN YIELD	PERCENTAGE
AGRICULTU- RAL EXTENSION SERVICE	27	16	59.3..
FELLOW FARMER	39	5	12.8
FRIEND	30	7	23.3
NEWSPAPER	25	3	12.0
RADIO	63	0	0.0

Source :Author's Investigation May 1991.

It should however be noted that not all farmers receiving advice from agricultural extension service were able to apply it on their farms as illustrated in table 4.10.

The above observations indicate that

- Professional advice given by the agricultural extension services is more effective than advise from other sources.
- Advise from friends and fellow farmer is derived from experience and lacks professional input.

In agreement with observations noted in section 2.2.3, the radio (mass media) is valuable for creating awareness and interest but is not very useful to advise the farmer on how to implement the innovation successfully.

It was further observed that most farmers who recorded yield increases were visited either seasonally or on weekly basis as illustrated in table 4.12 below.

Table 4.12 FREQUENCY OF VISIT BY EXTENSION WORKER AND
SUCCESSFUL APPLICATION OF INNOVATION

FREQUENCY OF VISIT BY EXTENSION WORKER	NUMBER OF RESPONDENTES VISITED	NUMBER SUCCESSFULLY APPLYING INNOVATION
SEASONAL	10	7
MONTHLY	6	1
WEEKLY	11	8
TOTAL	27	16

Source: Author's investigation May 1991

A possible explanation for the above reaction is that seasonal visits are paid at a time when the farmer is active and the advice is given at the right timing. On the other hand, weekly advice is so frequent that the farmer gets more interest in applying the technology. The weekly frequency also makes it easier for the farmer to learn the new technology. Monthly visits were not very successful because frequency is not enough and the visits may not be in proper timing with farming activities.

4.4 OVERALL ASSESSMENT OF EXTENSION SERVICES

4.4.1 Problems Related to Dissemination

The following problems were identified as hinderance to the efficient dissemination of Agricultural Information.

1. The major problem facing extension workers is lack of efficient transport. This problem was cited by both farmers, extension workers and District Agricultural Officer.

Extension workers in possession of bicycles complained that a bicycle was a tiresome means of transport especially when they have to ride long distances. This problem limits the number of farmers who can be contacted by each extension worker.

2. Lack of visual aids, demonstration materials and informative reading materials necessary for Agricultural extension worker was cited as a major problem by most extension workers. These materials are useful in explaining and clarifying what should be done and how it should be done. Absence of these aids reduces effectiveness and impact of the message.

3. The extension worker-farmer ratio is such that extension workers cannot visit and advise all farmers in the district effectively. This is especially so when effective means of transport are lacking.

4. Language barrier is a problem emanating from the fact that many extension workers are not natives of the district. This necessitates learning the language which may take some time or using interpreters who may misinterpret the message.

5. Farmers lack mutual respect and understanding of the role of the extension workers, sometimes items and services are demanded which are beyond the scope of duty of the Extension worker (for example providing tractors and subsidised inputs), Failure to deliver these items and services is a cause of ridicule for the unfortunate extension worker. In such a situation farmers will not value the advice of the extension worker.

6. Lastly the service is manned by demoralised workers most of whom have a poor professional background. As pointed out earlier on (section 4.1.2) most of workers interviewed felt their education was not sufficient to cope with their daily tasks. It was also noted that demoralization of staff is due to absence of appropriate working conditions.

4.4.2 Problems Related to Adoption

1. Farmers expressed concern that some new technology necessitates spending money especially in the purchase of seed and Agrochemicals. It is not always possible for farmers to be in a position to afford these expenses, ultimately the farmer may not adopt the new technology.

2. Farmers being rational actors, they are conscious of the risks and uncertainties involved especially in introducing new crops. An example was cited of one farmer who purchased seed of an improved maize variety and it failed to germinate. Such fear makes the farmer very cautious in deciding whether to adopt a new technology or not.

3. Some technology is seen as a time consuming and tiresome exercise (example proper spacing and line planting)

A farmer working under time constraint may over look the importance of such techniques and proceed to crop the farm in any manner suitable for him.

4. In addition to the above, some techniques are too complicated for the farmers especially the illiterate farmers. This problem applies especially to measurements and application of fertilizers and agrochemicals. Wrong measurements and application can mean the loss of a whole crop.

5. A few farmers felt that new technology was not necessary and were quite happy to continue with their current farming techniques.

6. Coupled with the above facts some traditional beliefs may present a number of conditions which may not be conducive to adopting new technology. One extension worker cited an instance whereby they are not allowed to step in the fields while wearing rubberboots for fear of irritating the gods.

7. Lastly but most important is the fact that farmers are either completely not aware or partially aware of these innovations.

Table, 4.13 shows responses of farmers as to the major reasons why they fail to apply new technology. It can be observed that 33.4 percent could not adopt new technologies due to the high expenses, followed by fear of risks (16.7 percent) and complication of new

TABLE 4.13 REASONS FOR NOT ADOPTING NEW INNOVATIONS

REASONS	NUMBER OF RESPONDENTS	PERCENTAGE
TOO EXPENSIVE	30	33.4
FEAR OF RISKS	15	16.7
COMPLICATED	15	16.7
NOT ENOUGH TIME	10	11.1
TRADITIONAL BELIEFS	3	3.3
NOT NECESSARY	3	3.3
NO SPECIFIC REASON	4	4.4
TOTAL	90	100.00

Source: Author's investigation May 1991

techniques. (16.7 percent).

This means that new technology should be at a cost affordable by farmers and easy to use. Farmers who are sceptical through fear of risks and traditional beliefs should be persuaded by the Agricultural Extension personnel by use of method and result demonstrations. The demonstration will teach farmers how to apply a technology and the results of that technology. This necessitates making available the relevant demonstration equipment to the extension workers.

4.4.3. Assessment of Extension Workers' Performance

Assessment of the impact of Agriculture extension services was based on four factors namely, number of farmers contacted, frequency of contact, positive changes in yield

and farmers comparison of the usefulness of the different sources of information. It has already been noted in the previous sections that as much as 70 percent of the farmers did not receive agricultural extension services.

On the contrary farmers were turning to fellow farmers friends and radio to seek advise for their farming problems. This indicates that the agricultural extension service has not been able to contact a big proportion of farmers. More effort is needed to achieve a higher target to ensure that most farmers in the district are receiving agricultural extension services.

Among the farmers contacted, frequency of contact is fairly good. This is normally weekly (10 farmers) monthly (8 farmers) and seasonal basis (9 farmers) and increases in yields were recorded by 59.3 percent of farmers receiving extension services. These two observations indicate that the field workers have done good work with the farmers they are in contact with. The problem is that they are concentrating on just a few farmers while the majority are not being served. This is aggravated by the fact that the contact farmers who were supposed to be a means of reaching out to more farmers are not operating successfully. It is therefore necessary to organise the extension service in such a way that as many farmers as possible can be reached. This is possible by providing adequate transport facilities for extension workers and strengthening the position of contact farmers as recommended in section 5.2.

Respondents were asked to assess the usefulness of eight different sources of agricultural information. Each respondent was asked to assess each source independently. Details of responses are in table 4.14.

TABLE 4.14. ASSESSMENT OF USEFULNESS OF VARIOUS SOURCES OF INFORMATION

SOURCES OF INFORMATION	USEFULL		NOT USEFULL	
	NUMBER OF RESPONDENTS	PERCENTAGE	NUMBER OF RESPONDENTS	PERCENTAGE
FELLOW FARMER	56	62.2	34	37.8
RADIO	46	51.1	44	48.9
RELATIVE	31	34.4	59	65.6
NEWSPAPER	22	24.4	68	75.6
EXTENSION SERVICES	16	17.8	74	82.2
TRADITIONAL LEADER	12	13.3	78	86.7
POLITICAL LEADER	4	4.4	86	95.6
CONTACT FARMER	3	3.3	87	96.7

Source : Author's Investigation May 1991.

Table 4.14 shows that fellow farmers were considered by farmers to be the most useful (62.2 percent) source of information followed by radio, (51.1 percent), relatives (34.4 percent) and Newspapers (24.4 percent).

Extension services were considered useful by only 17.8 percent of respondents, while traditional and political leaders scored 13.3 percent and 4.4 percent respectively. Although these observations may be contradictory to the

fact that better yields were obtained by farmers who are advised by extension workers, farmers have valid reasons for underating extension services.

Fellow farmers are always available in the fields and in the Villages, they are easy to see and easy to talk to. This makes them a valuable source of information. Although the advise so rendered does not yield good results due to lack of professionalism, the farmer is satisfied with discussing his problem with someone who understands him. On the otherhand the extension workers are rarely seen and even then by very few farmers. Even if the advice so rendered is more professional and yield better results , most farmers will consider the workers not useful since, they are not within the community and may not understand farmers problems. In section 4.2 it was noted that views of extension workers and farmers on easily adopted technology differed greatly. This was an indication that extension workers were not very sure of farmers preferences. This is in agreement with William's view (chapter 2) that farmers tend to accept and appreciate advise which is rendered under mutual respect and understanding.

These two categories of people (extension workers and fellow farmers) can be combined to establish successful contact farmers. Since farmers are willing to learn from other fellow farmers, the extension workers would supply professional advise. It is however necessary to select the various contact farmers with the approval of other farmers

and to make sure that contact farmers are properly instructed (see recommendations).

The mass media, radio and Newspapers in particular should be utilised more by the extension services. This presents a big and useful potential for disseminating information to farmers and creating awareness.

CHAPTER FIVE

MAJOR FINDINGS AND RECOMMENDATIONS5.1 MAJOR FINDINGS5.1.1. Findings Related to Organisational Structure and Staff Disposition

1. The organisational structure of the agricultural extension services is appropriate for both downward and upward flow of information. However feedback on farmers problems is slow and problems remain unsolved for a long time.
2. Most of the field workers' supervision is done by the sub district co-ordinators followed by report writting. Direct supervision by the District agricultural officer is not frequent enough which may be one of the reasons for a relaxed attitude of field staff.
3. The professional educational background of extension workers is relatively low, making them less competent in executing their field duties.
4. Although many extension workers would like to go for further training, training opportunities are rare.
5. In service training sessions which are often held to instruct field workers have been very useful and motivative to the extension personnel.
6. Although a lot of effort has been made by the Government to provide transport allowance and clothing to field workers, there is still lack of adequate logistic support for extention workers especially transport, remunerations, visual aids and demonstration materials. In

addition to this workers are faced with problems of accommodation, lack of appreciation by farmers and absence of government recognition in form of promotions. These problems have resulted in a generally demoralised inefficient Agricultural extension staff.

7. Linkages between Research and Extension are in the form of lectures given to field workers during inservice training sessions and publications sent on an irregular basis.

Although the District agricultural officer is aware of the research programmes being conducted in the district, the programmes are not based on particular farmers' problems in the district and were made without the participation of extension personnel.

5.1.2 Findings Related to Farmers

1. Although a big proportion of farmers is illiterate, there are more farmers who are educated than illiterate. However most of the illiterate farmers are in the most active farming age group. This is disadvantageous in that they cannot make use of written material to expand their knowledge. On the other hand, educated farmers are a big potential and tend to understand new ideas better.
2. Most farmers have a long farming experience and possess other skills which enables them to supplement earnings from farming. It was however observed that more educated farmers have secondary skills than the non-educated farmers.
3. Farmers give preference to the extension worker residing in the community and who can understand their

problems better.

5.1.3 Findings Related to extension Services to Farmers and other Sources of Information

1. The most popular sources of Agricultural information were radio, fellow farmers and cinema while television, salesmen and research Institutes are hardly used as source of Agricultural Information.
2. Extension services were available to 30 percent of interviewed farmers and the balance (70 percent) were not receiving extension services. In addition to this many farmers did not know the extension worker nor his point of contact (residence or office)
3. Visits by extension workers were on monthly, weekly and seasonal basis. Most farmers visited weekly were contact farmers. Farmers visited on monthly and seasonal basis tended to pay reciprocating visits on equal basis.
4. A tendency of elite bias was detected among farmers selected for extension workers' visits.
5. Extension workers did not have proper laid out schedules of work and tended to concentrate on particular groups of farmers especially chiefs, and herbalists and the educated.
6. Special programs drawn up for agricultural activities are typically a top-down affair and lack participation of the target group (farmers) at the planning stage. This affects the acceptability of these programmes when they are presented to the farmers. It was also observed that small farmers are usually left out in such programmes

7. There is still room for diversifying tools and methods employed in extension work especially in the use of mass media (Radio, cinema) in sensitizing farmers. Due to lack of equipment, demonstrations were not utilized to the maximum.
8. Contact farmers were not sure of their roles or scope of duty and most farmers were neither aware of the existence of contact farmers nor the use of the contact farmer.
9. Farmers tend to seek advice from fellow farmers and friends regarding their farming problems. This behaviour lays a good foundation for establishing contact farmers.

5.1.4 Findings Related to Dissemination and Adoption

The process of dissemination of information was hindered by many factors, the following being the most crucial. The detailed nature of these problems has already been elaborated in section 4.5

1. Lack of adequate and efficient transport for the extension personnel
2. Absence of visual aids and demonstration materials
3. A high extension-farmer ratio
4. Language barriers
5. A demoralised extension personnel.

On the other hand the farmers could not easily adopt innovations due to :

6. Total lack of knowledge about the technology.
7. High costs of purchasing inputs like fertilizers and other agrochemicals.
8. Farmers feared risks and uncertainties especially

involved in growing new crops or new varieties.

9. Some farmers felt that the innovations were too complicated and had not received enough instruction from the extension workers

10. Some technology was taken to be a waste of time and tiresome and was ignored by farmers

11. Traditional beliefs were in some instances a hindrance to new technology and lastly other farmers relied on their experiences and did not consider it necessary to adopt new technology.

12. Farmers tended to adopt innovations which are easy to apply and the results are easily perceived. Risky and complicated innovations were usually avoided by the farmers. Extension workers however were not aware of the preferences and fears of farmers in adopting new technology.

13. Failure by farmers to apply new technology was attributed to high expenses, fear of risks, complication of technology and general unawareness of appropriate technology.

14. Recorded yield increases were more frequent among farmers who had received the services of the Agricultural extension worker. Advice from fellow farmers, and mass media was not very effective when applied by the recipient farmers.

15. Weekly and seasonal visits of Extension workers to farmers were more effective than monthly visits. Indicating the need for either frequent or timely contact.

5.2 RECOMMENDATIONS

5.2.1 Expanding Extension Services

In order to make sure that as many farmers as possible receive extension services the following procedures are recommended:-

1. Supervision of field workers by the District Agricultural officer and sub-district co-ordinators should be stepped up by:-
 - a. Providing efficient and reliable means of transport in form of pick up or landrover to the District Agricultural Officer
 - b. Providing motorcycles for the sub district co-ordinators to facilitate their mobility
 - c. Drawing up appropriate schedules for supervision of field workers.
 - d. Evaluating Agricultural extension activities in the district annually. The evaluation should be based on predetermined cropping targets and farmers' views. The evaluation team is to include the district planner, the district Agricultural officer and members of the district Assembly. Consequent Extension activities will then be based on this evaluation to ensure improved performance.
 - e. Verifying all monthly reports submitted by each field worker. This should be done by the immediate supervisor.
2. Extension workers can only be effective when appropriate logistic support is available. It is therefore essential for the Ministry of Agriculture to provide the following items for field workers.

- a. Visual aids to facilitate farmers education
 - b. Demonstration materials to carry out appropriate demonstrations. These should include items like sprayers, Agrochemicals seed and others .
 - c. Facilities for setting up demonstration plots for farmers benefit.
 - d. Each field worker be provided with a bicycle to improve their mobility.
3. Efficiency and effectiveness of contact farmers to be improved through careful selection and instruction of the contact farmers.

It is therefore recommended that:-

- a. Contact farmers be selected with the help of village leaders and farmers
- b. Each category of farmers to be represented namely the large scale, medium and small scale farmers. Each socio economic group of farmers should have separate contact farmers. This facilitates communication and understanding between contact farmers and other farmers.
- c. Extension workers are to explain the role of the contact farmer to both contact farmers and ordinary farmers and make sure that each farmer is attached to a contact farmer. This necessitates the assistance of the village leaders. (both political and traditional)
- d. If the contact farmer loses interest he is to be replaced by another farmer
- e. The extension workers are to visit the contact farmers on regular basis, at least each farmer should be visited

once a fortnight. However other farmers need not to be neglected by the extension worker. Farmers must be encouraged to visit their contact farmer regularly to discuss prevailing problems and seek solutions.

4. In order to avoid biases and unintentional neglect of some farmers, extension workers should draw up personal work schedules in consultation with farmers. The schedules are to include:

Date, location to be visited, activity, number of farmers involved and a commentary on the success of the trip.

5. The use of mass media is highly recommended to sensitize farmers and create awareness. It is therefore recommended that:

- a. a liaising committee between the department of Agricultural extension services and Ghana Broadcasting Co-operation be set up
- b. Messages should consist of appropriate timely advise to farmers. The extension personnel is to draw up such messages and submit them to the Ghana Broadcasting Corporation.
- c. The committee to acquire a mobile cinema unit to show agricultural films in different settlements.

5.2.2 MOTIVATION OF EXTENSION WORKERS

In order to achieve a more competent and effective extension personnel, the following procedures are recommended:

1. Training opportunities to be availed to all able extension workers. The training should be aimed at upgrading the present qualifications of extension workers.
 - a. General certificate holders to be trained for certificate in Agriculture at Agricultural Colleges in the country.
 - b. Holders of certificate in Agriculture to be trained for diploma in agriculture at all Universities in the country.
 - c. Diplomates to be trained for degree courses at the appropriate Universities.
 - d. It is further recommended to avoid recruitment of personnel with no professional background.
2. Conditions of service of extension workers to be improved by a. providing adequate remunerations in terms of salary and allowances for field workers to enable them to cater for their daily needs like accomodation and maintenance.
 - b. Setting up appropriate promotional schemes for extension workers. The District Agricultural Officer is to liase with the Ministry of Agriculture to implement these recommendations.

5.2.3 Improving Research Extension Linkages

The existing research extension linkages to be strengthened both institutionally and functionally.

- a. Setting up a research extension committee at district level. The committee is to include the District Agricultural officer, sub district co-ordinators and

research personnel. The committee is to be charged with the responsibility of drawing up appropriate research programs aimed at solving farmers problems and providing appropriate new technology to farmers.

b. Functionally field workers should be aware of what is going on at the research institutions through seminars, field trips and courses held at such institutions. The field workers are to give feed-back on what is happening in the field.

c. Field trials to be set up at farmers farms to test the practicability of the recommended technology.

5.2.4 Improving Farmers Welfare

In order to encourage farmers to adopt better farming technology and improve their living standards, it is recommended that:

a. The decentralized departments of Agriculture in collaboration with community development, mobilization squad, health and Ghana Education Service set up community development centres in various settlements. These centres are to educate farmers on hygiene and appropriate skills (like driving, tailoring carpentry) and strengthen the current literacy campaigns in the district. Volunteers from educated farmers should be encouraged to teach other farmers. A fee is to be paid by the farmers to cover running expenses of these centres.

b. Farmers' local organisations be established in the various settlements through the departments of agriculture and co-operatives. These organisations will form a basis of farmers' bargaining power in acquisition of inputs, farm

finance, and marketing of farm produce. The organisations are also to liase with the extension services to make sure that each farmer is receiving agricultural extension services.

c. Farmers participate more and more in the planning of special agricultural programmes in the district. The programmes include farmers days and prize giving days. All categories of farmers are to be involved (small, medium and large scale farmers).

5.3 PROGRAMMES

In view of the above recommendations the following programmes are proposed for the purpose of improving extension services in the district. The programmes have been divided into three phases, each phase is to last three years (see table 5.1) The first phase emphasises strengthening of Institutional framework of the agricultural extension services in the District The second phase emphasises inducing awareness among farmers so as to make them more receptive to innovations and improving conditions of services for extension personnel. The third phase concentrates on strengthening of linkages between Research Institutions and Extention services. The various programmes are presented with their different major activities (projects) in the logframe in table 5.2.

TABLE 5.1 PROGRAMMES

PROGRAMME	LOCATION	IMPLEMENTING AGENCY	MONITORING AND EVALUATION AGENCY
(1) ESTABLISHMENT OF EFFECTIVE SUPER-VISION OF EXTENSION WORKERS	THROUGH OUT THE DISTRICT	MINISTRY OF AGRICULTURE. DISTRICT AGRICULTURAL OFFICER	MINISTRY OF AGRICULTURE, DISTRICT AGRICULTURAL OFFICE. DISTRICT PLANNING DEPARTMENT
(2) FACILITATE EXTENSION WORK	THROUGH OUT THE DISTRICT	MINISTRY OF AGRICULTURE, DISTRICT AGRICULTURAL OFFICE	MINISTRY OF AGRICULTURE. DISTRICT AGRICULTURAL OFFICE
(3) ESTABLISH EFFICIENT CONTACT FARMERS	THROUGH OUT THE DISTRICT	SUB-DISTRICT CO-ORDINATORS MOBILIZATION SQUAD.	DISTRICT AGRICULTURAL OFFICE.
PHASE II			
(4) ESTABLISH EFFECTIVE USE OF MASS MEDIA	ACCRA DODOWA	DEPARTMENT OF EXTENSION SERVICES. GHANA BROADCASTING CO-OPERATION.	MINISTRY OF AGRICULTURE
(5) REVIEW CONDITIONS OF SERVICE OF EXTENSION WORKERS	ACCRA THROUGH OUT DISTRICT	DEPARTMENT OF EXTENSION SERVICES	MINISTRY OF AGRICULTURE
(6) INITIATE COMMUNITY DEVELOPMENT ACTIVITIES	ASUTSUARE DODOWA DAWHENYA OLD NINGO	DEPARTMENT OF AGRICULTURE COMMUNITY DEVELOPMENT	DISTRICT ASSEMBLY
(7) ESTABLISH FARMERS ORGANISATIONS	THROUGH OUT DISTRICT	DEPARTMENT OF AGRICULTURE DEPARTMENT OF CO-OPERATIVES	DISTRICT ASSEMBLY
PHASE III			
(8) ESTABLISH EFFECTIVE-EXTENSION LINKAGES.	DODOWA	DISTRICT AGRICULTURAL OFFICE. CROP RESEARCH INSTITUTE	MINISTRY OF AGRICULTURE. MINISTRY OF SCIENCE AND TECHNOLOGY

TABLE 5.2. SEMI- LOG FRAME

PROGRAMME / ACTIVITY	MAJOR ASSUMPTIONS.
<u>OVERALL GOAL</u>	
BETTER FARMING TECHNIQUES ADOPTED BY FARMERS IN THE DISTRICT.	ALL NECESSARY PRODUCTION FACTORS ARE AVAILABLE.
<u>PURPOSE</u>	
EFFICIENT AND EFFECTIVE AGRICULTURAL EXTENSION SERVICE ESTABLISHED.	FARMERS APPLY ADVICE GIVEN EXTENSION SERVICE.
<u>OUTPUTS / RESULTS</u>	
1. EFFECTIVE SUPERVISION OF EXTENSION STAFF ESTABLISHED. 2. EXTENSION WORK FACILITATED. 3. EFFECTIVE CONTACT FARMERS ESTABLISHED. 4. USE OF MASS MEDIA IN EXTENSION SERVICE ACHIEVED. 5. EXTENSION PERSONNEL MOTIVATED 6. EFFECTIVE RESEARCH EXTENSION LINKAGES ESTABLISHED. 7. FARMERS MADE MORE RECEPTIVE TO INNOVATIONS. 8. FARMERS BARGAINING POWER INCREASED.	DISTRICT COMMUNITY RESPOND POSITIVELY TO ALL PROGRAMMES:
<u>INPUTS / ACTIVITIES</u>	
1.1 PURCHASE VEHICLE FOR DISTRICT AGRICULTURAL OFFICER. 1.2 PURCHASE MOTORCYCLES FOR SUB-DISTRICT CO-ORDINATORS 1.3 SET UP SUPERVISION SCHEDULES OF FIELD STAFF. 1.4 SET UP AN EVALUATION COMMITTEE. 1.5 CONDUCT YEARLY EVALUATION OF AGRICULTURAL EXTENSION SERVICES IN THE DISTRICT. 2.1 PURCHASE AND ALLOCATE BICYCLES TO FIELD WORKERS 2.2 PURCHASE AND PROVIDE VISUAL AIDS AND DEMONSTRATION MATERIALS TO FIELD WORKERS. 2.3 SET UP DEMONSTRATION PLOTS 2.4 SET UP PROPER WORK SCHEDULES FOR EXTENSION WORKERS.	1. SUPERVISION STAFF ARE ACTIVE. 2. EXTENSION WORKERS USE FACILITIES EFFICIENTLY.

TABLE 5.2. (CONT)

PROGRAMME / ACTIVITY	MAJOR ASSUMPTIONS.
3.1 MOBILISE AND EDUCATE FARMERS ON USE OF CONTACT FARMERS. 3.2 SELECT CONTACT FARMERS 3.3 EDUCATE CONTACT FARMERS.	3. FARMER MAKE EFFECTIVE USE OF CONTACT FARMERS.
4.1 SET UP LIASON COMMITTEE BETWEEN DEPARTMENT OF EXTENSION SERVICES AND GHANA BROADCASTING CO-ORPERATION. 4.2 BROADCAST APPROPRIATE FARMERS PROGRAMMES. 4.3 ACQUIRE MOBILE CINEMA UNIT 4.4 ESTABLISH SCHEDULE FOR SHOWING CINEMA IN VARIOUS LOCATIONS.	4. FARMER MAKE USE OF RADIO PROGRAMMES AND CINEMA SHOWS,
5.1 SET UP COMMITTEE TO REVIEW CONDITIONS OF SERVICE OF EXTENSION WORKERS. 5.2 SET UP TRAINING SCHEDULES FOR EXTENSION WORKERS. 5.3 LIASE WITH TRAINNING INSTITUTIONS 5.4 START TRAINING OF EXTENSION WORKERS. 5.5 SET UP PROMOTION SCHEME FOR EXTENSION WORKERS.	5. GOVERNMENT RECOGNISES THE NEED TO IMPROVE CONDITIONS OF SERVICE OF EXTENSION WORKERS.
6.1 SET UP RESEARCH - EXTENSION COMMITTEE AT DISTRICT LEVEL. 6.2 INITIATE APPROPRIATE RESEARCH PROGRAMMES. 6.3 CONDUCT INSERVICE TRAINING COURSES AT RESEARCH INSTITUTIONS 6.4 ESTABLISH DISTRICT FARM TRIALS.	6 ADEQUATE RESEARCH FACILITIES ARE AVAILABLE.
7.1 SET UP COMMUNITY DEVELOPMENT CENTRES IN VARIOUS LOCATIONS. 7.2 DRAW UP CURRICULUM FOR EDUCATING FARMERS. 7.3 START TRAINING FARMERS.	7. FARMERS MAKES USE OF WHAT THEY ARE TAUGHT.
8.1 CONDUCT CAMPAIGNS TO FORM FARMERS ORGANISATION. 8.2 ASSIST FARMERS TO FORM FARMERS ORGANISATIOIS. 8.3 TRAIN LEADERS OF FARMERS ORGANISATIONS.	8. FARMERS ORGANISATIONS ARE RECOGNISED.

CHAPTER SIX

SUMMARY AND CONCLUSIONS

The development of this district will depend among other factors on how well appropriate technology can be applied in various areas of production. Since Agriculture is employing 57.5 percent of the people in the district priority must be given to this sector especially in the field of better farming methods. This will induce higher yields without necessarily encroaching on vast tracts of land, a factor which is very crucial to the environment of the district. Research on the other hand has to produce environmentally friendly and appropriate technology for farmers. It was observed that Dangme West district has high potential for agricultural development. This development will largely depend on use of improved farming methods and development of irrigation in the district. Currently traditional farming methods are still used extensively in the district and crop production levels are below national averages. Most farmers in the district have no professional agricultural background and have to acquire information on better farming methods from various sources. The Agricultural extension services are officially charged with the responsibility of educating farmers on better farming methods.

The main objective of this study was to examine the effectiveness of Agricultural extension services in delivering relevant information to the farmers. The effectiveness of other sources of Agricultural information

like radio, fellow farmers and others were also examined. The study revealed that most farmers in the district were not receiving agricultural extension services. In the absence of adequate extension services, the farmers turned to fellow farmers to seek solutions to their problems, however the advice so rendered was not as beneficial as advice from the extension personnel. On the other hand, although mass media is not officially used by the extension department, radio was very popular among farmers but not effective enough to induce adoption of innovations. It was observed that farmers receiving agricultural extension services were benefitting from these services, however there is a need to reach out to as many farmers as possible. The officially instituted contact farmer, approach has not been very successful in serving farmers. On the other hand workers were faced with a number of problems which greatly reduced their efficiency and effectiveness.

The most crucial problems identified were lack of adequate transport facilities, logistic support and a proper social framework suitable for successful extension services. Farmers on the other hand were not able to adopt new technology due to the costs and risks involved, complication of technology, lack of interest or general unawareness of the new technology.

In view of the foregoing problems it is recommended that contact farmers be strengthened and appropriate logistic support be availed to the extension workers. In addition, it is recommended to motivate workers in the form

of training, promotions and adequate remunerations.

In order to organise and sensitize farmers it is recommended that, community development centres and local organisation be set up in various settlements. In addition, the use of mass media especially radio and cinema should be encouraged in the extension service.

In order to provide appropriate technology for farmers in the district, strong linkages and liasing between research and extension are also recommended.

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