AN EMPIRICAL ANALYSIS OF THE AGRICULTURAL EXTENSION SERVICE IN WESTERN STATES OF NIGERIA AS AN ADULT EDUCATION SYSTEM

by

RAPHAEL OLABAMIJI OPEKE

Diploma (Agric.) School of Agric. M.P., Ibadan, 1963
B.Sc. (Agric.) University of Nebraska, Lincoln, 1967
M.A. (Extension Con't. Ed.) University of Saskatchewan, Saskatoon, 1972

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF EDUCATION

in

THE FACULTY OF EDUCATION

We accept this dissertation as conforming to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

FEBRUARY, 1977

© Rafael Olabamiji Opeke, 1977
In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the Head of my Department or by his representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of **ADULT EDUCATION**

The University of British Columbia
2075 Wesbrook Place
Vancouver, Canada
V6T 1W5

Date ___________________________
ABSTRACT

Agriculture is the primary industry in Nigeria. About 75 percent of the people of the Western States of Nigeria (Ogun, Oyo, and Ondo States) depend on agriculture with cocoa production as the principal foreign exchange earner. Over the years, other researchers have questioned the effectiveness of the Agricultural Extension Services as adult education agencies in the country and have argued the stagnant nature of farm practices among peasant farmers.

The purpose of the study is to investigate the roles that Agricultural Extension Services in the Western States of Nigeria should play for farmers and rural non-farm peoples. The investigation is focused on identification of the methods and techniques agricultural extension agents use in teaching farmers and examines the effectiveness of such methods as correlates of cocoa production among farmers. A conceptual model based on Verner's theoretical framework was used to evaluate the Extension Service as an adult education system.

The subjects included 70 extension supervisors, 109 village level extension agents, and 140 cocoa farmers. Interview schedules consisting of structured Likert scales were used to collect data for the study. Descriptive statistics, correlational analyses, univariate and multivariate analyses of variance, and regression analyses were used to examine factors affecting cocoa production.

The Extension staff in the Western States of Nigeria
perceived administrative function as the "most important" function, and educational function second. The farmers perceived administrative function of the extension service as the "least important" and ranked educational function as the "most important". The most effective instructional techniques recalled by the farmers were those techniques least used by extension agents. The educational components of the extension service in the states did not emerge as significant predictors of cocoa production; even though 55 percent of the instructions given to the farmers occurred under systematic instructional techniques.

It was concluded that Agricultural Extension Service in the Western States of Nigeria did not provide effective educational service for the rural people. Extension activities carried out as the most important in the states are not those which the farmers expected from the Ministry of Agriculture. Educational methods and techniques used by the extension agents did not make a significant impact on the peasant farmers, and were judged ineffective to the farmers' own situation. The present system of extension administration tends to relegate the education of rural farmers to a peripheral purpose within the institutional framework.

The study utilized a broad perspective of the educational process of rural farmers through agricultural extension and thereby concluded that instructional techniques based on personal and group contacts are deemed the most effective by the farmers in improving their own farm practices.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter/Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE PAGE</td>
<td>i</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>x</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>xi</td>
</tr>
<tr>
<td>CHAPTER I - INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Objectives of the Ministry of Agriculture</td>
<td>6</td>
</tr>
<tr>
<td>Background to the Problem</td>
<td>6</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>9</td>
</tr>
<tr>
<td>Objectives of the Study</td>
<td>10</td>
</tr>
<tr>
<td>Purposes and Justification</td>
<td>11</td>
</tr>
<tr>
<td>Variables</td>
<td>12</td>
</tr>
<tr>
<td>Hypotheses</td>
<td>13</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>15</td>
</tr>
<tr>
<td>References for Chapter I</td>
<td>17</td>
</tr>
<tr>
<td>CHAPTER II - REVIEW OF LITERATURE</td>
<td>18</td>
</tr>
<tr>
<td>Theoretical Framework</td>
<td>19</td>
</tr>
<tr>
<td>Extension Administration</td>
<td>24</td>
</tr>
<tr>
<td>Role Theory</td>
<td>27</td>
</tr>
<tr>
<td>Research on Role Perceptions</td>
<td>30</td>
</tr>
<tr>
<td>Research on Job Satisfaction</td>
<td>39</td>
</tr>
<tr>
<td>References for Chapter II</td>
<td>43</td>
</tr>
</tbody>
</table>
### CHAPTER III - AGRICULTURAL EXTENSION: WORLDWIDE, U.S., AND NIGERIA - A COMPARATIVE ANALYSIS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Extension in U.S.</td>
<td>52</td>
</tr>
<tr>
<td>Organizational Structure</td>
<td>59</td>
</tr>
<tr>
<td>Philosophy, Objectives</td>
<td>61</td>
</tr>
<tr>
<td>Functions of Extension Services</td>
<td>64</td>
</tr>
<tr>
<td>Role and Training of the Agents</td>
<td>66</td>
</tr>
<tr>
<td>Summary of Extension in the U.S.</td>
<td>69</td>
</tr>
<tr>
<td>Agricultural Extension in Western Nigeria</td>
<td>69</td>
</tr>
<tr>
<td>People and Settlement Patterns</td>
<td>71</td>
</tr>
<tr>
<td>History of Extension Service in Nigeria</td>
<td>74</td>
</tr>
<tr>
<td>Organizational Structure</td>
<td>84</td>
</tr>
<tr>
<td>Functions of Extension Services</td>
<td>89</td>
</tr>
<tr>
<td>Summary of Extension in Nigeria</td>
<td>94</td>
</tr>
<tr>
<td>References for Chapter III</td>
<td>96</td>
</tr>
</tbody>
</table>

### CHAPTER IV - METHODOLOGY

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area and Setting of Study</td>
<td>99</td>
</tr>
<tr>
<td>Instrument Development</td>
<td>99</td>
</tr>
<tr>
<td>Validity of the Instrument</td>
<td>106</td>
</tr>
<tr>
<td>Sampling</td>
<td>107</td>
</tr>
<tr>
<td>Data Collection</td>
<td>110</td>
</tr>
<tr>
<td>Analysis of Data</td>
<td>111</td>
</tr>
<tr>
<td>Conceptual Model</td>
<td>112</td>
</tr>
<tr>
<td>Limitation</td>
<td>112</td>
</tr>
<tr>
<td>References for Chapter IV</td>
<td>117</td>
</tr>
</tbody>
</table>

### CHAPTER V - PRESENTATION AND DISCUSSION OF FINDINGS

**A. Characteristics of Extension Staff**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of Respondents</td>
<td>119</td>
</tr>
<tr>
<td>Tenure of Respondents</td>
<td>121</td>
</tr>
<tr>
<td>Sex of Respondents</td>
<td>123</td>
</tr>
<tr>
<td>Formal Education</td>
<td>124</td>
</tr>
</tbody>
</table>
CHAPTER V (Continued).

| Extension In-Service Training        | 126 |
| Farm Family Service                 | 131 |
| B. Characteristics of Farmers       | 135 |
| Age of Respondents                  | 135 |
| Marital Status                      | 135 |
| Years of Schooling                  | 137 |
| Farmers Cooperative                 | 138 |
| Years of Farming                    | 139 |
| Size of Farm                        | 141 |
| Farm Income                         | 142 |
| Farm Yield                          | 143 |
| Summary of Biographical Data        | 145 |
| Role Analysis                       | 149 |
| Role Perceptions                    | 149 |
| Role Performance                    | 158 |
| Extension Methods and Techniques    | 163 |
| Sources of Farm Information         | 169 |
| Farmers' Contact with Extension Agents | 172 |
| Farmers' Learning from Extension Methods | 174 |
| Rating of the Extension Services    | 182 |
| Job Satisfaction                    | 186 |
| Summary of Findings                 | 190 |
| References for Chapter V            | 194 |

CHAPTER VI - CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

| Conclusions                           | 196 |
| Implications for Extension Administration | 204 |
| Recommendations for Further Research  | 211 |

BIBLIOGRAPHY                              213

APPENDIX A - RESEARCH INSTRUMENTS        224
APPENDIX B - LETTERS                    247
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Distribution of Extension Staff by Tenure</td>
<td>122</td>
</tr>
<tr>
<td>2</td>
<td>Distribution of Extension Staff by Sex</td>
<td>123</td>
</tr>
<tr>
<td>3</td>
<td>Distribution of Extension Staff by Formal Education</td>
<td>124</td>
</tr>
<tr>
<td>4</td>
<td>Distribution of Senior Staff by Specialization</td>
<td>126</td>
</tr>
<tr>
<td>5</td>
<td>Distribution of Extension Staff by In-Service Training in Adult Education</td>
<td>127</td>
</tr>
<tr>
<td>6</td>
<td>Distribution of Sources of Continuing Education for Junior Extension Workers</td>
<td>129</td>
</tr>
<tr>
<td>7</td>
<td>Distribution of Junior Extension Staff Adequacy of Training</td>
<td>130</td>
</tr>
<tr>
<td>8</td>
<td>Distribution of Junior Extension Staff by Number of Farm Visits Per Year</td>
<td>132</td>
</tr>
<tr>
<td>9</td>
<td>Distribution of Farmers by Age</td>
<td>136</td>
</tr>
<tr>
<td>10</td>
<td>Distribution of Farmers by Years of Schooling</td>
<td>137</td>
</tr>
<tr>
<td>11</td>
<td>Distribution of Farmers by Membership in Cooperative Union</td>
<td>138</td>
</tr>
<tr>
<td>12</td>
<td>Distribution of Farmers by Years of Farming</td>
<td>140</td>
</tr>
<tr>
<td>13</td>
<td>Distribution of Farmers by Size of Farm</td>
<td>141</td>
</tr>
<tr>
<td>14</td>
<td>Distribution of Farmers by Farm Income From Cocoa Production</td>
<td>143</td>
</tr>
<tr>
<td>15</td>
<td>Means of Eleven Biographical Characteristics of Senior Staff</td>
<td>146</td>
</tr>
</tbody>
</table>
Table 16 - Means of Eight Biographical Characteristics of Junior Staff  
Table 17 - Means of Fourteen Biographical Characteristics of Farmers  
Table 18 - Perceived Importance of Extension Functions by Mean Scores  
Table 19 - Comparisons of Senior, and Junior Staff and Farmers on Extension Functions: Analysis of Variance  
Table 20 - Scheffe Multiple Comparisons of Senior and Junior Staff and Farmers on Four Extension Functions  
Table 21 - Comparison of Senior Staff Against Junior Staff on Role Performance: Analysis of Variance  
Table 22 - Ratings of Effectiveness of Extension Techniques  
Table 23 - Comparisons of Senior and Junior Staff on Effectiveness of Extension Techniques  
Table 24 - Differences Between Extension Techniques Recommended and Techniques Actually Used  
Table 25 - Comparisons of Senior and Junior Staff on the Use of Techniques  
Table 26 - Farmers' Prime Sources of Information  
Table 27 - Distribution of Farmers by Contact with Extension Workers  
Table 28 - Extension Techniques Recalled and Used by Farmers  
Table 29 - Cocoa Production (Total Yield) Predicted by Demographic Predictors  
Table 30 - Cocoa Production (Per Acre) Predicted by Demographic Predictors
Table 31 - Educational Effectiveness: Rating by Farmers and Extension Staff . . . 183

Table 32 - Job Satisfaction Scores of Extension Staff . . . . . . . . . . 187

Table 33 - Comparisons of Job Satisfaction for Senior and Junior Staff . . . . 189
# List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Summary of World Approaches to Extension and Rural Development</td>
<td>51</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Map of Nigeria showing Study Area</td>
<td>100</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Conceptual Model for the Study of Extension Services</td>
<td>113</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Distribution of Extension Staff by Age</td>
<td>120</td>
</tr>
<tr>
<td>Figure 5</td>
<td>Distribution of Respondents by Years of Experience</td>
<td>134</td>
</tr>
<tr>
<td>Figure 6</td>
<td>Respondents' Perceived Importance of Extension Functions by Mean Scores</td>
<td>152</td>
</tr>
<tr>
<td>Figure 7</td>
<td>Percentage Distribution of Extension Role Performance</td>
<td>161</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Effectiveness Vs. Recall Rate of Extension Techniques</td>
<td>178</td>
</tr>
<tr>
<td>Figure 9</td>
<td>Percentage Distribution of Respondents by Extension Rating</td>
<td>184</td>
</tr>
<tr>
<td>Figure 10</td>
<td>Extension Staff Mean Scores on Job Satisfaction</td>
<td>188</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

Thesis writing is a learning process. For me, the actual beginning and the end of this process is difficult to identify. However, it is possible to recognize many individuals who have made significant contributions at various stages of this dissertation. I would like to express my sincere gratitude to these individuals both in Canada and in Nigeria.

In Canada

The successful completion of this dissertation would not have been possible without the cooperation and guidance given me by my doctoral committee. I am in debt to them for all the intellectual stimulation and wealth of experience they contributed throughout my studies. I wish to express my profound gratitude to Professor Coolie Verner, of the Department of Adult Education, who served as my major supervisor, and was the Chairman of my Graduate Committee. The other members of the Graduate Committee to whom I am greatly indebted are: Professor James E. Thornton, and Professor John B. Collins both of the Department of Adult Education, Professor Todd Rogers, of the Department of Educational Psychology, and Professor Jack Thirgood of the Faculty of Forestry. I am very grateful to all of them for their significant contributions in their various fields of expertise.

I am greatly indebted to the Faculty of Education, University of British Columbia, for the award of a Graduate
Assistant Fellowship from 1974-1976, without which it would have been impossible for me to complete the studies at this time. I am particularly grateful to Dr. D. McKie, Director, Graduate Division, Faculty of Education, for the kind cooperation and assistance he rendered with respect to my financial needs. My special thanks go to the Dean and Assistant Dean, Faculty of Graduate Studies, U.B.C., for the Special Bursary award given to me to assist my travel to Nigeria to collect data for my dissertation.

I cannot overlook the friendly and technical assistance given by Mr. Lewis Varga, of the Educational Statistical Laboratory, for the computer analysis of the data, and for this I am very grateful. My special thanks go to Dr. (Mrs.) Gloria Smith who volunteered to edit the thesis.

IN Nigeria

I wish to express special gratitude to the various institutions and individuals in Nigeria who provided the technical and financial support for this study. I am grateful to Mr. J.O.A. Akinwolemiwa, the Permanent Secretary, Ministry of Agriculture and Natural Resources, Western State, Ibadan, (now in Ondo State) for support and approval to use the Ministry of Agriculture as the organizational setting for the study. I also appreciate the assistance given by all the zonal, and divisional coordinators and their field staff. The field data collection would not have been possible without their help. I owe special thanks to Messrs J.A. Oshakuade, I.O. Ajayi, Biodun
Akinwotu, Amos Akintomide, and J.D. Atewologun all of Akure and Ilesha zones. Contact with farmers in the remote areas would have been practically impossible without the special efforts of these staff.

The University of Ife, Nigeria, was responsible for my sponsorship for this study. My sincere gratitude goes to the Vice-Chancellor, the Director and staff of I.A. R & T (Training Division) all of the University of Ife for making the study possible.

Finally, I am greatly indebted to my wife Remi, and to Bukola Toyin and to all members of my family who stood firmly behind me to give all the psychological driving force needed for the pursuit of lifelong education.
Dedicated To My Family
Chapter I
INTRODUCTION

In their attempts to combat the evils of poverty, disease, and ignorance, especially among rural families, many countries of the world have adopted in varying degree Agricultural Extension Service as the instrument to achieve rural development and transformation.

Within the past few decades, agriculture has experienced an accelerated rate of change as a result of new agricultural technology. However, these agricultural innovations have no value unless they get to the farmers who need them. The agricultural extension service through its extension workers, constitutes one of the principal sources of diffusing new agricultural technology to rural people.

This study is concerned with agricultural extension in the Western States of Nigeria (comprising Ogun, Oyo, and Ondo States). More particularly, it is concerned with role perceptions of the staff of the Agricultural Extension Service Division of the Ministry of Agriculture and Natural Resources (MANR) in the Western states of Nigeria and the cocoa farmers in the States as a significant client system.

It is assumed that, as a result of the goals and objectives set by the organization and the organizational structure within which the extension work is performed, the
agricultural extension workers should relate efficiently to other persons in the system, and to other organizations and agencies.

Extension workers of the Western State Ministry of Agriculture are responsible for a large part of the total "extension-type" work that influences the decisions of the farm people of Western Nigeria. Other agencies that carry out "extension work" in the state are agricultural schools and institutes which employ agricultural graduates to teach vocational and extension education, cooperative societies, university extension departments, radio and television stations, neighbours and friends.

Mosher (1958) stated that the extension agent, in developing a programme along the lines of the current interests and needs of rural people, must have a reasonable competence with respect to specific practice changes in several subject-matter fields. His chief job, in which he needs to be a real expert, is to be an effective teacher, a sensitive perceiver of community opinion and a skillful participant, in, and guidance of, community resource utilization.

Di Franco and Fenley (1958) described two aspects of rural extension. First, the phrase "extension process" might be defined as the democratic educational approach, carried on under the precept of cultural norms, by local and professional leaders. Contained within the phrase are the important phases of programme building, execution, and evaluation, together with such phases as teacher-learner techniques, determining felt
needs, and the administrative framework within which these phases operate.

The second fundamental aspect of rural extension is the role concept, through which an individual guides himself and his actions insofar as the duties, functions and obligations of his position are concerned, and in terms of, and modified by the expectation of those with whom he is working. When combined and understood by an individual, process and role constitute some of the major dimensions through which he may successfully participate in rural development.

The history of agricultural extension in the Western States of Nigeria dates back to 1893 when the Botanical Demonstration Garden was established at Olokemeji-Abeokuta with the sole purpose of collection of horticultural plants and the teaching of ornamental gardening (Fenley and Williams, 1964). But in spite of government input and reorganization of agricultural extension between 1893 and the mid 1950's, the agricultural extension service performed more of government regulatory functions than educational functions. That is, extension agents were more prone to enforcing government regulations than to provide education for farmers.

Agricultural extension as a service in the Western States of Nigeria (Ogun, Oyo, and Ondo states) can be said to have begun in 1921 when the unified Department of Agriculture was created, and the School of Agriculture was established at Moor Plantation in Ibadan, the then capital of Western State. The agricultural education given at the School and the guidance
furnished in the field in growing the export crops, set the stage for later expansion into activities more in line with extension (Fenley, 1964).

The Agricultural Extension Service in its educational sense took on its present appearance around 1959, when more trained agricultural personnel became available and the thrust for independence from British rule brought many international bodies and agencies into Nigeria to help in the manpower development of the country. It was under this international technical assistance programme that the United States Government through its Agency for International Development (USAID) provided training programmes in agricultural education for indigenous staff locally and at the Land Grant Universities and Colleges in the United States. The Scheme (under which the author was trained) was entitled "Training of Future Agricultural Leaders" and was pioneered by Professor John M. Fenley.

Since 1960 there has been an increasing desire in Nigeria to change the nature of extension work from service to education. However, the problems facing the extension workers in performing the educational functions for their clientele are numerous. Prominent among these problems are: (a) inadequate infrastructure development; (b) shortage of modern facilities such as transport, teaching devices and so on; (c) role conflict of the local extension workers who must provide both service and law enforcement which further alienates the farmers; and (d) the bureaucratic structure of
the Ministry of Agriculture and Natural Resources. Because of these problems, the question has been raised in some quarters whether extension is performing its educational functions, and if so, for what section of the population.

Certain observations could be made about the Agricultural Extension Service. First, it is a social organization. Caplow (1964) defined an organization as a social system that has an exact roster of members, a programme of activity, and procedures for replacing members. An organization is first and foremost an interaction network, thus the activity of one person is partly and continuously determined by the activities of others. If the functions of the organization are to be accomplished, it must be possible for those in charge of coordinating the programme of activity to communicate with all positions, and for each position to communicate with them.

Second, the agricultural extension service has most of the characteristics of a bureaucratic organization. Classical bureaucracy according to Weber (1947) is characterized by the following interrelated ideas: (1) the organization is founded on legal authority which has a claim to the obedience of the members of the organization that enacts the legal norm and to that of the other persons within the sphere of power of the organization; (2) positions are organized hierarchically, each lower position being under the control and supervision of a higher person. Each position has a definite sphere of competence, with specified tasks, obligations, a specified
degree of authority, and the means of compulsion to enforce its authority; and (3) candidates are appointed and not elected, and appointments are based on free contractual relationships. It is a social structure governed by a system of abstract rules.

Objectives of the Ministry of Agriculture and National Resources

The Agricultural Extension Services Division is the main extension agency of the Western States Ministry of Agriculture and Natural Resources and has as its primary objectives:

1. to maintain and increase the overall efficiency of agricultural production in the States,
2. to ensure that the most modern farming techniques and the latest research findings are made available to farmers,
3. to provide the leadership and general guidance in agricultural production that will bring about improved living standard in the rural farm people (Aribisala, 1961).

Background to the Problem

In terms of economic development and technological advancement, the gap between the rich and the poor nations is wide and appears to be widening. In developed countries like the U.S.A., Canada, the United Kingdom and France, only a small proportion of the population is engaged in production
agriculture while a substantial portion of the population is engaged in agro-business enterprises which provide continuing aid to the farm and non-farm people. For example, in the United States, industries related to agriculture contribute between 15 to 20 per cent of the Gross National Product and employ 20 to 25 per cent of the labour force. On the other hand, commodities valued at the farm gate represent only 4 to 5 per cent of the GNP, and labour in farming amounts to about 8 per cent of the labour force (Moore and Walsh, 1966; Kohls and Downey, 1972).

The adoption of technologies by farmers in these economically advanced countries has resulted in a higher standard of living for rural people and rural non-farm people. Although several socio-economic factors contributed to the advancement of agriculture in these industrialized nations, much of the credit is attributed to the well-developed and well-organized agricultural research, extension and adult education provided by their agricultural extension services.

In contrast, the countries of Africa are agrarian in nature; the rural farm people and rural non-farm people of Africa still experience high rates of illiteracy, material poverty, disease and hunger arising from the less productive subsistence farming. In Nigeria, about 70 per cent of the population is engaged in rural agriculture using inefficient tools on fragmented land holdings.

The key to solving many of these social and technological problems lies in providing effective rural adult
education programmes in agriculture, health, nutrition, basic and/or functional literacy education. Such total adult education will provide opportunities for the people to acquire the necessary knowledge, skills, and attitudes that would enable them to choose and practise productively occupations of their choice. It would enable them to participate more effectively in societal and community actions and to enable them to adjust to continuing social changes.

Findings from a number of adoption studies and role perceptions showed that the agricultural extension has made very little educational impact on Nigerian farmers in terms of improving their knowledge, skills, and attitudes towards scientific farming. In other words, the adult education aspect of the extension services which is extremely vital to the integrated development of the rural areas in the developing countries has been neglected.

The United Nations (FAO, 1966) report on agricultural development in Nigeria between 1965-1980 pointed out that "in the past ... the field staff of government agricultural services in Nigeria were mainly involved in passing on, and frequently enforcing government orders and instructions to the farming community". Several other researchers and government agencies have called for a new philosophy of extension services in Nigeria, and also for an an approach that is based on education, training, and leadership rather than on the exercise of authority and the enforcement of government regulations.
Statement of the Problem

About seventy per cent of the Nigerian population lives in rural areas and practises subsistence farming. The Western States (now comprising the Ogun, Oyo, and Ondo states) rely on the production of export crops for their foreign exchange earnings. While Western States is almost self-sufficient in the production of food crops, cocoa is the major crop.

These rural farmers and non-farmers face numerous problems of agricultural production, rural community development, citizenship education, health education, home and family education and so on. A majority of these farmers have no contact with rural extension workers, and their needs in these problem areas remain unmet.

How do the village level extension workers and their supervisors regard these activities? Are they the ideal roles of agricultural extension services? How do the technical junior staff and the supervisors of the Extension Services of the Ministry of Agriculture and Natural Resources (MANR) define their own roles? What do the cocoa farmers in the States consider as important functions of the Extension Services? How well are the Extension Services in the Western States performing their educational roles to the farmers, and what methods and techniques are mainly used? Are the extension workers satisfied with their job? These questions form the basis of this study.
Objectives of the Study

The primary objective of the study is to determine the degree to which the Extension Services Division of the Ministry of Agriculture and Natural Resources of Western States of Nigeria are effective in providing adult education to rural farmers.

Specific Objectives:

1. to determine role consensus between extension personnel of the MANR, and the cocoa farmers in Western States with regard to the role that agricultural extension should play.

2. to determine role performance of the extension junior staff and their supervisors and to measure the differences between the two groups.

3. to determine the adult educational instructional techniques which are perceived as most effective by extension personnel and farmers.

4. to determine the instructional techniques which are most frequently used to teach farmers.

5. to determine the relationship between effectiveness of farmers' learning of agricultural practices and instructional techniques used.

6. to determine how farmers and extension staff rate the extension education provided in Western States, and to establish the relationship between their ratings and personal variables.
7. to determine the relationship between extension personnel job performance and job satisfaction.
8. to identify similarities and differences between Extension Services in Nigeria and the Cooperative Extension Service in the United States.
9. to draw conclusions and make recommendations based on the data about the effectiveness of Extension Service as an Adult Education System in the Western states.
10. to suggest measures for improving the administration and the educational process of the MANR based on the findings.

Purposes and Justification

The reasons for conducting the study were twofold:
1. to help gain a better understanding of rural agricultural extension as an adult education system in the Western States of Nigeria
2. to help provide Western Nigeria agricultural extension administrators with empirical and valid information on which to base decisions of selections, training, planning, and supervision of agricultural extension personnel.

The study could be justified on many grounds. First, the result could be of practical application to the administration of extension services in the Western States, and in Nigeria as a whole. Second, the study contributes to the
knowledge on Rural Extension Services as an Adult Education System, and would serve as a benchmark for further research in extension and adult education. Third, the research findings and the learning experience accruing from this study should contribute to the author's own knowledge and aspirations in the field of agricultural extension and adult education.

Variables

The variables investigated and analyzed in the study are as follows:

Independent Variables:

1. the age of extension workers and farmers.
2. tenure with MANR, and tenure on extension work — defined as number of years worked with MANR.
3. years of farming - as years of experience of farmers in practical farming.
4. rank of the extension worker - defined as their status in MANR.
5. formal education - defined as number of years of schooling for all categories of respondents.
6. size of the farm owned by individual cocoa farmers.
7. degree of emphasis on farmer contact - defined as instruction-oriented contact: between extension agents and the farmers.
8. role perception - defined as the respondent's activity expectations held for the Ministry of Agriculture and Natural Resources.
9. membership in cooperative society - whether or not an individual farmer is a member of the Farmers' Cooperative Society of Western States.

10. effectiveness of educational techniques - how effective each technique is judged in providing maximum learning for farmers about farm practices.

Dependent Variable:
The critical dependent variable is the yield of cocoa per acre obtained by a farmer who used extension education services.

Research Hypotheses
Two research hypotheses underly this study.

1. There is an incongruent relationship between the role perception of the MANR Extension Service personnel and their client system; that is, the ideal role expectations that the extension services should play for rural farmers as perceived by extension supervisors and their village level extension agents are significantly different from the farmers' extension role expectations.

2. There is an intra-organizational incongruence between the role perceptions and role performance of the Extension Service of Western States of Nigeria; that is, the amount of time extension supervisors and their junior staff expend on extension functions
does not reflect the relative importance they attach to these functions.

Specific Hypotheses

1. the role perceptions of the extension supervisors will be positively related to the role perceptions of their subordinates.

2. the role perceptions of extension personnel will be positively related to the role perceptions of the farmers.

3. the role perceptions of the extension personnel will be positively related to their role performance.

4. there will be a direct and positive relationship between the role perceptions and socio-economic variables, especially:
   a) age
   b) education
   c) tenure (years of experience)
   d) farm size
   e) number of children
   f) number of wives

5. The job satisfaction of the extension personnel will be positively related to:
   a) education
   b) tenure
   c) age
   d) rank
6. The ratings given to the state Extension services will be positively related to higher socio-economic status of both the extension personnel and the farmers.

All hypotheses will be tested in the null form at alpha = .05 level.

Definition of Terms

The definition of terms listed here provide a convenient reference for the concepts which have been used, and will be used in this study. Where appropriate, the measure of each term will also be given.

Extension Service - refers to an out-of-school educational activity involving rural community development, adult education and agricultural production.

Junior Staff - are the technical extension personnel responsible for the execution of extension programmes at the village or zone level.

Zone - is a geographic area under the jurisdiction of a specific number of extension personnel.

Supervisor - is an agricultural extension administrator who is responsible for the administration of extension works at the districts, zonal, or state level.

A Division - is one of the twenty-five administrative or political units into which the old Western State was divided after the creation of the twelve states in 1967.
Organization - is the Ministry of Agriculture and Natural Resources, of Western States, Nigeria and all its staff.

Position - is the bureaucratic location of an actor or class of actors in system of social relationships.

Ideal Role - is a set of expectations applied to an occupant of a particular position rather than what he actually does.

Role perception - is the entire set of responses or behaviour anticipated and desired in relation to a certain role.

MANR - is the Ministry of Agriculture and Natural Resources.

Prescribed Role - is the role defined by evaluative standards laid down by the social system which sets the limits of the behaviour within a particular role.

Role fulfillment - occurs whenever the role performance of a role occupant agrees with his role perception measured by ratio-estimation of time allotted to rank-order extension functions.

Role conflict - means disagreements on the role expectations among role definers, i.e. extension personnel and the farmers themselves.

Method - refers to the relationship established by MANR with the client system for the purpose of diffusing knowledge among them.

Technique - means the relationship established by the extension agent to facilitate learning among rural clientele.
References for Chapter I


Chapter II
THEORETICAL FRAMEWORK DEVELOPED FROM
A REVIEW OF LITERATURE

In recent years, agricultural extension experts, adult educators, social planners, and rural sociologists have tried to apply the theories of the behavioural sciences and the principles of adult education to the study of the educational roles of agricultural extension services in different countries. The review of literature for this study comprises four parts: (a) Verner's theoretical framework for evaluating the educational role of the Cooperative Extension Service as an adult education system forms the basis for the study, (b) administrative theories in extension as a basis for describing the administrative behaviour of the Ministry of Agriculture and Natural Resources of the Western States of Nigeria, (c) role theories as a basis for discussing social actions of occupants of status-positions in the Ministry, and (d) research studies on role perceptions and employee job satisfaction in extension services as a basis for discussion and interpretation on role perceptions and job satisfaction.

Statistical descriptions of the relationships among variables, such as role consensus, job satisfaction, administrative styles, educational methods and instructional techniques, and so on, however rich in information, do not explain what the phenomena mean socially. It has been
reiterated by some social scientists that explanations must be in terms of theory. Social and organizational variables for instance cannot be used to explain social behaviour such as role perception, unless they are considered in terms of inter-relationship with all other variables which constitute the actor's environment. In this study, theories and principles of administration, organizational behaviour and adult education as they have been applied to extension teaching and administration are used as a basis for interpretation of the results.

Theoretical Framework

In considering the Extension Service as an adult education agency, it is better to do so from the point of view of the five major areas identified by Verner (1959) viz:- function, programmes, participation, methods and roles.

It is difficult to define an agency's role in adult education with sufficient precision to be operationally functional without determining how such an agency perceives its major functions as a social and legal entity. Verner maintains that this results from the marginal status which the adult education function holds in most agency programmes. Kolbs and Brunner have identified the Cooperative Extension Service of the United States as "the largest and best financed division of adult education", while Loomis and Beagle qualified this by saying "...it is a mistake to call ... (it) ... an adult education agency ... (for) ... the work of the Extension
Service extends to all age groups.

This observation about extension service in the United States is further supported by the research evidence that there are great differences in perceptions among extension personnel as to the true nature of its functions as an educational system. Five major functions of the Extension Service have been identified: (1) Educational functions, (2) Administrative functions, (3) Service functions, (4) Public relations functions, and (5) Staff functions (Saville, 1965; Kelsey and Hearns, 1963; Niederfrank and Spurlock, 1969).

Extension is not limited to matters pertaining to agriculture and home economics. It can and does become involved in educational activities unrelated to agriculture as the Scope report (1958) indicates. Therefore, neither agriculture nor home economics is pivotal to what is "educational". Extension education embraces those activities which can satisfy any educational needs of rural adults because every such need is related to a readjustment of rural life. Verner concludes that total educational needs of rural adults is basic to the existence of an extension programme and by rejecting it as a programme function, extension would defeat its own purpose of altering the quality of rural life (Verner, 1959).

The basic idea of borrowing from the Cooperative Extension Service of the United States to reorganize the Agricultural Extension Service in Western States of Nigeria is an illustration of the theory of cultural diffusion as
postulated by Verner (1968). According to this theory, social change is essentially a communication or diffusion process which involves the transfer of culture elements from one society to another in order to stimulate and accelerate growth in the recipient culture.

As applied to adult education, Verner suggests that the disparity in educational opportunities existing within and between nations can be reduced through the diffusion of educational technology from the more advanced to less developed nations. This cross-fertilization process of education may be initiated by the donor, or the borrower through an intermediary action such as by the UNESCO, or USAID and other technical assistance organizations which may help to promote the international diffusion of science and technology by placing at the disposal of others useful ideas, skills and experiences originating elsewhere.

The transfer of a cultural element occurs in three distinct stages: (1) the introduction or presentation of the element, (2) its acceptance by the receiving culture, and (3) the integration of the element into the pre-existing culture. The presentation of an element may occur by chance through inter-cultural contacts or by deliberate action on the part of individuals or governments. The acceptance of an element by a receiving culture depends primarily upon the immediate utility and desirability of the element to that culture, while integration is determined by the compatibility of the element with existing value systems and social
organizations. Usually the integration of an acceptable
element results in the modification of both the transferred
elements and relevant aspects of the receiving culture.

Elements such as materials and equipment can be
transferred easily if they do not involve basic alterations
in behaviour patterns of the recipients. But any traits or
material culture which necessitate alterations in established
processes, or which impinge upon attitudes, beliefs and values
in a culture are usually resisted. Innovative ideas, under-
lying principles and techniques of instruction in adult
education can be transferred easily and in many circumstances
it is better to transfer just the idea through stimulus diffu-
sion and leave the receiving culture to develop its own
appropriate responses.

Educational elements which tend to be culture-
bound include methods, materials, or devices and programme
content, but not the ideas of educating people which are
derived from universal principles governing human learning
behaviour. An element or its associated traits may be
rejected at any stage, and integration becomes more difficult
or impossible where the receiving agency lacks a proper
understanding and true acceptance of the educational idea,
or fails to modify it to suit local conditions before
disseminating the idea to the people. Therefore, the most
critical aspect of the role of the receiving agency is the
capacity to modify (or develop through research) new forms of
the borrowed technology consistent with local environmental
and economic conditions.

In order to accomplish a comprehensive evaluation of extension service as an adult education agency, we need to consider its programme activities and the methods and techniques used to organize the participants for the purpose of systematic learning. Educationally valid programme planning, according to Verner (1959) is that conducted on the level of the individual group, for only on that level can the specific educational needs be identified functionally. In other words, the grassroots approach of extension programme planning is based on this adult education principle - that is, effective learning occurs when the learning experience is need-centered in terms of the participant; therefore, local extension agents need to plan individually with each group of learners.

The selection of programme content on the local level is not enough to ensure educational quality. To be of educational value the programme content must be based on an adult education process which provides systematic sequencing of learning experiences under an instructional setting involving a relationship between the learners, content to be learned, and the agent. It is only under this setting that learning is functional, efficient and developmental. Approaches to public education through mass media communications such as radio, bulletins, TV and posters may result in learning under natural societal setting, but learning under such conditions is inefficient, incomplete and results largely by chance according to Verner (1962, 1964).
These two theoretical assumptions on programme, participation and methods form the basis for the decision to include the clientele (the farmers) in the study.

**Extension Administration**

Administration in extension was defined by Campbell and Gregg (1957) as "the total of the processes through which appropriate human resources are made available and made effective for accomplishing the purposes of an enterprise". Newman (1951) stated that "administration is the guidance, leadership and control of the efforts of a group of individuals toward some common goals". He pointed out that a good administrator enables the group to achieve its objectives with a minimum expenditure of resources and least interference with other worthwhile activities.

Clark and Abraham (1959) stressed the practical value of Newman's definition of extension administration, and reasserted that "the essence of administration is the ability of the administrator to plan large projects, weld together an organization for their accomplishment, keep the organization functioning smoothly and efficiently, and achieve the agreed upon objectives well within the allotment of personnel, time and resources available and without doing all the work himself". This definition fits into the fusion process theory of Bakke and Argyris.

The "fusion process" theory was developed by Bakke and Argyris at the Yale University Labour Management Centre,
through a series of studies in many types of organization, such as a business machine factory, educational institutions, and research organizations. The basic elements of this theory are (1) the individual and (2) the organization. Both strive to accomplish certain objectives whether identical, different and/or conflicting.

The fusion process was thus perceived as the process by which the individual and the organization adapt to the needs of each other. This is accomplished through two simultaneous processes (Argyris, 1964):

1. The socialization process - is the process by which the individual is made into an agent of the organization.
2. The personalizing process - is the process by which the individual uses certain aspects of the organization as the agencies for maximizing his individual needs.

A particular value of this theory is in the area of personnel selection, placement and maintenance. The underlying principle is that organizational effectiveness is dependent upon the extent that the personalizing and socializing processes are congruent. In agricultural extension, fusion process theory therefore focused on the proper identification of the goals and objectives of the institution and how the individuals and the institutions are fused together to accomplish these objectives.

Agricultural extension as it is practised in Nigeria
has been influenced by the Cooperative Extension Service of the United States of America. The Cooperative Extension Service is the official educational agency of the United States Department of Agriculture, and the extra-mural educational agency of the Land-Grant Colleges of Agriculture and Home Economics. The Smith-Level Act of 1914, is the basic legislation providing the guidelines that underlie the extension services in the United States. It defines the purpose of the service and the responsibilities of the Federal and state governments that participate in it.

Kelsey and Hearne (1963) viewed the ultimate objective toward which extension work was being directed as more fruitful lives and better living for all people. In their writing on the organization of extension services in Western Nigeria, Fenley and Williams (1964) pointed out that the fundamental objective of extension was to raise the level of living and income of the farming population.

In international development programmes extension methods are receiving more and more attention. The Food and Agriculture Organization (FAO) of the United Nations, the Organization for Economic Cooperation and Development (OECD) and the International Bank for Reconstruction and Development stress the contributions which extension programmes can make to rural development and to land use adjustment programmes.

The definition of extension by FAO (1962) is phrased in terms suited to guiding the growth of extension systems in the developing countries. It envisages that extension is
neither an agency administering rural programmes on behalf of the government, nor is it a law enforcement agency, but:

an informal out-of-school educational service for training and influencing farmers (and their families) to adopt improved practices in crop and livestock production, management, conservation, and marketing. Concern is not only with teaching and securing adoption of a particular improved practice, but with changing the outlook of the farmer to the point where they will be receptive to, and on his own initiative continuously seek, means of improving his farm business and home (F.A.O., 1962).

It is important to note that in each of the different definitions of extension, each finds its expression in, and is influenced by, the institutional settings in various countries throughout the world. Each of them stresses the end result of extension activities at the point of contact with farm people. This is why empirical studies in the roles, goals, and objectives of extension services are of great importance for planning and administration of a state extension service, and more importantly why there must be a base for formulating practical actions at state and national levels that will give meaning to the people in rural areas.

Role Theory

This study centers on the roles of extension workers, and therefore assumes that role theory forms an integral part of the theoretical framework. Role theory stipulates that every person in every society or social system occupies certain positions of status - educator, mother, extension agent, and so on. With every social position, there are socially
prescribed duties or functions to be performed, rights and privileges to be enjoyed. There are many roles within a social system, each influenced by various role expectations held by important associates, both within and outside the system.

The term role has been defined and used in many ways by many authors, but three basic ideas appear in most role conceptualizations. They are: (1) that individuals exist in social positions, (2) that they behave, (3) and that the behaviour occurs with reference to expectations (Gross, Neal et al. 1958). We define role then as a socially prescribed way of behaving in particular situations for any person occupying a given social position or status. A role represents what a person is supposed to do in a given situation by virtue of the social position he holds.

The anthropologist, Ralph Linton, defined role as the sum total of the culture patterns associated with a particular status (1945). Here, the position of an agricultural officer or an agricultural superintendent's role includes the attitudes, values and behaviour ascribed by the society and or social institution (MANR) to any and all persons occupying this status. Linton concluded that roles are learned on the basis of the actor's status, either current or anticipated. But it should be noted that there is no perfect consensus of operational definitions among role definers. However, Linton's definition seems to form the basis for role concepts among sociologists.

While each person in an organization occupies a role
that is unique to that individual and his position, if an organization is to function effectively and efficiently, it is important that there be agreement on what is expected of individuals who occupy different roles. A role cannot be performed alone; it must always have a counterpart. Thus, confusion on the part of one role performer spreads to those who are performing with him, and disagreement on role expectations results in role conflict. Thus, research elsewhere shows that when an actor perceives himself in a role conflict situation in which there are two incompatible expectations (A and B), there are four alternative behaviours available by which he can resolve the conflict. He may (1) conform to expectation A, (2) conform to expectation B, (3) perform some compromise behaviour which represents an attempt to conform in part to both expectations, or (4) attempt to avoid conformity to either expectations (Gross, Neal et al. 1958).

Research studies on role analysis in recent years have focused on role perceptions and their implications on organizational development. Reviewing literature on interpersonal role perception, Zalkind and Costello (1962) identified and discussed some of the influences that may affect the perceiver and the perceived as follows:

A perceiver may be influenced by considerations that he may not be able to identify, responding to cues that are below the threshold of his awareness.

When required to form difficult perceptual judgement, both the perceiver and perceived may respond to irrelevent
cues to arrive at a judgement.

In making abstract or intellectual judgements perceiver and the perceived may be influenced by emotional factors; what is liked is perceived as correct.

In interpersonal perceptions, people will weigh perceptual evidence coming from respected (or favoured) sources more heavily than that coming from other sources.

A perceiver may not be able to identify all the factors on which his judgements are based. Even if he is aware of these factors he will not likely realize how much weight he gives them.

Research on Role Perceptions

Bible and McComas (1963) carried out a study on perceptions of role expectations and role performance for a vocational agricultural teacher's position in Ohio. They found that teachers rated "high" in effectiveness by their school administrators had greater agreement on role perceptions than did teachers rated "low" by their school administrators. Job satisfaction of the teacher was positively related to teacher effectiveness and to consensus on role definition. They concluded that teacher effectiveness and satisfaction were related to a high degree of role consensus.

Gross, Mason and McEachern (1958) carried out a comprehensive study of the school superintendent role in Massachusetts; they dispelled the notion that there is no complete consensus on role expectations among the incumbents
of positions in a social system. Rather, they saw the concept of consensus on role definition as a variable among sets of role definers where perceptions are focused on single role definition items.

A number of studies on role perceptions of county extension agents have been carried out in the United States and all seemed to indicate some lack of agreement between groups of role definers with regard to most important function of extension agents (Gross, Bible and Nolan, 1960; Bible and Brown, 1963; Abdullah, 1964; and Bible and McNabb, 1966 and Keekens, 1957).

Several other researchers have criticized the U.S. Cooperative Extension Service for not providing service for those who most need them (Carlson, 1970). Ideally, the agricultural extension service should have either equal contact with all members of its constituency or else, more contact with those constituents who have the greatest need for educational assistance. Rogers and Capener (1960) noted that the people making the most use of agricultural extension are actually those segments of the rural population which have the least need for educational assistance. In other words, extension service has not been sensitive to the needs of the disadvantaged rural people.

Various reasons have been suggested for this differential contact. Some attributed it to the voluntary nature of the educational service provided by extension, while others have associated the phenomenon with a high clientele-
agent ratio (Hurd, 1965; Oloruntoba, 1972).

In Canada, role perceptions and performance of the District Agriculturists (relating to educational activities for rural farmers) have been studied in recent years. Akinbode (1969) used the Rogers and Capener method of measuring the farmers' contact with the District Agriculturists. He found that 72 per cent of British Columbia farmers used impersonal sources of information (for all the over-all contacts) with the District Agriculturists, while personal contacts accounted for the remaining 28 per cent.

Thus, farmers in British Columbia rely more on impersonal sources for their farm educational activities than on personal instructional settings. His findings also agreed with other research findings which indicated that farmers who had most contacts with the extension agents belonged to the higher socio-economic class, while those who did not have contacts were the socio-economically disadvantaged farmers (Marsh and Coleman, 1954).

In contrast, Verner and Gubbels (1967) found among the dairy farm operators in British Columbia that personal sources of information were the most important from interest to adoption stage, but contact with the District Agriculturists accounted for only 20 per cent of total extension contacts with their clientele. In another study, Verner, Millerd and Dickinson, (1967) showed that where extension service has been more active in providing farmers with opportunities in continuing education about agriculture, participation in a
planned and systematic programme was a significant variable related to the adoption of innovations.

Other studies in Canada have focused on the educational and developmental functions of the extension service. On the basis of amount of time and effort given to extension functions, and what agents feel the importance of such functions should be, "providing specific information on farm practices", "teaching farm principles", "consultation" have been ranked high among extension programmes, while least agreements was shown for "programme administration", and "community development". (Job, 1965; Opeke, 1972). In a similar study McNaughton (1970) tried to measure the amount and quality of educational work accomplished by the Agricultural Extension Agent in Alberta. He concluded in his study that in terms of quality of educational work, and the largest number of clientele, that small group meeting, although not used to a great extent, accomplished this goal better than any other technique. This is as expected because small group meeting affords the instructor an opportunity to dovetail instruction to the learners needs and interests, and also affords greater learner participation.

Morehouse (1968) studied role perception and performance among agricultural extension personnel in Nova Scotia. His data indicated that the majority of the three categories of workers he sampled agreed that 'job security', 'freedom' in programme planning, the 'satisfying experience', of doing extension work, the 'recognition' they get for their
work, their 'office facilities', and the 'prestige' of their position are important reasons why they like their job. They did not like the administrative aspects of their job which leave them with little chance to specialize in their job.

The Agricultural Representatives, Subject matter Specialists, and Home Economic Agents all rated 'farm visits', 'demonstrations' and 'tours' very highly as important sources of information to the farmers. All categories of his respondents felt that they did not have adequate training in extension methods sufficient to enable them to perform their required roles effectively.

In countries of Africa, Asia and the sub-continent, few studies on rural extension have been conducted to establish a quantitative estimate of the role played by education in increasing the productivity of farmers. In a study of relationship between level of education of farmers and their agricultural productivity in India, Parolka (1971) found that there was a significant correlation between crop yield and education. He found that total variation in crop yield accounted for by variables such as adoption of improved farm practices, participation in extension education activities, per capita land holding, and general education is 67 per cent, out of which education alone is responsible for 21 per cent. Parolka concluded that mere literacy of Indian farmers was not sufficient but that the education should be of a functional nature. Other research workers in India have also stressed that successful implementation and integration of scientific
agriculture, family planning, and health education depend on effective extension and adult education (Warburton, 1971; Kosky, 1968).

In Nigeria, only very few studies concerned with the problem of role perceptions and performance of extension workers have been conducted. In nearly all the studies, role perceptions were at variance with role performance, and extension workers have ranked service and educational functions very high on their activities (Igbani, 1967; Akinbode, 1971, 1972). In the same study, Akinbode also concluded that farmers in Western State wanted more service than educational function. This kind of finding is expected because it is the kind of service which the extension agent used to offer in the past.

In a recent evaluative study on the role of agricultural extension in the East Central State of Nigeria, Nwakka (1975) revealed a contradiction in the role perceptions and role performance of extension workers in the ECS. Although as few as 43 per cent of the senior and junior extension staff ranked "teaching farmers" new practices or adult education as the most important job, in practice, however, most of the extension agents' time was spent in the office on administrative routine activities, which suggests that the extension staff in the State perceived themselves as civil service administrators rather than educators or perhaps the institution does not provide adequate training and facilities to make them function as rural adult educators.
Opare (1976) examined the role of adult education and the adoption of selected recommended practices among cocoa growers in Ghana, and found that the correctness of the growers' knowledge of the principles underlying the recommended practices was positively associated with the adoption score. He concluded that there is no significant tendency for correctness of knowledge to be more closely linked with adoption than with formal instructional sources of information; although both predict farm output.

In a study of "factors affecting farmers' response to extension in Western Nigeria", Kidd (1968) found that although there was good rapport between the extension supervisors and their subordinates, one of the factors impeding staff performance was their attitude toward the job. Many of the staff perceived their job as that of supervising; that is, agricultural officers supervise Agricultural assistants, who in turn supervise field overseers, who in turn supervise labourers, and farmers, and so on. In other words, no effort was directed to the education of the peasant farmers. Another impeding factor identified by Kidd was the failure of the Ministry of Agriculture to meet commitments, either implied or actual, such as failure to provide adequate transport and travel facilities, (or funds) and failure to supply inputs to farmers as contained in government programmes. His data on farmers' response to extension work also shows that only one-third of the sampled farmers from 26 villages knew their local extension worker and only one-fifth knew him well. On a
village basis, his data indicated that the extension worker was known by most farmers in 7 villages, by about one-half of the farmers in 6 villages and by only one or two farmers in the other 13 villages. Most farmers who knew of an extension worker felt that he was well liked by the villagers; they were, however, evenly split in opinion as to whether he knew of their village problems or traditions or whether he had actually been of help in the village. Overall, Kidd concluded that lack of access to extension workers and their programmes and a feeling among the farmers that they were ineligible to participate in appropriate groups impeded farmers' response to extension work.

In another study directed by Rogers on the "success and failure of agricultural programmes in 71 villages of Eastern Nigeria, Hursh, Roling, and Kerr (1968) identified some characteristics of agents working in villages with high programme success contrasted with agents working in low success villages. Among these discriminating characteristics were: agents' use of multiple communication methods (demonstrations, films, posters, etc.) more than agents of failure villages; agents worked significantly more days in the success villages than in failure villages; agents conducted more systematic face-to-face meetings with villagers, and knew important village leaders. Altogether, the 43 characteristics analyzed have a multiple correlation of .95 with programme success, meaning that differences in these features from village to village account for more than 93 per cent of the variance in
response to new agricultural programmes in these villages.

Williams and Alao (1972) evaluated the government project on maize/rice in the Western State of Nigeria. When farmers were asked to indicate where they generally met extension workers in their communities, a majority of them (36.2%), mentioned "somewhere in the village", another, fraction (31%) indicated "on my farm". The data indicated that 95.0% of all the farmers sampled mentioned extension workers as initial source of information, while only 2.0% mentioned "friends and neighbours and radio" as sources of information.

The basic problem about these studies in Nigerian settings is that while extension agents have been probed on their educational role, less attention has been paid to the quality and type of instructional settings in which they occur. Given this condition, it is very difficult therefore to distinguish between mere concern with information dissemination and actual commitment to carrying adult education out to rural farmers. It is necessary therefore to provide a definition of the term adult education that will offer sufficient precision, to serve as the basis for the identification of the phenomenon i.e. extension service, in which we are interested. For our purpose, adult education is defined:

Adult education is the action of an external educational agent in purposefully ordering behaviour into planned systematic experiences that can result in learning for those for whom such activity is supplemental to their primary role in society, and which involves some continuity in an exchange relationship between the agent and the learner so that the educational process is under constant supervision and direction. (Verner, 1962).
It is essential to distinguish educational process from dissemination of information whose objective is to inform through such procedures of mass communication, including bulletins, exhibits, result demonstrations, or news releases. Although learning may occur through information dissemination, nevertheless, such learning occurs by chance and may not be maximally efficient.

This study, then, examined the instructional setting under which the cocoa farmers learned about their basic farm practices.

Research on Job Satisfaction

A number of researchers have investigated the relationship between workers' perception of their work situation and job satisfaction. In sociological perspective, Cottrel (1942) and Parsons (1951) conceptualized that consensus on role definitions would be related in a positive and linear manner to the stability of social systems and to personnel gratification, whereas Stouffer (1949) concluded that such relationship may be curvilinear.

One important distinction must be made about job satisfaction: job satisfaction and job dissatisfaction are not necessarily opposites of each other. The work of Herzberg (1959, 1966), set a new landmark on the whole concept of employee job satisfaction. Herzberg's Motivator/Hygiene Theory, asserts that the factors responsible for job satisfaction are separate and distinct from those responsible for job
dissatisfaction. According to this theory, growth or motivator factors intrinsic to the job are responsible for employee job satisfaction. These include achievement, recognition for achievement, the work itself, responsibility, growth or advancement. These needs relate to human characteristics - the ability to achieve and, through achievement, to experience psychological growth.

The hygiene factors that are responsible for job dissatisfaction according to Herzberg are extrinsic to the job. They include company policy and administration, supervision, interpersonal relationships, working conditions, salary, status, and job security. Herzberg concluded that motivators were the primary cause of satisfaction, and hygiene factors the primary cause of unhappiness on the job.

From the early 1960's, other researchers have criticized Herzberg's dual theory on methodological grounds. Recent researchers have demonstrated that emotional responses to work are related more directly to the structural characteristics of the organization than to individual differences. They call attention to the possibility that structural characteristics of organizational positions - such as tenure with the organization, tenure with the particular assignment and the respondents rank might account for a substantially larger portion of the variance in people's attitudes towards their organizations, than do their demographic characteristics (O'Reilly and Roberts, 1975; Vroom 1964; Herman, Dunham, and Hulin, 1975). According to these researchers, these struc-
tural variables affect organizational characteristics associated with the individual. That is, they have meaning only within the context of the particular organization, but are not traits of the individual per se.

More recently, other researchers have followed Victor Vroom's "Preference-expectancy" theory of motivation to study the variables mediating individual differences in employee job performances and satisfaction. Expectancy theory addresses the likelihood that a particular effort will be followed by some identifiable outcome and can be expressed as a subjective probability. The central concept underlying this theory is that an individual's motivation (force) to engage in a specific behaviour (action) is a function of two things, the personal satisfaction (valance) that he believes he will derive from a specific outcome and his expectation (expectancy) that the behaviour will lead to that outcome (Vroom, 1964). This approach to motivation is one which emphasises individual differences and provides an opportunity to examine the explicit relationships between the value of goal, and the likelihood of attainment of organizational goals and motivations.

Following this approach, goal setting not only affects performance levels, but also has a direct effect on satisfaction as well. Job satisfaction is seen as a monotonically increasing function of the algebraic difference between an individual's perceptions about an outcome and his expectations about that outcome (Spector, 1956; Poal, 1957;
Hulin and Smith, 1965; Locke, 1967; and Ilgen, 1971). Elsewhere it was postulated that when the situation is perceived as yielding less than expected, the individuals will be less satisfied than when it is perceived as yielding the same as expected. When the situation is perceived as yielding more than expected, the individual will be more satisfied than when it is perceived as yielding the same as expected. (Ilgen and Hamstra, 1972; Hamnet and Harnnett, 1974).

Job or work role variables which have been thought to affect job satisfaction have been classified into five job dimensions: (1) supervision, (2) the work group, (3) job content, (4) wages, and (5) promotional opportunities (Vroom, 1964; Smith, Kendall and Hulin, 1969). This study investigates extension job characteristics relating to these five dimensions.

Job satisfaction and motivator theories have been applied to the field of Cooperative Extension Service in a number of studies. Findings in these researches showed that an individual's work was more important as a source of motivation than were the conditions surrounding the job (Clegg, 1967; Morrill and Morrill, 1967).

All research work on job satisfaction stresses the relationships between motivations and commitments to commonly approved organizational and target goals and objectives. In other words, it is imperative for the organization to have well-defined goals and objectives, and to ensure that these goals derived from the needs of its client system.
References for Chapter II


38. Marsh, C. Paul and Coleman, A. Lee "Communication and the Adoption of Recommended farm Practices". University of Kentucky Agricultural Experiment Station, Lexington; Progress Report, No. 22, p. 15.


48. O'Reilly, III and Roberts, K.H. "Individual Differences in Personality, Position in the Organization, and Job Satisfaction" Organizational Behaviour and Human Performance (1975) 14: 144-149.


51. Rogers, Everett M. and Capener Harold R. "The County Extension Agent and his Constituents" Wooster, Ohio Agricultural Experiment Station; Research Bulletin 858, 1960, p. 4.


Chapter III

AGRICULTURAL EXTENSION SERVICE: WORLDWIDE, THE UNITED STATES, AND NIGERIA, A COMPARATIVE ANALYSIS

The development of any country from an agrarian society to a highly developed industrialized nation depends on the efficient development and utilization of its agricultural and natural resources. As a country moves from an agrarian to a highly industrialized nation, fewer people will be directly engaged in agriculture. For example, of the 200 million people of the United States of America, only 2 percent or 4.2 million workers are directly engaged in production agriculture, whereas about 85 per cent or 765 million people are engaged in agriculture in Communist China (Wortman, 1975; Kuo, 1972). Similarly, the countries of Africa are at present agrarian in nature with over 65 per cent of their population tied to subsistence agriculture (Mbithi, 1974; U.N. Demographic Yearbook, 1970, Table 6; and Combs and Ahmed, 1971).

The Agricultural sector provides the basic foundation for industrial expansion through supplies of food, raw materials and labour, markets for industrial goods, and foreign exchange earned through export of primary products. On the other hand, the development of the agricultural sector and the socio-economic development of the people depend on effective and efficient development of the rural areas which are the repositories of labour, agricultural and natural resources.
In most countries the world over, there are one or more agencies created by government to take sole responsibility for agricultural and rural development; and different approaches or models have been adopted for this purpose. In the Western world, two approaches toward rural development are prominent—that is, the United States Cooperative Extension Service model, and the National Agricultural Advisory Service (NAAS) established by Great Britain (Williams, 1968, Kelsey and Hearne, 1963). In the communist world, the "collective farm" system was adopted. For example, in the Soviet Union, the Central Committee of the Communist Party of Soviet Union (CPSU) adopted the "Collective Farm" system to tackle the problem of agricultural and rural development (Simush, 1976). In the case of Communist China, a new stage of agricultural development was reached in 1958 with the introduction of Communes (i.e. a number of collectives of an average of 30 households). These communes are being used as a basic method to organize mass mobilization of rural labour on soil and water conservation projects, in local industries and to coordinate economic and administrative functions at the local level (Bardhan, 1970, Chao, 1970).

In African countries, the British approach to rural development predominated the agricultural development pattern until the independence of most of the countries when the need for new alternatives has been felt which are leading to a
modification of the existing pattern. For example, the role of the United States through its AID programmes has been very significant in the reorganization and training of manpower for agricultural development in Nigeria since independence in 1960. Through technical assistance from USAID, most of the Faculties of Agriculture in the major Nigerian Universities now have association with Land-Grant Universities in the United States for training of agricultural personnel and also for exchange of agricultural experts. In East Africa, Tanzania has introduced the 'Ujamaa' system of rural development which is an adaptation of the Chinese model of communes as the basic method of development (Nyerere, 1967). A summary of the different world approaches for rural agricultural development is described in Figure 1.

Since the United States Cooperative Extension Service model plays a significant role in the development of agricultural and rural development in Nigeria, a comparison between the U.S. and Nigerian agricultural setup serves as a basis for making conclusions and recommendations.
A SUMMARY OF WORLD Approaches to Extension and Rural Development

<table>
<thead>
<tr>
<th>Countries/Models</th>
<th>U.S.</th>
<th>BRITAIN</th>
<th>NIGERIA</th>
<th>CHINA</th>
<th>U.S.S.R.</th>
<th>TANZANIA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Primary Agency</strong></td>
<td>Cooperative Extension Service</td>
<td>NAAS</td>
<td>MANR: Extension Service</td>
<td>Communes</td>
<td>Collective Farming</td>
<td>Ujamaa Movement</td>
</tr>
<tr>
<td><strong>2. Issue and Focus of Attention</strong></td>
<td>Rural and Agricultural Development</td>
<td>Rural and Agricultural Development</td>
<td>Rural and Agricultural Development</td>
<td>Rural and Agricultural Development</td>
<td>Rural and Agricultural Development</td>
<td></td>
</tr>
<tr>
<td><strong>3. Basic Ideology</strong></td>
<td>Participative Democracy</td>
<td>Participative Democracy</td>
<td>Participative Democracy</td>
<td>Communism</td>
<td>Communism</td>
<td>Socialism</td>
</tr>
<tr>
<td><strong>4. Admin. Processes/Organization</strong></td>
<td>Highly Decentralized</td>
<td>Highly Decentralized</td>
<td>Decentralized</td>
<td>Highly Centralized</td>
<td>Highly Centralized</td>
<td>Decentralized</td>
</tr>
<tr>
<td><strong>5. Participating Units</strong></td>
<td>Federal, States, Counties and Universities</td>
<td>Provincial, States, and District Councils</td>
<td>Federal, States, Counties and Institutes</td>
<td>Communes</td>
<td>State Farms, (Kolkhoz)</td>
<td>Regional, Districts and Ujamaa Villages</td>
</tr>
<tr>
<td><strong>7. Methods</strong></td>
<td>Educational Based on Individual/Group Needs</td>
<td>Educational Based on Individual/Group Needs</td>
<td>Educational Based on Individual/Group Needs</td>
<td>Political and Educational Based on Mass Needs</td>
<td>Political and Educational Based on Communal Needs</td>
<td></td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>a</th>
<th>An Adaptation of U.S. model</th>
</tr>
</thead>
</table>

---

<table>
<thead>
<tr>
<th>b</th>
<th>An Adaptation of Chinese model</th>
</tr>
</thead>
</table>
That form of popular education of farming people in the United States now known as agricultural extension work has passed through several stages of development covering nearly two centuries. Although many authors assert that agricultural extension had its beginning in early agricultural societies from the time of the organization of the Philadelphia Society in 1785 (True, 1928), others believed that we must trace back to the year 1621 to find the beginnings of the extension process in America (Fenley, 1958). In that year Squanto, an Indian who visited the early colonists, showed them how to tell when the time was right to plant corn, Squanto's instructions were recorded by a Reverend Bradford, as follows:

My good friends, the time for the planting of corn has come. The geese have left the river and the bay for their summer home in the northland. The robin and his mate have returned from the southland and are nesting in the trees. ... The giant oak has begun to unfurl its leaves. By these signs and many others, my father and my father's father have learned to know the proper time for planting of corn has arrived (Fenley, 1964).

In 1771, about 150 years after Squanto the first president of the United States, George Washington, was a successful farmer and took pride in showing his friends and neighbours the practices he followed. The significance of these early beginnings of extension in the U.S. lies not in who started extension, but rather in historical fact that
extension was originated and pioneered by the local people and private organizations. Any government action to advance extension was simply a response to the expressed needs and aspirations of the people for better living conditions. It is worthy of note then that this grassroot approach has been the philosophy and principle upon which the Cooperative Extension was founded.

Apart from individual efforts to extend agricultural information to other practical farmers, organized extension and adult education at county, state, and national levels on a systematic basis was pioneered by the various agricultural societies formed throughout the country in 1780's. By 1860, there were 941 agricultural organizations recorded in the books of the United States Agricultural Society (True, 1929). The objectives of these societies were to acquaint their members with what was being done to improve agriculture, to disseminate agricultural information through their publications, newspapers articles, and lectures. One of the successful methods used to accomplish these objects was to organize regular farmers' institutes similar to the teachers' institutes or the mechanics' institutes in Great Britain at about the same period.

At the institutes, farmers made use of itinerant lecturers, from state colleges and State board of agriculture, on the practice and science of agriculture. Besides agricultural and home economics subjects discussed at farmers' institutes, the programmes often included such matters as how to keep young people on the farm, recreation in the rural
community, and the importance of good books and papers in the farm home (True, 1928). Again it is important to note that although the states made funds available for farmers' institutes, the management of the institutes was left to local county representatives.

The practice of county agricultural fairs in the US owes its origin to the agricultural societies which staged the first county fair in Massachusetts in 1811 as a result of efforts made by a private agricultural society (Fenley, 1958). Although the fair was on a small scale, it set the pace and gave the farmers the kind of incentives in showing their products, and today, agricultural show has become an effective mass media technique to bring about awareness in the adoption process of farming enterprises.

Cooperative Agricultural Extension Service in the United States, as it is known today, grew out of the need for the application of scientific knowledge to agriculture in the 19th century. The US Government response to this need came in three stages (Fenley, 1964). The first stage was to provide for a formal and informal agricultural education to farmers, and agricultural scientists. This began officially with the passing of the Justin Morrill Act of 1862 under President Abraham Lincoln which established the Land-Grant College system for the purpose of providing liberal and practical education for farmers and workers in the industries and mechanical trades. Specifically the act provided:
where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts in such manner as the legislatures of the states may respectively provide in order to promote the liberal and practical education of the industrial masses in the several pursuits and professions of life ... (Fenley, 1964).

Also in 1862 Congress set up and organized the United States Department of Agriculture, in these words:

... the general design and duties of which shall be to acquire and diffuse among the people of the United States useful information on subjects connected with agriculture, in the most general and comprehensive use of the word (Fenley, 1958).

In this way agriculture and education were getting closer together. Along with their participation in farmers' institutes, agricultural colleges independently undertook various forms of extension work by providing itinerant lecturers in basic sciences to give public lectures and lead farm discussions particularly in states where the farmers' institutes were controlled by the colleges.

In undertaking extension work in a systematic way the agricultural colleges were influenced by two movements for supplementary education of adults. The most popular and widespread of these movements was the Chautauqua system. This movement began with the foundation in 1874 of the Chautauqua Sunday School Assembly by Lewis Miller and John Vincent (True, 1928). The assembly met for 10 days in August, at Chautauqua Lake in New York. Its programme combined instruction, recreation, and entertainment. From year to year the variety of
subjects of the assembly increased, and in 1833, correspondence courses were added to their programme. This movement was so successful that it has become a permanent feature of adult education programme of many universities and colleges in North America today. An example of this is the regular summer Chautauqua workshops organized by the Adult Education Department of the University of British Columbia, Vancouver, Canada.

The second movement that had influence on American universities was the "university extension" started in England in 1866 and taken up by Cambridge and Oxford Universities and other educational institutions in England and other countries (True, ibid., 42-43). In the US, this system was introduced through city libraries, and by 1890 it had received sufficient attention to warrant the organization of the American Society for the Extension of University Teaching. University Extension has since become a permanent arm of universities in North America for the diffusion of knowledge beyond the walls of the classroom.

The second stage of agricultural development in the US was the addition of research to teaching. As agricultural production began to shift from subsistence to commercial farms, and as higher levels of living began to emerge from the industrial revolution, great pressures were brought to bear on professional agriculturists to provide the needed information on the production of better and cheaper foods. To respond to this demand, the US Congress passed the Hatch Act, of 1887 which set up the agricultural experiment stations at the
agricultural colleges. Now research was provided for and a
new form of cooperative relationship resulted for the
colleges and the Department of Agriculture. In 1935, the
Bankhead-Jones Act was passed authorizing money for agricul-
tural research to be given to the Secretary of Agriculture in a
lump sum and a free hand in its disbursement. Under this act
regional laboratories were established and an annual appropria-
tion for agricultural research was authorized for USDA.

Agricultural extension like the Land-Grant colleges
and experiment stations, officially came into the cycle of
agricultural development also as a response to new national
situation. As individual colleges and experiment stations
throughout the country began to meet the demands of farmers,
it was then necessary to find a method of extending scientific
agricultural knowledge to the farmers. The idea of "farm
demonstration" which is basic to all extension teaching was
introduced by Dr. Seaman A. Knapp in 1886, and he perfected
this idea for the control of the cotton boll weevil in Texas
between 1902 and 1905 (Kelsey, 1963, Fenley, 1958; Williams,
1968). As pressures on the need to pass scientific agricultural
knowledge to farmers developed, the US Congress acted by
passing the Smith-Lever Act in 1914, creating the Cooperative
Extension Service - as the official educational agency of the
United States Department of Agriculture, and the extra-mural
educational agency of the Land-Grant Colleges of Agriculture
and Home Economics. The Act defines the purpose of the service
and the responsibilities of the federal and state governments
that participate in it as:

... to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of same (that) there may be inaugurated in connection with the Land-grant college or colleges in each state --- agricultural extension work which shall be carried on in cooperation with the United States Department of Agriculture (Williams, 1968).

Through the Smith-Lever Act, legislative guidelines were provided whereby the county, state, and the federal governments cooperated and collectively provided the necessary financial support for research in agriculture, teaching of agricultural education in colleges and the diffusion of agricultural knowledge to the people outside the colleges. Consequent amendments to Smith-Lever Act expanded extension to include home economics, education for farm wives, and 4-H club work for rural youth, thus instituting the 'family approach to extension work' (Saville, 1970).

Canada's earliest extension efforts were influenced by activities in the USA and France where extension had started to show tremendous effects upon crop yields. The Dominion Department of Agriculture was formed in 1867, and by 1906, the department was already well organized and in that year inaugurated extension project consisting of special trains travelling across Canada, and stopping at specified points to explain wheat smut and its control to farmers (Keesing, 1965). In June 1913, with the passing of the Agricultural Instruction Act of Canada (Statute 1913), the Dominion
Government provided financial support for agricultural instruction in colleges, schools and among the people.

Today in both countries, extension has taken on a complex organizational structure which basically involves all levels of government, the universities, business organizations, and the people themselves in cooperative action.

**Organizational Structure**

Structurally the U.S. Cooperative Extension Service system consists of three interrelated components: (a) research branch, (b) staff training, and (c) extension branch. These three components are cooperatively coordinated and administered by the three categories of participants (a) the county services, (b) the land-grant colleges, and (c) the Federal Extension Service of the USDA.

Continuing research in agriculture is done by the technical experts in federal, state and private institutions as well as the universities. Research is absolutely necessary in all aspects of agriculture because previous knowledge is often rendered obsolete by new situations. Staff training is undertaken primarily by the universities to produce both research staff and extension workers. The extension branch provides the out-of-school adult education services and is the liaison between the farmers and the research branch which is the source of new information.

Administratively, in the U.S.A., there is separation of powers and responsibilities between the county, state and
federal governments, The county is the unit of local government and the counties have much more independence and more financial responsibility than local government units in Nigeria. In each county where cooperative extension work is conducted, there is a responsible county group which works cooperatively with the state land-grant college to determine extension policy. Although the county extension agent is a federal employee, his employment contract is with the state land-grant college, and he is responsible to the county for his educational role. The importance of separation of the educational responsibilities of the county agent from other aspects of government administration has been described by Beers and Sanders in these terms:

...the roles of county agent, and of other functionaries in the system have been kept quite free of the responsibilities of tax collector, investigator or policeman, money lender and the like ... but rather one of persuasion, and the prestige of a man of knowledge, whose main business is the communication of information, as a teacher, free of any stigma that might attach to other official functions (Beers and Sanders, 1963).

At states level, administrative arrangement of extension may differ, but generally a senior officer of the land-grant college - the dean of the college of agriculture - is the Director of Extension in the state. He is responsible for carrying out the terms of the agreement defined between federal and state governments for the conduct of the Cooperative Extension Service. It is important to recognize that the extension services are separate from the departments of the
state, which administer inspection and other control services. The extension services are associated with the land-grant university but are not an agency of the state government. The three basic principles underlying the whole structure of the Cooperative Extension System has been put succinctly by Claar:

-first, it permits a maximum amount of decision making close to the point of action, but with provisions for maintaining basic partnership aspects.
-second, it provides for separation between action and educational programmes. This permits freedom from undue influence by political interests or vested interests.
-third, extension workers are staff members of the land-grant institution. Through this association they have access to the university's reservoir of knowledge and have a constant stimulus for professional development (Claar, 1966).

This organizational structure has enabled the Cooperative Extension Service to achieve unusual acceptance by a great many groups and agencies in the USA which provide a broad base of support for extension, and afford access to a wide range of interests and abilities.

Philosophy, Objectives and Functions

The Extension Service was born out of a recognition of the fact that scientific research in agriculture, home economics, youth work and other related disciplines had a broader application and usefulness to many more people than just the few individuals engaged in farming or those attending colleges; and also out of the recognition that practical information should be quickly extended to farmers, and non-farmers where appropriate, along with encouragement to adopt such
information.

In the USA, extension work is based on the philosophy of helping rural people to improve themselves through action-oriented, problem-solving types of educational programmes. The overall objective is to assist people engaged in farming, homemaking, and youth work to utilize more fully their own resources and those available to them, in solving current problems and in meeting changing economic and social needs (Scope report, 1958; Kelsey, 1963). As noted by the Scope Report: (op. cit. 3) Extension's function is 'education for action directed towards helping people to help themselves'.

In performing its educational function, an international study group in conjunction with the Comparative Extension Division at Cornell University, in 1958 developed the following eleven basic principles upon which extension service rests:

- It is a principle of extension service to aid, through educational efforts, the diffusion among all peoples, of all appropriate research and practical information relating to agriculture, home economics, health and sanitation, and to encourage application of same.

- It is a principle of extension service to promote the social, economic, and spiritual life of all the people.

- It is a principle of extension service to assist people to determine their own problems, help them find desirable solutions, and to encourage actions.

- It is a principle of extension service to foster beneficial changes in the outlook of all people; this may include a change in the use of increased income.
- It is a principle of extension service to encourage and aid in the wise use and conservation of all human and natural resources.

- It is a principle of extension service to promote the use and development of volunteer leaders and to formulate and to carry out sound extension programmes.

- It is a principle of extension service to provide maximum opportunity for youth and the family to participate in attaining a better and more rewarding life.

- It is a principle of extension service to develop a better understanding of and a more effective participation in village, divisional, provincial, regional, national and international affairs.

- It is a principle of extension service to reappraise periodically its work in the light of existing and changing conditions, and through effective organization to modify its programmes as will meet those changing conditions.

- It is a principle of extension service to promote efficient agricultural production and the development of institutions to insure the proper financing, assembling, processing, marketing and distribution of those commodities produced, for the welfare of both the consumer and the producer.

- It is a principle of extension service to maintain the highest level of proficiency in its workers, to employ the most capable and best trained personnel possible, and to provide continual opportunity for additional training, and professional improvements; this is intended to apply to all extension personnel, from the top administratives, through middle management, to the local or village workers (Fenley, 1964).

These basic principles serve as the corner-stones of the States extension services in the USA and Canada, and most of the developing nations of Africa.
Functions of Extension Service

The functions of extension service over the years have become so broad in order to cater for all the social and technological changes that occur in the society. Although these functions are sometime mutually inclusive, they have been synthesized into five major categories:

A. Educational Function - which embraces teaching and dissemination of information rural farm and non-farm people by using a democratic educational process, methods and techniques in an atmosphere of mutual trust to bring about a more or less permanent change in behaviour towards the attainment of their desired goals and objectives.

B. Administrative Functions - consist of making executive decisions that will bring about effective management of essential elements involved in development of extension or adult education institutions such as:

- planning; that is, working out in broad outlines the things that need to be done and the methods for doing them to accomplish the established purpose;

- staffing; that is, the whole personnel function of bringing in the train, the training of the staff and maintaining favourable work conditions.

- directing; that is, the continuous task of making decisions and embodying them in specific and general orders for the work group.

- coordinating; that is, keeping those to whom the executive is responsible informed as to what is going on
through formal and informal social interaction.

- budgeting; that is, fiscal planning.

accounting and control (Gulick, 1937).

C. The Service Function of Extension - includes providing those things that will help the clientele produce, or achieve his objectives. It is simply supplying of inputs to agricultural production.

D. Staff function of Extension Service - has as one of its major responsibilities to maintain a core of competent staff and subject matter specialists. The selection, training and supervision of those staff is important in any extension service. In the USA, technological advancement has made continuing education at the post-graduate level almost mandatory for county extension agents. The land-grant colleges provide leadership and training opportunities in this direction.

E. Public relation function - Apart from guiding its own public image, the extension service has as its function the treatment of public affairs issues to increase the understanding of people about the problem underlying such issues, alternative courses of action, and probable consequences or other results without taking a position. Educational work on public issues develops a social climate of awareness and interest that can form the basis for effective participation of citizens on societal and community problem-solving, thus reducing the margin of alienated citizens. It may be better to refer to such education as "citizenship" or what Manheim will call "societal education". In the USA these functions
are performed by county extension agents who work with local county committees to determine extension programmes based on the interests, and needs of the people.

Role and Training of the Agent

Traditionally the agricultural extension agent has been responsible for:

- developing and conducting the extension programmes in the county.
- keeping farmers informed of the latest developments and recommendations relating to better techniques of production.
- assisting the farmers in farm planning and management.
- bringing back to the research centre farmers' problems for solution.
- providing other direct services for the farmers as may be required by the department of agriculture, as well as provide professional guidance to rural people in their effort to improve the economic and cultural level of the family and community.

The process of carrying out extension programmes consists of four related stages: community analysis, programme development, instruction and evaluation.

The extension agent in conjunction with community resources such as vocational agriculture teachers in the public schools, county committee on extension, should jointly
analyse the community to identify interests, needs and problems of the people. Success depends upon thorough analysis of the community situation

Extension programmes ideally are planned with the full participation of the clientele. A good plan of work is the most effective way to accomplish teaching objectives in line with the overall aims of extension.

The implementation or instruction is concerned with the design and management of the activities of the farmers in a way that will most likely result in learning and adopting the new idea. The success of the teaching stage depends on the ability of the agent to select appropriate instructional methods, techniques, processes and devices. Some of the techniques developed and perfected in teaching rural farmers include farm and home demonstrations, result demonstrations, farm and home visits, use of bulletins and circular letters, radio programmes and other audio-visual devices. Evaluation is a process of ascertaining the degree to which the programme objectives are being met based on specific performance criteria.

One of the most highly valued functions of the country extension agents in the US was the training of voluntary local leaders to assist in carrying out the extension programmes. In 1960, leader-training meetings accounted for 13 per cent of all meetings held by the county agents; 49 per cent of these meetings were to train leaders of adult work and 41 per cent for leaders of youth work (Knowles, 1962).
The Cooperative Extension Service in the US has made valuable contributions to the field of adult education. In the development of methods, techniques and materials, uniquely tailored for the education of adults, extension agents' activities were especially outstanding. It perfected the techniques of home and farm visitation, method and result demonstrations as the most effective instrument for change. It set the pace for the entire adult education field in the collection of reliable statistics. Its annual report of "Extension Activities and Accomplishments" stand as the most comprehensive statistical report of adult education participation yet available (Knowles, op. cit. 93-94).

In the area of public adult education the role of the extension service has been greatly influenced by social changes in the U.S. As the ratio between rural and urban population shifted in favour of the latter, so did the composition of extension constituency. For example, during the period 1957-1960 there was a decrease of about 7.5 per cent in the number of farm families, an increase of 89.8 per cent in the urban, and an increase of 38.5 per cent in rural non-farm families reached in the extension programmes. The extension constituency in 1960 was composed of 23.8 per cent farm, 20.9 per cent rural non-farm, and 55.3 per cent urban people (Knowles, 1962 and Gordy, 1960).

Overall, it could be concluded that the strength of the Cooperative Extension Service in the United States lies in the sensitivity of the government at various levels to
respond to public criticisms and demands, and the flexibility of the extension programme to adjust to new socio-technological changes in the society. Furthermore, the decentralization of the administrative structure provides for effective coordination of the extension programmes.

Summary

This review has identified operating conditions and other essential attributes of the Cooperative Extension Service as adult education system in the United States. They include: historical landmarks, organizational and administrative structure, development of democratic working philosophy and guidelines, and the maintenance of effective instructional contact with the clientele. This review therefore serves as basis for comparing, and discussing the Extension Services in the Western States of Nigeria.

AGRICULTURAL EXTENSION SERVICE IN WESTERN NIGERIA

The whole idea of agricultural extension work is a diffusion of a culture having its origin in Europe, and North America. The idea of using extension as a rural adult education system has been found to have universal acceptance; however, its success and total integration into the host culture will be influenced by the inter-play of socio-economic, and traditional features of the local environment. Agricultural extension services in Western States of Nigeria operate against a diverse historical and cultural background which influence
its growth, organizational structure and its functions.

The Rural Setting

A. Nigeria - Nigeria has an estimated population of 65 million people (1963 census) out of which about 75 per cent are engaged in production agriculture. It is the second largest country in Africa in terms of land mass, after Sudan, but the most populous country in Africa. It occupies an area of 356,000 square miles on the west coast of Africa, that is about three times the size of Texas or about the same size as British Columbia. The climatic conditions are typically tropical with very high relative humidity, and with an annual rainfall ranging from 120 inches along the Atlantic coast to about 30 inches in the extreme north. Mean temperature ranges from 65 to 85°F or 27°C. There are two distinct seasons; the dry season which lasts from October to March, and the rainy season from April to September. Among the major ethnic groups are the Hausa, Fulani, Yoruba, Ibo, Benin, Efik, Ibi-bio, Tiv and Kanuri, and there are about 230 spoken ethnic dialects in the country.

B. Western States - The Western States of Nigeria (Ogun, Oyo, and Ondo States) occupy an area of about 81,244 square kilometers in the south west of Nigeria consisting mainly of the Yoruba people. The population was put at 10 million in 1963 of which 65 per cent live in rural areas. On February 3, 1976, the West was divided into 3 new States of Ogun, Oyo, and Ondo States for political and rapid economic development.
purposes. Each state is subdivided into administrative divisions and local councils.

Although farming is the major economic activity, these states are the most cosmopolitan, in settlement patterns and in commercial enterprises. Western Nigeria is almost self-sufficient in its food production, while cocoa, timber, oil palm, rubber, kola, and coffee are the foreign exchange earners for the three states.

People and Settlement Patterns

The Western States are inhabited by the Yorubas of the southwest of Nigeria; about 65 per cent live in rural areas. Broadly speaking there are, in Nigeria two types of rural settlement patterns. Firstly, there is the compact or "nucleated" village found everywhere in Nigeria except in Iboland and Tivland. Secondly, there is the dispersed or discrete village of the Ibo and Tiv. In the west the dominant settlement pattern is the compact village made up of a number of large compounds in which live members of agnatically related families. Among the Yorubas, there are two types of village organization or settlement patterns. Among the strictly patrilineal northern Yoruba of Oyo, Egba, Ife and Ekiti all members of the village officially reside within its walls and on the block of surrounding farmland and hamlets. The farmers here are commuters of degrees varying from the man who visits his farm once monthly or weekly to supervise his sons and labourers to the farmer who lives in the hamlet
throughout the year, returning to the town only for weekends, annual religious festivals or for important kinship functions (Oloko, and Lloyd 1964). Many farmers here regard the town as their home and the village where they work as a kind of camp or a place for farming which may range from 3-10 miles from the towns.

Among the southern Yoruba of Ijebu, the farmland extends for only a few miles from the big towns which are distinct political units with their own chiefs. In all parts of Yorubaland, however, social activities are conducted in the town, while their economic activities tie them not only to the village where they grow their crops but also to the town for commercial enterprises. Social and economic contacts among people are very close and frequent and are based on the principle of communal living. They may combine to execute commercial works such as building market places, roads, found united schools and so on.

Where villages and hemlets are more dispersed an important market in the district makes for social and economic integration. It not only serves for exchange of goods but it is also a centre for social contacts between persons from different places and for trade associations which cut across village boundaries. Local market days are important days for village level extension workers to contact farmers in their areas, and calendars of market days are normally kept in the district offices to guide newly arrived extension agents in a district or to serve as reminders for farmers' meetings.
Land Tenure and Farming System

In Nigeria, as in almost all African societies, the rules of traditional land tenure are simple in their conception. Among the Yoruba of Western States, ownership of land is exercised by a group which may be a town, a village, a compound within a village or town, a class, or a family. But the effective ownership of land is in the hands of the family, which in Yoruba usage commonly refers to a man, his wife or wives, and children, his brothers and their wives and children. The term family in the African context is defined by the Yoruba word 'ebi', meaning those who are "born together" (Oloko, et al. 1961).

Within a village or family every member has a right to a piece of the family land for use in growing his food needs, either on temporary lease or where the cultivation of a cash crop such as cocoa is involved, he may be given a parcel of family land as outright grant and thus become the 'defacto' owner of such land. The unappropriated village land remains "communal land". The head or chief of the village exercise administrative power over the village land and it is he who makes the grant of vacant lands to members of the village community (Galletti et al. 1956, Oluwasanmi, 1961).

In recent years government has tried to acquire community or village lands through compulsory land acquisition law for the purpose of establishing large scale farms. In such cases, however, the government must still pay compensation for the crops on such land to the village or the family.
to which the land belongs.

The farming system in Western Nigeria epitomizes the traditional mixed farming or shifting cultivation system found in most African countries. The size of a farm is greatly determined by the number of farm hands or labour available to a farmer. The land is first planted in food crops for subsistence. After the harvesting the land is planted in cocoa which is a perennial crop and remains on the land for a long period of time. Where cocoa is not planted on already cultivated land, the land is reverted to bush fallow only to be cultivated in another 2 or 3 years by the farmer, his heirs or another member of the family or village. This system serves as a traditional method of conserving soil fertility while at the same time it has the adverse effect of fragmentation of farm holdings into uneconomic units.

This brief outline of village organization and farming system in the Western States serves as socio-cultural background against which agricultural planners, and extension workers must operate.

History of Extension Service in Nigeria

The history and development of agricultural extension in any part of Nigeria cannot be discussed without actually going into the development of agriculture in the country as a whole. The British gained administrative control of Nigeria through the Treaty of Utreche in 1713, and the two separate regions of northern and southern Nigeria were amalgamated by
Sir Frederick Lugard in 1914. Nigeria became independent on October 1, 1960; and on October 6, 1963, it became a republic within the Commonwealth.

Although the country is making remarkable progress toward economic development with a boom in petroleum production which now accounts for about 75 per cent of the foreign exchange earnings, nevertheless the country is not rich. Agriculture is still the primary industry employing about 65 per cent of the rural people who produce virtually all of the country's agricultural products on small fragmented farms of less than five acres.

The evolution of agricultural extension education in Nigeria cannot be completely described without a brief discussion of its colonial history. The structure and organization of agricultural education and farmers advisory services in the United Kingdom had a significant influence on agricultural development in Nigeria, at least up to the time of Independence in 1960.

The 1943 Luxmoore committee on Post-War Agricultural Education traced the development of agricultural education in the United Kingdom. It specified that:

... the general objective of agricultural education should be (a) intellectual development, (b) an understanding of the physical, biological and economic principles by which the forms and practices of agriculture are ultimately determined ... and (c) technical efficiency in all matters connected with the industry both practical and scientific (Williams, 1968; p. 82).

The two main categories of agricultural education recognized in the United Kingdom were (1) Institutional -
provided by farm institutes, agricultural colleges, and universities. (2) the non-institutional - derived from centres offering advice to farmers and those engaged in agricultural industry, instructional classes, correspondence classes, lectures and demonstrations, discussion groups and associations. Agricultural advisory services form part of the non-institutional agricultural education services though much of their development has been inextricably linked with policies adopted for the whole of education. Although the Board of Agriculture was established in 1889, it was not until 1919 that the Ministry of Agriculture took over the Board of Agriculture's responsibilities including the country advisory services.

The weaknesses in the organization and structure of agricultural development in the U.K. before the creation of the National Agricultural Advisory Service (NAAS) in 1946 was pointed out by the Political and Economic Planning (PEP) report of 1938. The chief drawback of the pre-NAAS system according to the PEP report, was that the initiative lay with the farmer rather than with the adviser. The report also defined extension work in Great Britain as "the final link in the chain between scientists and farmers which consists of translating results into simple terms and bringing them home to individual farmers, and passing back to the research workers problems arising at the farming end" (Williams, 1968, p.85). In order to retain close links between formal agricultural education in schools and colleges and other educational
streams, the National Agricultural Advisory Service (NAAS) was created in 1946 as a section of the Ministry of Agriculture. The creation of NAAS ushered in a significant change in agricultural extension in Great Britain. Its functions include:

- provision of free advice to the farmers on behalf of the government.
- it advises owners of agricultural land on estate management matters.
- it had the important effect of diverting some of the advisory efforts from larger farms to smaller farms.
- NAAS began in 1964 to arrange for post-graduate in-service training facilities for extension personnel at the University of Reading thus providing the much needed opportunity to expose NAAS officers to some more recent advances in extension methods.
- through NAAS, a great emphasis has been placed on farm management since 1950s.
- it provides training for a corps of specialist officers to advise other NAAS advisers and subject-matter specialists.

Although the creation of NAAS in the U.K. has helped the development of agriculture, major criticisms about the advisory system centered on organizational problems which hinder its effectiveness as an educational system:
the separation of NAAS from the universities has removed the system from effective participation of the universities in providing specialist advice to NAAS officers.

the separation of the universities from everyday exposure to extension work may well explain in part why graduate training facilities in extension are so undeveloped, and this has sustained the image of the universities as being somewhat removed from the day-by-day problems which extension workers are called to face.

there have been criticisms that NAAS advisers are being saddled with undue responsibilities for administrative work relating to government policies thus devoid of educational process and merely operate a standard civil service practice (See Arton Wilson's Report in Williams, 1968, p.85).

there is a large void in the provision of professional training for extension specialists in extension itself.

Since Nigeria was under British rule until 1960, the structure and organization of British agricultural development and practice had a significant influence on Nigerian agricultural practice.

The beginning of scientific agriculture in Nigeria was marked by the establishment of a botanical research station at Olokemeji near Lagos in 1893 by Sir Claude
Macdonald. The station was largely designed for the introduction of new economic crops from other parts of the tropics and for the collection of indigenous ones. The object was to increase export trade in the country (Aribisala, 1962). This venture, however, failed and had to be abandoned.

In his account of the history of extension in Nigeria, Aribisala noted that between the beginning of the First World War and 1921 when the northern and southern Departments of Agriculture were amalgamated into one Nigeria Department of Agriculture, the activities of the Agricultural Departments were virtually suspended so that it was not until 1922 that attempts were made to lay down what could be called a "policy" for the new Department of Agriculture. It was then that it was decided that efforts should not be directed only to increasing the production of export crops, but also to increasing the prosperity and general welfare of the farmers (Aribisala, 1962, p. 12). It should be noted however, that the British never formalized their colonial agricultural policy. Indeed the only record of such policy ever having existed is a small publication issued from the Colonial Office to all colonial Departments of Agriculture asking them in future to preface their Annual Reports with a statement of department policy, and that most of them did from then until the time of independence (Colonial Office, 1945).

The departmental policy statements with which Annual Reports were prefaced were remarkably uninformative. They were mostly confined to platitudinous observations such as
... the aims of the department are to improve the quantity and quality, of agricultural produce, preserve soil fertility, raise the standard of living of farmers, and so on." It so happened that these policy statements coincided with the peak period when government intended to introduce specific crops for national or state economic development purposes rather than as a system of continuing systematic rural adult education for peasant farmers. As Masefield noted, it is difficult to obtain from such remarks any detailed thinking of the policy makers since they were swayed by political, economic, social, and strategic as well as agricultural considerations; and the opinion of agriculturists was only one among many sources of advice sought before deciding on them (Masefield, 1972). The history of extension and rural adult education in Nigeria has since followed the make shift-approach and lack of a clear-cut objective adopted by the British administrators. There were no legislative acts or guidelines to form a solid foundation or channels of administration for extension and rural adult education as was the case in the United States.

In spite of these historical drawbacks, extension 'type' work had of course been practised from the earliest days of the Agricultural Departments, though not at first under that name. It was then called 'propaganda' or 'educational' work and the terms 'propaganda' and 'extension' were used interchangeably (Stockdale, 1930). The practice of substituting 'propaganda' for 'educational' work created many problems. One such problem is the management of the
educational work given to farmers, such that scientific innovations were sometimes urged with too little regard to factors of management. The result of such a phenomenon has resulted in low credibility and mistrust of extension workers among farmers. Such mistrust was expressed succinctly by Darling:

... propaganda had been used for something like 15 years to encourage the farmer to change the sowing date of his cotton-crop. ... The use of intensive propaganda over a long period changed the sowing date by no more than five days. The local farmer had largely ignored it, because our advice did not fit in with his schedule of operation. This is an example of technologists projecting advice with the best intentions but missing the mark because of ignorance of the social and economic background (Darling, 1969).

In the early years, and until recent years, extension work in Nigeria has been more of 'service' and 'regulatory' work. The main crucial factor responsible for this was the shortage of trained extension workers at professional level coupled with a total absence of commercial agencies, public and private institutions to render direct services to farmers. Extension workers have to assume responsibilities for these services. In order to succeed in the performance of this dual role, extension workers have often to employ the tactics of the missionaries by offering services on the one hand, and that of law enforcing agents on the other. Other factors that compounded the problem of marginality of extension education were poverty on the part of the majority of our rural population were, which renders them incapable of participating.
effectively in determining their rural educational needs, and lack of contingency planning of agricultural and rural development programmes at national and state levels.

The People Effort

Traditionally, the farmers have practised extension services among themselves. Among the Yoruba, various forms of social clubs, associations, and religious groups have been used as sources of information dissemination and the teaching of functional literacy; the following are still being used all over the region.

- the village chief is more cosmopolitan than his subjects. Because of his traditional role he visits the towns frequently and holds meetings with urbanites and government officials. He exchanges the information between his people and government officials. However, the chief is not necessarily more innovative than his subjects in adoption of farm innovation (Awa, 1976).

- the chief has the administrative rights over the village land and he thus helps farmers to acquire additional land for farming. In the case of wealthy chiefs, they serve as sources of credits for farm and family finances. In other words, the chiefs perform more of service functions than educational in this respect.
among the religious groups, churches and mosques are important places of meetings for farmers. Announcements of meetings of farmers and other community projects are usually carried out during services in the churches and mosques.

- the formation of thrift associations among the people has been a traditional method of saving and cash credits for emergencies or against future financial responsibilities, such as payment of school fees for their children, buying farm equipment, or for social festivals. The thrift association is referred to as [esusu] by the Yorubas.

- the regular village meetings either in the chief's house, village hall or under the trees is an important place to discuss farm practices, and farm problems. Experienced farmers share their knowledge with other farmers at such meetings, and even carry out process demonstrations.

- village level extension workers use the date for village meetings as an opportune time to reach farmers.

- the practice of rendering communal labour among various groups such as congenial associations, religious groups, and the consanguineous family have been a regular source of cheap labour for farm operations, and the development of infrastructure such as roads and water supply.
farms of successful farmers are used as result demonstration plots for other farmers, and parents teach their sons and daughters basic farm operations through result and method demonstrations techniques. The local herbalists in rural areas have rendered useful services to farmers in the control of insect pests, birds, and yarm beetle (Scarabaeidae spp.). The local method of controlling rice-destroying birds is still the most effective method in the country today while scientific research into its mechanisms goes on.

The efforts and initiatives of the people at the local level in getting agriculture moving have not been surpassed by the agricultural extension service especially in the area of food crop production.

Organizational Structure of Extension in Western States

Agricultural extension service in Nigeria is a state responsibility. The Federal Government Ministry of Agriculture has no extension branch and only in the last two years was rural development added to its function but this is still at the planning stage.

Extension as a service in Western Nigeria can be said to have come to life in 1921 with the establishment of the School of Agriculture at Moor Plantation, Ibadan. The agricultural education given at the school for technical village level extension workers throughout the Federation and the
guidance furnished in the field in growing the export crops, set the stage for later expansion into activities more in line with extension. The period, late thirties to the middle forties when Captain J.R. Mackie was the Director of Agriculture for the country saw the intensification and expansion of research, extension and training programmes of agricultural development. Some structural reorganization of Agricultural Departments in Nigeria continued from the late forties to late fifties basically as a result of political changes rather than for educational criteria. These changes are still continuing as the country continues to evolve new political and administrative structures for economic development in line with the culture and aspirations of Nigerians.

The Ministry of Agriculture and Natural Resources (M.A.N.R.) Western States is responsible for agricultural and rural development in the States. Other government departments do share in this responsibility but the interministerial conflicts that often occur in the process hinder rather than enhance effective and rapid development. Between 1955 and 1962, and as a result of political changes, further reorganization of M.A.N.R. took place. More indigenous trained staff became available and the scope of agricultural services expanded tremendously during this period.

The continuing growth of the M.A.N.R. in size and manpower started to give considerable concern to successive governments with regard to its effective management and
administration. Various committees were set up to examine the problem. One of such committees was set up in early 1960 to consider the desirability of transferring the Extension Service and the Research Division of the M.A.N.R. to the University of Ife in line with American Land Grant College system. The committee did not recommend it, but on April 1, 1971, the Research Division and the Training section of Extension Services Division of the M.A.N.R. were transferred to the University of Ife and constituted into the Institute of Agricultural Research and Training, University of Ife.

In May 1974, the Military Governor of the then Western State set up the Afolabi Commission "to examine and review the programmes and activities of the M.A.N.R. and to determine the continued justification for executing those programmes and activities under a single department of government, having regard to the need for maximum efficiency" (P.S. Speech, 1975). The Government accepted the committee's recommendation that the M.A.N.R. should remain as a single Department of Government because of the very close relationship in objectives and functions of its existing component parts.

The M.A.N.R. has 8 Divisions: (1) Forestry, (2) Fishing, (3) Veterinary, (4) Produce, (5) Engineering, (6) Agricultural Planning, (7) Cocoa Development Unit, and (8) Extension Services Division. The Extension Services Division is responsible for extension programmes within the Ministry.

The Headquarters of the M.A.N.R. was located at
Ibadan up to February 3, 1976. But with the split of the old Western State into three new states, each state capital now seats the various government ministries, but the activities of the three states are still being jointly coordinated at Ibadan.

In August 1975, a new field organizational structure for the M.A.N.R. was designed called the zonal structure (P.S. Speech, ibid. 2-5):

Zone - The state is broken into 8 geographic areas called zones in which the extension and related functions are administered.

Division - The M.A.N.R. zone is further broken down into geographic areas called divisions. Divisions are the units of extension field operations.

The staff in the Ministry are classified into two categories:

- Senior staff appointment refers to those who are either university graduates or those with a diploma and who have been promoted within the rank and file of the personnel. Usually they have long years of practical experience in the field operations. They are responsible for administration and coordination of agricultural programmes at state, zonal and divisional levels.

- Junior staff refers to the Agricultural Assistants (AA). They are staff members who have completed the two year post-secondary certificate course at the School of Agriculture. The Agricultural
Assistants are the village level extension workers. The new zonal organizational structure was to provide an administrative framework for the modern management technique of Project Performance Budgeting System (PPBS) introduced into the state civil service in 1972. In the field operations of the Ministry, the new structure aims at:

- ensuring efficient implementation and monitoring of the 1975-1980 Development Plan;
- Coordination of efforts of the various Divisions of MANR, with a view to fully exploiting the complementarity among their activities;
- deploying staff at various levels on the basis of major programme/projects;
- ensuring improved communication through rationalization of the channels of reporting;

... and

- establishing closer linkages with the farmers/fishermen and others interested in the primary production sector (P.S. Speech, 1975).

The present organizational structure and management system of the Western States - comprised of Ogun, Oyo and Ondo is said to be the best in the country and it is being recommended for adoption at the national level (P.S. Speech, ibid, p. 4).
Functions of Extension Services

The Extension Service of Western States has as its primary function the planning and execution of the state agricultural development programmes. Since there are no specific legislative acts which outline what extension should do for the people as such, either at state or national level, the basic objectives of the Ministry therefore derive from the development programmes planned by successive governments in the country. Its function also reflects the goals and objectives of these various development plans which are usually announced as state or national annual budgets. For example, there are seven general short term objectives for Western State programme to be executed during the 1975-1980 Nigeria's Third National Development Plan:

- to ensure a much higher rate of growth in food production in terms of quantity, quality and variety in order to maintain general price stability and curb inflationary tendencies;

- to intensify efforts directed at increasing the productivity of farmers and rural dwellers with a view to narrowing the gap between urban and rural incomes and hence raise the standard of living of the people;

- to accelerate the pace of agricultural and industrial developments, trades and technical training in order to widen employment opportunities, particularly for school leavers, and to improve the
base and quality of labour force;

- to transform the rural areas by the provision of basic infrastructural facilities such as feeder roads, electricity, water supply and thereby minimize rural/urban migration;

- to maintain a high rate of growth of the state economy consistent with national objectives and targets;

to encourage the people to undertake community development or self-help projects at the local level by providing token grants, motivation and technical advice; and

- to set in motion the machinery for the investigation, exploration and development of certain natural resources of the state (Budget Speech, 1975).

In order to achieve these objectives the Ministry carries out specific functions in such areas as:

A. **Personnel Training**

   This is the bottleneck of the whole agricultural problem. There is a shortage of high level manpower to give dynamic and professional leadership in state rural adult education. The extension services combat this problem by:

   - give on the job in-service training courses for its staff to advance to management positions;

   - cooperate with the various universities in the training of professional agriculturists;
- secure external aids for international exchange in agricultural education;
- maintain a systematic technical training for the village level extension workers at the School of Agriculture;
- provide training facilities for extension staff from other states, and other neighbouring countries in West Africa.

B. Community Development Projects

The M.A.N.R. Extension Services provide direct and indirect services for rural community development through the following:

- it develops plans for rural employment such as the farm settlement scheme to help arrest rural-urban migration of youth;
- through its rural agricultural projects, infrastructure development such as roads, electricity, and water are provided for the rural areas as conditions necessary for agricultural development;
- provides staff for other agencies who might embark on small scale agricultural projects;
- provides technical assistance to researchers from Universities, United Nations Agencies such as F.A.O. UNESCO, who carry out various research studies, projects, and experiments in rural areas of the country.
C. Training of Farmers

The role of the extension service in the training of rural farmers has not been systematic. The present system of teaching farmers how to carry out specific projects preplanned by the government can only dampen their enthusiasm for continuing learning as life-long phenomenon.

Providing a systematic training for young and adult farmers on all aspects on life that contribute to their improved condition of living should be the primary function of the extension services. The M.A.N.R. recognizes this basic function and make policy statement on it. As a policy on the training of farmers and rural extension workers, the Ministry has set as its target to provide on-the-job training for 800 extension staff, 750 group farmers, and 50 youth leaders within one fiscal year (W.G. Report, 1975).

Apart from the fact that there is no evidence that the training will be effective adult education, the Ministry has not been able to accomplish the stated target. For example, in 1975-76 Fiscal year, only 418 extension field staff were given on-the-job in-service training, while only 214 group farmers on Maize/Rice Projects were trained. No youth leader was trained during the same period. (W.G. Report, 1975 p. 50-60). All the training took place at the Ilesha Farm Institute in 1975 under the new "accelerated food production" scheme.

The institutional support for rural adult education was difficult to analyze because the M.A.N.R. does not have a
separate budget or money for educational work 'per se'. The farmers and extension personnel that were trained at the Farm Institute were provided for under "General Store Account", which is an administrative accounting system under which funds were made available for miscellaneous activities such as transport for farmers, renting of chairs, bedding materials and so on. In other words, educational work is regarded as marginal or miscellaneous activity. The most important factor responsible for this phenomenon is the fact that extension founding fathers and the administrators have not laid down specific administrative guidelines that will separate educational roles from general agricultural services with the result that the M.A.N.R. has no public accountability for rural adult education. If the extension service will function as an adult education system, then such roles must be well defined and government appropriation made for them through specific channels. Education of farmers must be planned and executed on a systematic basis instead of making it only to coincide with occasional government programmes.

In spite of the M.A.N.R. shortcomings in its educational roles, it provides educational services in the following areas:

- farm information through radio broadcasts, film shows in rural areas, and organization of annual agricultural shows on divisional bases;

This mass media exposure helps to raise the level of awareness of rural people about innovations in agriculture,
health, and nutrition, but are by no means a guarantee of systematic learning among farmers.

- the Extension Services Division serves as liaison between farmers and the Produce Inspection Division of the M.A.N.R., and also between the state Marketing Board. The state Marketing Board organizes and coordinates the efficient marketing of farm produce, and provides funds for subsidizing farm inputs such as insecticides and fertilizers.

- the M.A.N.R. Extension Services also carry out youth work among school leavers to attract them to agriculture through the introduction of Young Farmers Clubs.

- the Ministry maintains demonstration farms where farmers can be trained individually or in groups. The Ministry in conjunction with research stations carries out agricultural experiments and verification trials on farmers' farms in order to make research and farm practice more relevant to local situations.

Summary

The review of the history, organizational structure, and functions of the agricultural extension services in Nigeria, with emphasis on Western Nigeria serves as a basis for comparing the extension services in Nigeria with those of the United States. Although the US Cooperative Extension Service has played a significant role in personnel training and reorganization of extension in Nigeria, there are no similarities in the
organizational and administrative structures of the two systems.

Some of the striking differences between the Nigerian extension services and US practice are:

- complete absence of legislative acts to set the guidelines for agriculture education, research and extension throughout the country,

- the cooperative system of extension administration between federal, state, and local counties in the U.S.A. has not evolved in the Nigerian situation. This particular attribute of extension in the U.S. was hastened by the high literacy rate, and good infrastructure such as rural electrification, roads and financial capabilities of rural people. In the Nigerian case, the government will have to develop all these infrastructure facilities and raise the standard of living of people beyond subsistence level before they can fully participate in the financing of extension services.

- the universities in Nigeria are autonomous in their operations. There are no legal obligations on their part to provide rural extension work. The limited rural extension undertaken by the universities is initiated by individual researchers in the universities.

Apart from these technical differences however, the extension service in Nigeria is based on the same universal philosophy of extension education which is the development of people through educational process.
References for Chapter III

1. The Nigerian Census 1963. The 1963 Nigerian Census is officially used since subsequent census of 1970 has resulted in public controversy and has been cancelled.


14. ibid, p. 2.


19. The Inaugural Speech by the Permanent Secretary Mr. T.A. Akinyele, on the occasion of the Launching of the Zonal Field Organization for the M.A.N.R. Ibadan: 25th August, 1975, pp. 3-17.

20. __________ ibid. pp. 2-5.


25. __________ ibid. 94.


28. __________ ibid, pp. 63-75.


38. ibid. pp. 41-58.


Area and Setting of Study

The study was conducted in the Western States of Nigeria using the Ministry of Agriculture and Natural Resources (MANR) as the organizational setting for the study. The Western States are divided into eight Agricultural Zones. Since the cocoa farmers were the clientele selected for the study, the four major cocoa producing zones were selected as the rural setting. These zones are in the new Ondo, and part of Oyo States which cover an area of about 20,000 square kilometers. (See Figure 2).

The group for analysis comprised the senior extension staff, the village level junior extension staff, and the cocoa farmers themselves.

Instrument

The instruments used in the study were questionnaires, and interview schedules designed to collect data in five topic areas:

- role of extension services as perceived by both groups of extension personnel and by the farmers.
- methods and techniques used by extension agents in teaching farmers and the effectiveness of each technique.
FIGURE 2
MAP OF NIGERIA SHOWING THE STUDY AREA

THE NEW POLITICAL MAP OF NIGERIA SHOWING THE FEDERAL CAPITAL AND THE NINETEEN STATES

ZONES COVERED IN THE STUDY WERE:

1. Akure
2. Ekiti
3. Ondo
4. Ilesha
sources of farm information and techniques which cocoa farmers used to learn basic farm operations.

ratings by both groups of extension agents and by farmers to assess the extension services provided by MANR.

biographical and personal data descriptive of the respondents.

To collect data on role perceptions and performance, the technique used by Abdullah (1964) was adopted. This technique focuses on the degree of agreement among role definers on which one, or which range of alternatives, among a set of available alternative functions, the incumbent of a position perceived as the most important function in his status-role.

To determine role perceptions and role performance, a list of 50 role definition items were presented in a structured questionnaire for extension staff and 40 of the role definition items were included in a structured interview schedule for farmers. Each item has a range of response categories on a 5-point Likert-type interval scale which respondents were to respond to as 5 = 'Very Important', 4 = 'Quite Important', 3 = 'Moderately Important', 2 = 'Somewhat Important', and 1 = 'Least Important' (see instrument in Appendix A). The 50 role definition items were clustered into the five major extension function areas as follows:

Educational functions (15 items)

Administrative functions (8 items)
Service functions (12 items)

Public relations functions (5 items)

Staff functions (10 items)

**Educational function** - is defined as activities involving relationships with an extension agent and the rural farm and non-farm people for the purpose of systematic instruction that results in learning farm practices and/or related activities. The content of activities need not be agricultural. For example, teaching farmers and farm wives how to take care of children.

**Administrative function** - is defined as an activity performed by the extension agent which is institutionally oriented, limited in scope, and delegated to the agent on the basis of his hierarchical position in the Ministry of Agriculture. Example: Attending to contractors and other businessmen in the office.

**Service function** - is defined as an activity carried out by the extension agent to help farmers produce, and to facilitate the role of the extension service as an arm of the Ministry of Agriculture. Example: Distributing planting materials and fertilizers to farmers.

**Public Relations function** - is defined as an activity that involves the treatment of public affairs issues to increase the understanding of people about the issues. Example: Promoting government programmes among rural people.

**Staff Related function** - is defined as an activity carried out by the extension agents for the purpose of improving their own
efficiency and interpersonal relations and those of other government functionaries, and which does not involve farmers or non-farmers. Example: Organize seminars and workshops for extension agents and produce inspectors. The staff function comprising 10 activity items was not included in the role perceptions for the farmers because the function is institutionally oriented to the Ministry staff only. Therefore only 40 activity items were on the farmers' interview schedule.

To determine role performance the extension staff were asked to indicate how much of their occupational time (as a percentage of total time) was spent on each function area. The percentage scores on all items under each function area were then transformed into ratio estimates of respondents' time spent on each extension function by using Stevens' Ratio Estimation Technique (Stevens, 1951; 1966; 1968).

**Job Satisfaction**

Data on job satisfaction were obtained by using a modified Job Descriptive Index (JDI) following Quinn and Kahn (1967) and Hulin (1972). Twenty-five characteristic items were listed and extension personnel were asked to indicate their degree of satisfaction with each item on a 5-point ordinal scale with response range from (5) = 'Very Well Satisfied', to (1) = 'Very Dissatisfied'. (See instrument in Appendix A). These items were clustered into five job dimensions: (a) supervision (5 items), (b) work group (5 items) (c) job content/work itself (5 items), (d) salary (5 items)
and (e) promotional opportunities (5 items).

Extension Teaching Techniques

A list of 12 extension teaching techniques that were considered relevant to Nigerian situations was presented in the instrument for the three respondent groups. Extension staff were asked to rate the 'effectiveness' of each of these techniques in working with rural farmers on a 5-point ordinal scale ranging from (5) = 'Very Effective', to (1) = 'Not at all Effective'. (See also appendix A).

The senior staff were asked to indicate the percentage of extension teaching that should be done through each technique, while the junior staff were asked to indicate the percentage of teaching they actually carried out with each technique using the Steven ratio estimation technique. From the data it was possible to establish any discrepancy between what techniques the extension staff perceived as most effective and the techniques mostly used.

The data on farmers' learning through these extension techniques were obtained by asking the farmers to indicate the most frequent source out of six sources through which he received information about his cocoa farm operations, and to indicate through which of the 12 listed techniques he learned each of selected five farm practices that are crucial to cocoa production. These practices are:

- spraying of chemical against capsid pests (*Sahibergella*, *spp*, and *Distantiella* *spp*), and black pod
disease \((\text{Phytophytora palmivora})\). These pests and the fungus disease may account for more than 35 per cent of the losses in cocoa yield.

- fertilizer application to cocoa.
- weed control.
- mistletoe removal \((\text{Tapinanthus spp.})\) a parasitic plant which affects the yield of cocoa.
- fermentation, a process necessary to get good quality cocoa beans.

Each time a farmer recalled how he actually learned any of these practices, the appropriate technique in the schedule was checked. If he knew the practice after learning it through such a technique, the technique was given an effectiveness score of 2; if he said he did not know it and had to learn it through another technique it was given a score of 1.

Thus the data indicated the proportion of farmers' learning that occurred through each technique and the effectiveness of the technique. Moreover, the proportion of farmers' learning from these practices that occurred through incidental learning in a natural societal setting and that which occurred under a systematic instructional setting was ascertained. (Verner, 1975).

The questionnaire and the interview schedule also contained questions on structural and personal characteristics of the respondents.
Face Validity of the Instrument

Originally 60 extension activity expectation items and 35 job satisfaction items relevant to rural extension in Nigeria were developed through literature review, agricultural reports, personal experience, and consultations with faculty and staff in the departments of Adult Education, Commerce and Agriculture at the University of British Columbia, Vancouver, Canada. These items were presented in a questionnaire for a trial run and given to ten judges to fill out. The judges comprised graduate students in agriculture and extension, adult education, and faculty members in agricultural economics. All the ten judges responded to the questionnaires. In a pilot run involving a small sample size, non-parametric statistics treated fully by Siegel (1956) could only be used. Therefore in order to determine the validity of the items, "percentage correct cut off point" was adopted (Rusnell, 1974). Any activity statement which was not categorized correctly by 50 per cent (consensus) of the judges was eliminated. The same procedure was repeated among ten other judges of similar background in Nigeria to cross check the validity of the items. On this basis, 50 role expectation items and 25 job satisfaction items met the criteria for selection and were included in the questionnaire. The questionnaire was also cross-validated among the Nigerian judges for clarity on personal characteristic questions.

The study was approved by the doctoral committee, and letters of approval were sent to the Ministry of Agricul-
ture, Western States, and to the authority of the University of Ife, Nigeria for necessary support. The study was then discussed with the authority in the Ministry of Agriculture and Natural Resources and approval was obtained with a letter on introduction and clearance to the field coordinators (See Appendix B for letters of approval).

Sampling

Sampling of rural farmers for research work in Nigeria and other African nations presents formidable problems because of lack of records and a standardized frame from which to draw the sample. Everett Rogers and others have commented on this problem:

"... in less developed countries, and particularly in the rural sections of such nations, the most important and often the most frustrating problem facing the survey researcher is the absence of reliable frames from which to sample ... under these circumstances, creative sampling techniques must be used in order to approximate a random sample which allows one to confidently generalize from the sample to the population (Rogers, Ascroft, and Roling, 1970)."

A stratified random sample of 160 farmers out of a total 563 that could be identified through the local extension agents were selected from 12 strata in the states using each of the 12 administrative divisions in the 4 agricultural zones as a stratum. Eleven of these 12 divisions are cocoa growing areas, while one division, Okitipupa, is mainly for rubber and oil palm cultivation. The farmers were selected according to the following criteria:
they must be full-time cocoa growers,
- they must have cocoa that are yielding.
- they were all Yorubas, to prevent linguistic problems.
- no absentee farmers were included.

The cocoa farmers in each division were contacted through the assistance of local extension workers, divisional and zonal officers, and through the help of local farmers' cooperative secretaries. Several visits were made to towns and villages where farmers' had been identified in order to explain the purpose of the study and to arrange a general meeting with the farmers in each division. Extension personnel who knew the farmers in each division accompanied the author on all visits to introduce the author to local leaders and farmers in order to gain the farmers' support for the study in the area. Meetings were then arranged with farmers in each division on a specific appointed day.

At each final general meeting with the farmers, the extension officers' and the author further explained the purpose of the study to the farmers to allay the fear of misconstruing the research with an attempt to gather information for tax assessment or tenement rates. Farmers were asked to feel free to ask questions or raise issues for clarification before the selection of the sample. All questions pertaining to the day-to-day extension work in the area were answered and clarified by the local extension officers and/or farmers, or the cooperative secretary who accompanied the author on each occasion. This was necessary to gain the farmers' confidence.
and support for the study (Kearl, Hadari, and Ogunfowora, 1976). Farmers were then given numbers which were duplicated and from these, 14 farmers were randomly selected. This procedure was used in the eleven cocoa growing divisions, and all six farmers that could be identified in Okitipupa were included in the sample. Selecting an equal number of subjects from each stratum at random was thought to be a better way of ensuring representativeness as has been demonstrated by other researchers in rural and urban studies (Riley, 1963; Stoufer, 1962; and Hursh, et al 1968).

Once the 14 farmers from a stratum were selected, the interview was completed on the same day to avoid loss of subjects or the problem of rubbing off effect as identified by Awa (1976). The sample size was limited by time available for the scope of study, and also by financial constraints.

**Extension Staff**

For the extension staff, a 50 per cent proportionate random sample was used. The list of the extension staff was obtained at the zonal headquarters. For the senior staff, those who were not agriculturists by training were eliminated from the list because they could not respond to the extension items on the questionnaire. These included the produce officers, veterinary surgeons and forestry officers who act as either zonal or divisional coordinators. There were 131 senior staff in general extension and 77 of them were randomly selected by drawing random numbers. The junior staff were
more than double the senior staff. Of the total 262 village level junior staff on the list, 131 (50%) were selected. To increase the representativeness, and since they did not work across divisional boundaries, 50% of the junior staff at zonal level were randomly selected through random numbers (Nwakka, 1975).

Data Collection

The data from the farmers were collected through personal interview by using the structured interview schedule. Three field assistants from the Ministry helped in the data collection. They were properly coached in the administration of the interview. The assistants worked with the author personally and were not allowed to conduct any interview separately without being cross-checked. Of the 160 farmers, 140 or 87.5 per cent fully responded to the interview schedule. Loss of subjects due to refusal to complete an interview did not exceed 2 for any division.

The questionnaires for the extension staff were distributed personally at the zonal and divisional headquarters. The instructions on the questionnaires were explained and specific dates were given to collect them. Efforts were made to follow up to ensure cooperation and response. Of the 131 junior staff, 109 or 83.2 per cent returned usable questionnaires, while 70 of the 77 senior staff completed usable questionnaires, thus giving a 90 per cent return rate.
Secondary Data

Data were also obtained from documents of the Ministry of Agriculture on policy statements on extension, budgets for extension and farmers' training which were used in the theoretical discussion of the study.

Analysis of Data

The data were coded and punched on computer cards for computer analysis at the UBC computing centre. The UBC multivariate BMDP9D programmes were used for the computer analysis. Descriptive statistics such as means, standard deviations, and Chi square were used for the descriptive data. Appropriate correlation analyses were also employed to test associations between predictor variables. A final item analysis for the instrument was computed and the reliability coefficient of items for extension staff was .92, and for farmers it was .65.

Univariate and multi-variate analyses of variance were used to analyse data on four of the topic areas, to determine the degree of inter-group and intra-group role consensus. Means and standard deviations were used to rank-order perceptions on extension functions. The role performance among extension workers was transformed into ratio estimation (Stevens, 1951, 1966, 1968) and was reported as the relative percent of total time on extension functions.

The hypothesized relationships were explored by correlating each predictor variable with cocoa production by
farmers, and with effectiveness of extension staff on the
basis of the number of their contacts with farmers.

Since Pearsonian correlations only compare single
variables, their combined effects were analyzed to determine
the amount of variable explainable. The data were therefore
subjected to further stepwise regression analysis to
establish best predictors of cocoa production and extension
teaching effectiveness. All tests of significance were re­
ported at .05 alpha levels.

Conceptual Model

A conceptual model for the research procedures
followed throughout the study was constructed and presented
in the text (see Figure 3).

Practical Limitations

The problems encountered in social science data
collection in Africa are so formidable that no single
methodological approach can be regarded as the panacea for
data collection in rural areas. Rural studies usually
involve scattered and remote settings; provision of trans­
port and food and lodging for field interviewers may require
some inventiveness. Census figures are usually out of date
and frequently unreliable, if indeed they are available at
all.
FIGURE 3

CONCEPTUAL MODEL FOR THE STUDY OF DIFFUSION OF KNOWLEDGE BY THE EXTENSION SERVICE, WESTERN STATE, NIGERIA

M.A.N.R.
Extension Department

Role Perception

Ext. Sup. Farmers

Field Workers

Role Functions
- Education
- Service
- Administrative
- Public Relations
- Staff Functions

Role Performance

Extension Teaching

Dissemination

S.E.S.

Methods & Techniques

Teaching
- Formal Instruction

N.S.S.
Incidental Learning

Dissemination

Farmers' Learning
- Farm Operations

Cocoa Yields

Note:  ○ = Relationships Analysed
Administrative procedures are inadequately organized so that one may spend weeks in an attempt to find an officer in his office or to even obtain information from a government file. These problems are compounded in the rural areas where only meagre facilities exist.

Some of the most common methodological problems for social scientists in the developing world are rarely encountered in a more urbanized and industrialized environment. To disregard these shortcomings will simply result in introducing methodological bias to a research study in a culturally different setting (Awa, 1976; Kearl, et al., 1976).

Among the illustrative problems encountered during this survey were the following:

- lack of records from which farmers' names or lists could be compiled.
- excessive travelling to towns and villages to identify and convince farmers to take part in the study.
- frequent failures of the Ministry to keep promises made to farmers contributed immensely to farmers' reluctance to participate in the study, a problem that needed tact and human relation on the part of the local extension agents and the author to overcome.
- feeling of frustration among rural extension agents about their educational and socio-economic advancement in the Ministry has dampened their enthusiasm
in responding to questionnaires and interviews. Researchers will have to depend on goodwill, tact and a little bit of luck, and several follow-up visits to ensure response to questionnaires.

farmers mistrust for social research workers seemed to have been increased since the introduction of the tenement rates in the Western states.

The problems highlighted here are by no means unique to Nigeria but are common in rural areas of Africa. Researchers value the wealth of experience that is being acquired in Africa and the Middle East and have started to assemble for the first time individual approaches to rural surveys in the continent. The 1974 Beirut Seminar on field data collection in Africa and the Middle East asserted:

... to talk about how to gather field data as if that could be separated from the question of why a study is being made is admittedly naive. The important questions in social science research are methodological only if methodology is broadly defined to include all aspects of the problem ... not simply the technology of collecting and dealing with data ... hence researchers in Africa must adapt techniques peculiarly suitable for the phenomena being studied ... it will be futile and misleading to draw from any kind of recipes or formulas ... rather, they should turn to an individualized approach unique to the situation (Kearl et. al. 1976).

The key to successful field data collection in Nigeria is for the researcher to have a thorough understanding of the cultural norms of his subjects and use them to achieve the research purpose. It should be reiterated however that once the farmers agree to participate in any rural survey, they are excellent people to work with. The cooperation
received among the peasant farmers in most cases surpassed that received from government functionaries in this study
References for Chapter IV


Chapter V

PRESENTATION AND DISCUSSION OF FINDINGS

The effectiveness and success of rural agricultural extension service as an adult education system in developing countries are influenced largely by complex variables inherent in the environments in which the change agents and the client system operate. These variables include personal characteristics, role perceptions, educational methods and techniques used in learning and instruction. These variables were investigated in order to find out how well the staff of the extension service in the Western States of Nigeria carry out adult education to enhance the productivity of cocoa farmers in the States.

Personal Characteristics of Respondents

A. Extension Staff

Age

About one-third of the senior extension staff were in the age bracket of 36 to 40 years, while one-fourth were between 41 and 45 years of age. Over one-third (37.1%) of the senior staff were below 35 years of age, while only 2.9% were above 50 years of age. In contrast, the junior village level extension staff showed an extreme age distribution (Figure 4). Twenty-two per cent were between 21 to 25 years, while 22.9% were between 26 to 30 years.
FIGURE 4

DISTRIBUTION OF EXTENSION STAFF BY AGE

NOTE: Mean Age  S.D.
Senior  37.0  6.83
Junior  33.7  9.21

\[ X^2 = 22.47 \quad df = 6 \quad p < .01 \]
This is expected since young school leavers are normally recruited into the junior staff cadre while only university graduates could enter directly into the service as senior staff. The data also showed that 60% of the junior staff were below the age of 35 years. On the other hand there were more older people in the junior cadre than in the senior staff cadre. Only 2.9% of the senior staff were over 50 years, while 5.5% of the junior staff were over 50 years.

Overall, there was a statistical significant difference in the age distributions of senior staff and the junior staff of the Extension Service of Western states ($\chi^2 = 22.47$, d.f. 6, $p<.01$). Although senior staff were generally older, however, there are more people over 50 years of age among the junior staff than the senior staff.

**Tenure**

Years spent in the Extension Service was divided into six categories. It was found that 50% of the senior staff had worked in the Ministry for a period ranging from 0 to 14 years, while 56.9% of the junior staff had worked for the same period of time. Twenty-seventy per cent of the senior staff had worked for 15 to 19 years, while only 11% of the junior staff fell into this category. (Table 1).

There was a statistical significant difference in the distribution of tenure between senior staff and junior staff with the ministry. The study revealed that more people in the senior staff position had been in the service longer than the junior staff
but note that although not significant, there are more people with longer period of service in the Ministry among the junior staff.

There was a significant positive correlation between age and tenure of staff. Pearson-Product moment coefficients computed from the data summarized in Table 1 and Figure 4 were \( r = .915 \), for Junior), and \( r = .814 \) for Senior) staff. These correlations indicate that within both groups, there was a strong relationship between tenure and age, which is to be expected.

Table 1
DISTRIBUTION OF EXTENSION STAFF BY TENURE WITH MANR

<table>
<thead>
<tr>
<th>Tenure</th>
<th>Senior Staff</th>
<th></th>
<th>Junior Staff</th>
<th></th>
<th>Total Staff</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Less than 5 years</td>
<td>3</td>
<td>4.3</td>
<td>21</td>
<td>19.3</td>
<td>24</td>
<td>13.4</td>
</tr>
<tr>
<td>5-9 years</td>
<td>11</td>
<td>15.7</td>
<td>30</td>
<td>27.5</td>
<td>41</td>
<td>22.8</td>
</tr>
<tr>
<td>10-14 years</td>
<td>21</td>
<td>30.0</td>
<td>11</td>
<td>10.1</td>
<td>32</td>
<td>17.8</td>
</tr>
<tr>
<td>15-19 years</td>
<td>19</td>
<td>27.1</td>
<td>12</td>
<td>11.0</td>
<td>31</td>
<td>17.3</td>
</tr>
<tr>
<td>20-25 years</td>
<td>13</td>
<td>18.6</td>
<td>27</td>
<td>24.8</td>
<td>40</td>
<td>22.3</td>
</tr>
<tr>
<td>Over 25 years</td>
<td>3</td>
<td>4.3</td>
<td>8</td>
<td>7.3</td>
<td>11</td>
<td>6.4</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>109</td>
<td>100</td>
<td>179</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th></th>
<th>S.D.</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14.4</td>
<td></td>
<td>13.1</td>
<td></td>
<td>13.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.14</td>
<td></td>
<td>8.72</td>
<td></td>
<td>7.43</td>
<td></td>
</tr>
</tbody>
</table>

Note: \( \chi^2 = 26.96 \) df = 5 P < .001
Sex

There were about the same proportions of female staff in the junior technical cadre as in the senior category, 10% and 11% respectively. (Table 2). This number of female staff in the senior cadre probably resulted from the recent Public Service Review Commission which gave a new grading status to people with the Higher Diploma Certificate.

Table 2
DISTRIBUTION OF RESPONDENTS BY SEX

<table>
<thead>
<tr>
<th>Sex</th>
<th>Senior No.</th>
<th>Senior Staff %</th>
<th>Junior No.</th>
<th>Junior Staff %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>62</td>
<td>88.6</td>
<td>98</td>
<td>89.9</td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
<td>11.4</td>
<td>11</td>
<td>10.1</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100.0</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The same review put more men into higher technical and management positions than would have been the case if only degree holders could hold management positions. A point-biserial correlation coefficient ($r_{pb} = .371, p<.001$) was obtained between sex and tenure which suggests that men stayed in the agricultural extension service longer than women in the Ministry.
Formal Education

The respondents were asked to indicate the formal education they had received as preparation for their work. From the data it was found that all the junior staff (100%) had obtained the Agricultural Assistant Certificate. (Table 3). This is consistent with the government policy that only those who had completed the two years post-secondary vocational training at the school of agriculture should work at village level as extension workers. This showed that the village level extension workers in the Western States had reached a higher level of technical training than their counterparts in the Eastern states where only 76% had reached that level (Nwakka, 1975, p. 115).

Table 3
DISTRIBUTION OF RESPONDENTS BY FORMAL EDUCATION

<table>
<thead>
<tr>
<th>Educational Level (Highest)</th>
<th>Senior Staff No.</th>
<th>Senior Staff %</th>
<th>Junior Staff No.</th>
<th>Junior Staff %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate</td>
<td>109</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>61</td>
<td>87.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor</td>
<td>6</td>
<td>8.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor and Diploma</td>
<td>1</td>
<td>1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters</td>
<td>2</td>
<td>2.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100.0</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Among the senior staff, 87% had obtained the diploma, 8.6% had a Bachelor's degree and only 2.9% had received the Master's degree.
Although direct entry into senior management positions depends on higher educational qualifications, the data suggest a negative association between higher qualification and tenure, indicating that with higher education people tend to leave the Ministry. Formal education was treated as weak ordinal data, and was found to have a significant negative correlation with tenure. The Jaspen's correlation coefficient was $r = -0.404$ ($p < .001$), meaning that the higher the qualification the fewer years they remain in the service of the Ministry. This is consistent with the general observation that highly trained people use the Ministry of Agriculture as a stepping stone to better employment opportunities. This also explains in part why there were very few professionals among the senior staff. There was no relationship between age and formal training received by junior staff (Jaspen's $r = 0$). This was expected since education for junior staff terminates at certificate level. Age has no correlation with formal education of senior staff (Jaspen's $r = -0.190$).

In order to determine how adequately the senior staff were prepared as professional extension workers, they were asked to indicate their special areas of study while in university. It was found that 88.6% did general agriculture, while about 5% and 4% specialized in animal science and agricultural economics respectively. Only one percent did extension education at the university level, which means that nearly all the senior staff who even had some university education were generalists but had no special training in extension or adult
education. (Table 4).

### Table 4

**DISTRIBUTION OF SENIOR STAFF BY SPECIALIZATION**

<table>
<thead>
<tr>
<th>Specialization</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Agriculture</td>
<td>62</td>
<td>88.6</td>
</tr>
<tr>
<td>Animal Science</td>
<td>4</td>
<td>5.7</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>Extension Education</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>70</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

**Extension In-Service Training**

The problem of professional preparation was further investigated by asking extension staff to indicate whether they had had any continuing education in adult or extension education. It was found that 94.3% of the senior staff had no in-service training in adult education and only about 6% had some training. (Table 5). Sixty-nine percent of the junior staff had no in-service or on-the-job training in adult education, while 31% said they had some training in the last two years, but this was on specific projects such as practical training on food crop production. About 11% had no form of extension training, while 89% said they had received some induction training to reorient them to rural extension.

There was a significant difference between the
senior and junior staff with respect to training in adult or extension education. \( (x^2 = 16.54, \text{ d.f.} = 1, p<.001) \).

Table 5

DISTRIBUTION OF RESPONDENTS BY IN-SERVICE TRAINING IN ADULT EDUCATION

<table>
<thead>
<tr>
<th>In-Service Training Adult Education:</th>
<th>Senior Staff No.</th>
<th>%</th>
<th>Junior Staff No.</th>
<th>%</th>
<th>Total Staff No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No training</td>
<td>66</td>
<td>94.3</td>
<td>75</td>
<td>68.8</td>
<td>141</td>
<td>78.7</td>
</tr>
<tr>
<td>Have training</td>
<td>4</td>
<td>5.7</td>
<td>34</td>
<td>31.2</td>
<td>38</td>
<td>21.3</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100.0</td>
<td>109</td>
<td>100.0</td>
<td>179</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: \( x^2 = 16.54 \), d.f. = 1, \( p<.001 \)

It is interesting to note than when those senior staff who said they had adult education training were asked to mention courses they took, practically none of them could name any specific course. The only course that was generally mentioned was the practical 'Shasha' leadership training - organized by the Western State Ministry of Economic Development. 'Shasha' is a name of a local village area used as a training centre for community leadership. This training was until 1965, conducted at the 'Man O War Bay' in the Cameroons.

Another interesting finding was that the senior staff were asked if they belonged to any professional organization.
Only 3% of them mentioned belonging to the Agricultural Society of Nigeria, and 1% to the World Poultry Association; while 96% did not belong to any organization. The majority of the senior staff frequently mentioned their membership in trade unions before they became senior staff but this was discarded since trade unions are not considered professional organizations. It was startling to find that senior staff could not distinguish between trade unions and professional associations. The question on professional organization was not put to junior staff since they could not belong to any professional organization at the agricultural assistant level.

Training in adult education had a significant positive correlation with formal education. The Wilcoxon's coefficient of differentiation theta was \( r = +.255, p<.031 \); meaning that those who had higher education tended to seek training in continuing education. It was found, however, that adult education training had no relationship with age \( r_{pb} = .021 \), tenure \( r_{pb} = .091 \) and sex (Lambda \( r = .091 \)). These findings suggest that these variables are not necessarily predictors in continuing education.

**Sources of Continuing-education**

The village level extension workers who reported they had some in-service training were asked to indicate the source of their training and the people who taught the courses. The majority (77.1%) of the people who provided the training were members of the Ministry. (Table 6).
Table 6
DISTRIBUTION OF SOURCES OF CONTINUING EDUCATION
FOR JUNIOR EXTENSION WORKERS

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior MANR Officials</td>
<td>84</td>
<td>77.1</td>
</tr>
<tr>
<td>Agric. Research Institutions</td>
<td>23</td>
<td>21.1</td>
</tr>
<tr>
<td>Universities</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Business or Industry</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Twenty-one per cent of those who conducted the in-service training were from agricultural research institutions, while only about 2% were from the universities. Possible explanation for these results include: either the extension administrators were probably mechanistic in their approach toward providing educational experience and growth for their personnel by looking up to Ministry staff for this purpose, or that the universities have been too aloof in the provision of continuing education for rural extension workers.

Adequacy of Training

The village level extension workers were asked if they perceived the technical training they received in the School of Agriculture adequate for their job. Eighty-six per
cent perceived their technical training 'Very Adequate' to 'Adequate', while about 13% perceived it 'Somewhat Inadequate' to 'Very Inadequate'. (Table 7).

Table 7
DISTRIBUTION OF JUNIOR EXTENSION STAFF BY ADEQUACY OF TRAINING

<table>
<thead>
<tr>
<th>Training</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Adequate</td>
<td>56</td>
<td>51.4</td>
</tr>
<tr>
<td>Adequate</td>
<td>38</td>
<td>34.9</td>
</tr>
<tr>
<td>Somewhat Inadequate</td>
<td>9</td>
<td>8.3</td>
</tr>
<tr>
<td>Very Inadequate</td>
<td>5</td>
<td>4.6</td>
</tr>
<tr>
<td>I am not sure</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>109</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

It seems to the author that all the demands that were frequently made by junior staff for higher education or better training were made in order to advance them beyond the junior cadre and not necessarily demands for more effective extension work.

Those who perceived their training inadequate were asked to indicate the type of courses they would prefer to take in a continuing education programme. Agricultural economics courses such as farm management were mentioned by 42.8% of the respondents, and courses in livestock improvement were mentioned by 42.8%. Another 57% of the junior staff would
prefer more training in extension and adult education, while 21% would prefer more training in crop improvement.

Farm Families Served

The number of farm families served by one village level extension worker in Western Nigeria has not been empirically documented. In order to provide a benchmark for this, extension workers were asked to indicate the number of farm families they provide service for in the state. The junior village level extension staff reported that they had responsibility for a mean of 2174.6 farm families, while their supervisors reported a mean of 363.5 farm families. The fewer number of families reported by senior staff is understandable since they work across boundary lines. This finding came close to the estimated ratio of 2500 farmers to one extension worker in Nigeria by the Federal Department of Agriculture and the USAID (Oloruntoba, 1972). It logically follows therefore that with the present agent-client ratio, it is impracticable for rural extension workers to provide effective adult education for their clientele.

Farm Visits

The farm visit is an effective educational procedure used in rural extension to teach farmers and rural non-farmers. The village level junior staff were asked to indicate the number of farm visits they make each year for the purpose of teaching farmers. Thirty-one per cent of the respondents
reported between one and 99 farm visits a year, while over half of them (52%) reported from 100 to 399 farm visits. About 16% said they made from 400 to over 1000 farm visits. (Table 8). Under the present state of rural infrastructure development, and the general complaints by extension workers about lack of funds to reimburse their travelling allowances and mileage claims, the author found it extremely difficult to believe the latter part of this report of over 1000 visits a year, and concluded that a reported visit of over 1000 times a year is nothing more than mere lip-service.

Table 8
DISTRIBUTION OF JUNIOR EXTENSION STAFF
BY FARM VISITS PER YEAR

<table>
<thead>
<tr>
<th>Farm Visits</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-24 visits</td>
<td>15</td>
<td>13.8</td>
</tr>
<tr>
<td>25-55 visits</td>
<td>11</td>
<td>10.1</td>
</tr>
<tr>
<td>56-99 visits</td>
<td>8</td>
<td>7.3</td>
</tr>
<tr>
<td>100-399 visits</td>
<td>57</td>
<td>52.3</td>
</tr>
<tr>
<td>400-999 visits</td>
<td>8</td>
<td>7.3</td>
</tr>
<tr>
<td>1000 and above</td>
<td>10</td>
<td>9.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean = 329.8  S.D. 553.63

On the whole, a village level extension worker in the Western States made an average of 330 farm visits a year. There was no association between the number of farm visits
made by an extension agent and sex ($r_{pb} = .102, p<.288$). There were also no associations between the number of farm visits and adult education ($r_{pb} = .116, p<.226$). The findings then suggest that the length of time the staff have been with the Ministry and the type of adult education they received on the job did not increase the number of farm visits they make to teach farmers.

Field Experience

Apart from the basic professional training, field experience in rural extension is an essential attribute of an effective extension supervision. The extension supervisors were asked to indicate how long they had worked in the field as junior village level extension workers; this was compared with the field experience of junior staff. It was found that 31% of the senior staff worked less than five years, while 50% worked from 5 to 10 years before they became supervisors. (Figure 5). Only 11.4% of the senior staff worked for over 15 years before advancement to a senior staff position.

In contrast, the junior staff have more field practical experience than their supervisors.
FIGURE 5

DISTRIBUTION OF RESPONDENTS BY YEARS OF EXPERIENCE

NOTE:  Mean Years     S.D.

Senior       7.8    6.02
Junior       9.7    7.95

$X^2 = 21$        $df = 5$    $p < .01$
One-third of the junior staff had worked for less than 5 years, about 25% had worked from 5 to 14 years, while 18% had field experience of over 20 to 25 years.

Overall, there was a significant difference between the junior and senior staff with respect to field experience. This difference when coupled with inadequate professional training on the part of the extension supervisors may create a problem of credibility gaps between senior and junior staff in extension administration.

B. The Farmers

Age

The age distributions of farmers is an important factor in labour supplies to be considered when deciding on the type of service farmers need to enhance their productivity, since the older farmers need more help than the younger ones. The study revealed that only 4% of the farmers in the states were from 21 to 25 years, while 21% were in the age bracket of 26 to 35 years. Over half of the sampled farmers were between 36 and 50 years, while 17% were over 50 years of age. (Table 9)

The high proportion of older men in farming reflects the prevalent problem of migration of young school leavers from rural areas, thus leaving the older people to farming.

Marital Status

Among the Yorubas, wives serves as a source of labour and also as a status symbol.
Table 9
DISTRIBUTION OF FARMERS BY AGE

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-25</td>
<td>5</td>
<td>4.0</td>
</tr>
<tr>
<td>26-30</td>
<td>11</td>
<td>7.7</td>
</tr>
<tr>
<td>31-35</td>
<td>19</td>
<td>13.5</td>
</tr>
<tr>
<td>36-40</td>
<td>23</td>
<td>16.4</td>
</tr>
<tr>
<td>41-45</td>
<td>26</td>
<td>18.5</td>
</tr>
<tr>
<td>46-50</td>
<td>32</td>
<td>22.8</td>
</tr>
<tr>
<td>Over 50</td>
<td>24</td>
<td>17.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>140</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Mean = 44.2  S.D. = 10.85

The study revealed that only 5% of the farmers were single; 94.3% were married and only one farmer was divorced. Of those who were married, the mean number of wives was 2.02, with an observed range of 1 to 5 wives. There were an average of 6.20 children per farmer with a range of 1 to 19 children.

Age, wives and number of children were measured directly and intercorrelations were calculated. Age was significantly correlated with number of wives \( r = +.470, p<.001 \), and number of wives was also significantly correlated with number of children \( r=+.520 p<.001 \); meaning that the older people have more wives, and
those with more wives have more children. The cocoa farmers of Western Nigeria were similar in these attributes to their counterparts in other West African countries (Opare, 1976).

Years of Schooling

The successful use of some extension methods, techniques, and devices depends to a large extent on the literacy rate among rural people. Literacy rate among the sampled cocoa farmers was then investigated. The study revealed that over half of the sampled farmers never went to school, 35% had from 5 to 10 years of schooling, while only 3.6% had over 10 years of schooling. (Table 10).

Table 10
DISTRIBUTION OF FARMERS BY YEARS OF SCHOOLING

<table>
<thead>
<tr>
<th>Years of Schooling</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>76</td>
<td>54.3</td>
</tr>
<tr>
<td>1-4 years</td>
<td>10</td>
<td>7.1</td>
</tr>
<tr>
<td>5-10 years</td>
<td>49</td>
<td>35.0</td>
</tr>
<tr>
<td>Over 10 years</td>
<td>5</td>
<td>3.6</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Overall, about 62% of the farmers were basically illiterate, while 38% were functionally literate. The mean years of schooling was 3.2 years which was below the
UNESCO recommendation of four years of schooling as a requirement for an individual to reach functional literacy (Rogers and Svenning, 1969).

Age had a significant negative correlation with years of schooling ($r = -0.306, p<0.002$), which indicates that older farmers have fewer years of schooling. Years of schooling is not a predictor of number of wives ($r = -0.125, p<0.145$). There was no association between schooling and the number of children ($r = 0.081$).

Farmers Cooperative

About two-thirds of the cocoa farmers were members of the Western State Cooperative Produce Marketing Union, while 34% were non-members. (Table 11).

Table 11

DISTRIBUTION OF RESPONDENTS BY MEMBERSHIP IN COOPERATIVE UNION

<table>
<thead>
<tr>
<th>Cooperative Membership</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member</td>
<td>92</td>
<td>65.7</td>
</tr>
<tr>
<td>Non-Member</td>
<td>48</td>
<td>34.3</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
<td>100.0</td>
</tr>
</tbody>
</table>
The Cooperative Union exists under the Ministry of Trade and Cooperatives and the farmers' Cooperative Union has been an effective method of organizing the farmers in the state for more efficient farming and marketing of their farm produce. Membership in the Union had a significant positive correlation with age (\( r_{pb} = .303, p<.002 \)) and with number of wives (\( r_{pb} = .365, p<.002 \)), meaning that older farmers tend to join the cooperative union and cooperative members tend to have more wives. Membership in the cooperative union was significantly correlated with farm income (\( r_{pb} = +.251, p<.002 \)) and with yield per acre (\( r_{pb} = +.201, p<.017 \)); meaning that farmers who are union members have more farm income and have greater yield per acre. The significant association between cooperative membership and farm income and average yield per acre tends to support the government policy to make membership in the farmers' Cooperative Union mandatory for those who are to participate in the new Cocoa Development Unit projects in the Western States.

**Years of Farming**

The data from the study revealed that nearly all the respondents have been in farming more than one year. About 26% have been in cocoa farming from 5 to 14 years, about 30% have farmed for over 20 years, while 25.6% had been in farming over 26 years. (Table 12). The mean years of farming was 20.9.

Years of farming had significant positive correlations
with age ($r = .796, p < .001$), and number of wives ($r = .396, p < .002$), and children ($r = .385, p < .002$). This means that older people have been in farming longest, and those who have farmed for longer period tend to have more wives and children. This is expected since number of wives and children are not only status symbols among the Yorubas but also are sources of human labour.

The number of years in farming and membership in cooperative union were significantly correlated ($r_{pb} = .406, p < .001$).

Table 12

<table>
<thead>
<tr>
<th>Years in Farming</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 years</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>5-9 years</td>
<td>14</td>
<td>10.0</td>
</tr>
<tr>
<td>10-14 years</td>
<td>23</td>
<td>16.4</td>
</tr>
<tr>
<td>15-19 years</td>
<td>22</td>
<td>15.8</td>
</tr>
<tr>
<td>20-25 years</td>
<td>43</td>
<td>30.8</td>
</tr>
<tr>
<td>26-35 years</td>
<td>25</td>
<td>17.8</td>
</tr>
<tr>
<td>Over 35 years</td>
<td>11</td>
<td>7.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>140</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Mean $= 20.9$  S.D. $= 10.74$

This means that those who have farmed for longer periods tend to be members of the farmers' Cooperative Union. But years
of farming and years of schooling were negatively correlated 
\( r = -0.406, p<0.001 \), meaning that those who have farmed longest
had the least education. It may be concluded that government efforts to attract young school leavers to farming in recent years may not necessarily guarantee that people with more years of schooling will practice farming than those with fewer years of schooling.

**Size of Farm**

The average farm size reported by the cocoa farmers was 9.5 acres which is about double that of their food crop counterparts which was 4.5 acres (Agricultural Statistical Report 1971). Sixty-one per cent of the cocoa farmers operate from 5 to 10 acres, 18% had less than 5 acres, while 16% operate farms of from 15 to over 20 acres. (Table 13).

<table>
<thead>
<tr>
<th>Size of Farm (acres)</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 acres</td>
<td>26</td>
<td>18.6</td>
</tr>
<tr>
<td>5-10 acres</td>
<td>86</td>
<td>61.4</td>
</tr>
<tr>
<td>11-14 acres</td>
<td>5</td>
<td>3.6</td>
</tr>
<tr>
<td>15-20 acres</td>
<td>13</td>
<td>9.3</td>
</tr>
<tr>
<td>Over 20 acres</td>
<td>10</td>
<td>7.1</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean = 9.5, S.D. = 7.92
Farm size was found to have significant positive correlation with income ($r = +.522$, $p .001$), total yield ($r = +.519$, $p .001$), number of wives ($r = +.419$, $p .001$), and children ($r = +.334$, $p .002$) but a negative correlation with yield per acre ($r = -.2115$, $p .0111$). This means that those farmers with larger farm size tend to have higher income, and higher total yield, but yield per acre is reduced as farm size increases and farmers have more wives and children. The strong association of farm size with these other variables is understandable in that the farmer needs them as important socio-economic inputs into farm production. It was also found that farm size correlates positively with age ($r = +.199$, $p .018$) and membership in the Cooperative Union ($r_{pb} = +.190$, $p .024$); meaning that older farmers and union members tend to have larger farms. Farm size had no correlation with years of schooling ($r = +.074$).

**Farm Income**

The farmers were asked to give the actual annual income from cocoa production for 1975. The actual income given by a farmer was recorded but this was later recoded into seven categories. (See Table 14). The study revealed that 39% of the farmers earned less than N400 annually from cocoa production, while 31.5% earned between N400 to N799 per annum. Over one-fourth of the respondents had annual farm income of between N800 to N1499, while 1.4% earned between N1500 to N2000 per annum. (Table 14). The correlation coefficient of farm income with age was ($r = +.279$, $p .002$). Farm income significantly correlated with number of wives.
(r = +.451, p<.001), and children (r = +.393, p<.001). It was also significantly correlated with farm size (r = +.523, p<.001), and yield (r = +.887, p<.001). This means that as the farm income increases the farmer tends to have more wives, and more children. The older farmers tend to have more farm income.

Table 14
DISTRIBUTION OF FARMERS BY FARM INCOME FROM COCOA PRODUCTION

<table>
<thead>
<tr>
<th>Income</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than N200</td>
<td>15</td>
<td>10.7</td>
</tr>
<tr>
<td>N 200-399</td>
<td>40</td>
<td>28.6</td>
</tr>
<tr>
<td>N 400-499</td>
<td>15</td>
<td>10.7</td>
</tr>
<tr>
<td>N 500-799</td>
<td>29</td>
<td>20.8</td>
</tr>
<tr>
<td>N 800-999</td>
<td>15</td>
<td>10.7</td>
</tr>
<tr>
<td>N1000-1499</td>
<td>24</td>
<td>17.1</td>
</tr>
<tr>
<td>N1500-2000</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean = 602.4 NAIRA  S.D. = 386.82

Note: Figures are in Nigerian Naira (N1 = U.S. $1.55)

Farm Yield

The farmers were asked to give the annual yield of cocoa from their farms for the 1974 and the 1975 cocoa seasons. The actual farm yield given by a farmer for 1974 and 1975 were added and divided by 2 to get the average total yield per year per farmer.
This was then divided by the average acreage per farm to obtain the average annual yield per acre per farm. The average total yield per annum obtained per farmer was 2712 lbs. (i.e. 1.2 long tons), with an average yield of 285.4 lbs. per acre. This is much lower than the recommended yield of between 500-800 lbs. per acre. However, the finding corresponds to a similar finding in Ghana (Opare, 1976).

In order to cross-check the accuracy of the figures reported by the farmers for their farm income and cocoa yield, the average total yield per annum of 1.2 tons was multiplied by the current selling price of N500 for the 1974/75 season. This conversion equals N600 which corresponds with the average farm income N602 reported by the farmers. The average yield per annum per farmer of 2712 lbs. was divided by the average yield per acre of 285.4 lbs. to give an approximate mean acreage per farmer of 9.5 which matches with the average of 9.5 acres reported by the farmers.

Radio as an Information Source

The farmers were asked to indicate whether they have a radio as means of receiving news and farm information. Ninety farmers or 64.3% said they had radios, while 35.7% said they possessed no radios. Radio possession had a slight, but significant positive correlation with income ($r_{pb} = +.195, p<.21$)
meaning that as the farm income increases the farmers tend to be in a position to possess radios as means of receiving news and farm information. However, radio possession had no association with farm yield per acre ($r_p = 0.067$).

**Summary of Biographical Data**

**Senior Staff**

The findings in the study revealed that the senior extension staff was made up of disproportionately high numbers of technical personnel serving in the supervisory cadre (87%), while only 13% possessed professional university qualifications. The paucity of professional personnel was further worsened by lack of systematic continuing education programmes to up-grade the qualitative aspect of the extension staff. Only about 6% reported to have any form of adult education. The senior staff had served for a mean of 14.4 years, and 96% belonged to no professional association (Table 15).

**Junior Staff**

The village level junior extension workers had a mean tenure of 13.1 years with the Ministry, and their average age was 33.7 years. Although the junior staff were younger in mean age, the cadre contained more older people than the senior staff cadre. (Table 16).

Sixty-nine percent of them had some form of continuing education in the last two years (one staff member provided service for almost 2175 farmers) and majority considered their agricultural training adequate for the job.
Table 15
MEANS, STANDARD DEVIATIONS AND POSSIBLE RANGES
OF ELEVEN PERSONAL VARIABLES OF SENIOR STAFF (N=70)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D.</th>
<th>Observed range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Years)</td>
<td>37.0</td>
<td>6.83</td>
<td>21-54</td>
</tr>
<tr>
<td>Sex: Male</td>
<td>89%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>11%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal Education:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>87%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience as Junior Staff (years)</td>
<td>7.8</td>
<td>6.02</td>
<td>0-25</td>
</tr>
<tr>
<td>Experience with MANR (years)</td>
<td>14.4</td>
<td>6.14</td>
<td>1-32</td>
</tr>
<tr>
<td>Experience as Senior Staff (years)</td>
<td>5.4</td>
<td>3.79</td>
<td>1-20</td>
</tr>
<tr>
<td>Number of staff supervised</td>
<td>14.9</td>
<td>14.94</td>
<td>10-99</td>
</tr>
<tr>
<td>Number of farmers served</td>
<td>363.5</td>
<td>565.77</td>
<td>20-3000</td>
</tr>
<tr>
<td>Have training in Adult Education</td>
<td>6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have Training in Extension</td>
<td>89%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belong to Professional Associations</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: All percentages are to the nearest whole numbers.
Table 16  
MEANS, STANDARD DEVIATIONS AND POSSIBLE RANGE OF EIGHT PERSONAL VARIABLES OF JUNIOR STAFF (N=109)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D.</th>
<th>Observed Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>33.7</td>
<td>9.21</td>
<td>21-55</td>
</tr>
<tr>
<td>Sex: Male</td>
<td>90%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal Education</td>
<td>100%</td>
<td>(certificate)</td>
<td></td>
</tr>
<tr>
<td>Experience in Extension (years)</td>
<td>9.7</td>
<td>7.95</td>
<td>1-28</td>
</tr>
<tr>
<td>Experience in MANR (years)</td>
<td>13.1</td>
<td>8.72</td>
<td>1-32</td>
</tr>
<tr>
<td>Number of Farmers served</td>
<td>2174.6</td>
<td>6455.46</td>
<td>0-5000</td>
</tr>
<tr>
<td>Number of Farm visits per year</td>
<td>329.80</td>
<td>553.66</td>
<td>1-3000</td>
</tr>
<tr>
<td>Continuing education (last 2 years)</td>
<td>Yes</td>
<td>69%</td>
<td></td>
</tr>
<tr>
<td>Adequacy of Training</td>
<td>1.6</td>
<td>0.83</td>
<td>'Very Inadequate' to 'Very Adequate'</td>
</tr>
</tbody>
</table>

Note: All percentages are to the nearest whole number.

Farmers Social Characteristics

The average age of cocoa farmers in the Western States was 44.2 years. About 94.3% of the farmers were married with an average of 2.02 wives, and an average of 6.20 children per farmer. (See Table 17).
Table 17
MEANS, STANDARD DEVIATIONS AND POSSIBLE RANGES OF FOURTEEN PERSONAL VARIABLES FOR FARMERS (N=140)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D.</th>
<th>Observed Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>44.2</td>
<td>10.85</td>
<td>20-76</td>
</tr>
<tr>
<td>No. of wives</td>
<td>2.02</td>
<td>1.07</td>
<td>1-5</td>
</tr>
<tr>
<td>No. of children</td>
<td>6.20</td>
<td>4.00</td>
<td>1-20</td>
</tr>
<tr>
<td>Literacy: Illiterate</td>
<td>62%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literate</td>
<td>38%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of Schooling</td>
<td>3.2</td>
<td>4.09</td>
<td>1-14</td>
</tr>
<tr>
<td>Years of Farming</td>
<td>20.9</td>
<td>10.74</td>
<td>2-50</td>
</tr>
<tr>
<td>Size of Farm (acres)</td>
<td>9.5</td>
<td>7.92</td>
<td>2-40</td>
</tr>
<tr>
<td>Cocoa yield per acre (lbs.)</td>
<td>286</td>
<td>219.07</td>
<td></td>
</tr>
<tr>
<td>Cocoa yield per annum (lbs.)</td>
<td>2712</td>
<td>2428.32</td>
<td>80-8960</td>
</tr>
<tr>
<td>Farm Income (Naira)*</td>
<td>602.44</td>
<td>386.82</td>
<td>60-2000</td>
</tr>
<tr>
<td>Membership in Cooperative</td>
<td>66%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio Possession</td>
<td>64%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time Devoted to Farming</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>94%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: All percentages are to the nearest whole number.

* Nigerian currency is called NAIRA = (N1 = U.S. $1.55).
Sixty-two per cent of the farmers were illiterate, while 38% were functionally literate. They have been in cocoa farming for an average of 21 years, with an average annual cocoa production of 1.2 tons, and an annual farm income of about N600.00 (Nigerian Naira), which is an equivalent of U.S. $930.00.

Role Analysis

Role Perception

The extension supervisors and the village level junior extension staff were compared on perceptions of the relative importance of the five major extension function areas. These are education, administrative, service, public relation, and staff functions. The extension personnel were also compared against the farmers on the relative importance perceived of four of the extension functions since the staff function is exclusively concerned with the Ministry staff. (See detailed description of function items in Chapter IV).

Each extension function area was measured on a 5-point Likert-type scale ranging from 1 = 'Of Least Importance', to 5 = 'Most Important' function of extension service. The mean scores and standard deviations were then used to rank-order the relative importance of the five functions as perceived by the three groups. In this way, it was possible to determine consensus among role definers on one hand, and general consensus by extension staff against farmers' perception of the role that extension should play.
The findings from the study revealed that extension staff of the Ministry of Agriculture, Western States of Nigeria ranked administrative function as the 'Most Important' function of the extension services, while the farmers perceived service function as the 'Most Important' function and administrative function as the 'Least Important' function. In contrast, the extension staff ranked service function as the 'Least Important' function of extension services. (Table 18).

Although both the extension staff and the farmers perceived education function as 'Important', the farmers' rating of education function was significantly higher (3.9) than the rating of (3.3) given to education by the extension staff \( p < .001 \). It was surprising that the extension staff gave lower ratings to education and service functions than the farmers. In effect, the finding suggests that the extension staff deemed themselves first and foremost as administrators rather than rural adult educators. This is contrary to earlier opinion by Akinbode (1971, p. 38).

The reason for the low ranking given to administrative function by the farmers could be attributed to the indifferent attitudes and mistrust that rural people may have for government bureaucratic works especially when the results of such works do not meet the expectations of the people. During the field survey, there were general expressions of dissatisfaction by farmers about the lack of effective contact with the Ministry for useful information and agricultural supplies.
### Table 18

**Respondents Perceived Relative Importance of Extension Functions as Classified by Mean Scores and Standard Deviations (a)**

<table>
<thead>
<tr>
<th>Functions</th>
<th>Total Staff (N=179)</th>
<th>Senior Staff (N=70)</th>
<th>Junior Staff (N=109)</th>
<th>Farmers (N=140)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>x . S.D. Rank</td>
<td>x . S.D. Rank</td>
<td>x . S.D. Rank</td>
<td>x . S.D. Rank</td>
</tr>
<tr>
<td>Education</td>
<td>3.3 0.62 2</td>
<td>3.3 0.59 2</td>
<td>3.2 0.64 2</td>
<td>3.9 0.45 2</td>
</tr>
<tr>
<td>Administrative</td>
<td>3.4 0.65 1</td>
<td>3.4 0.54 1</td>
<td>3.4 0.75 1</td>
<td>2.7 0.70 4</td>
</tr>
<tr>
<td>Service</td>
<td>2.9 0.68 5</td>
<td>2.9 0.56 5</td>
<td>2.9 0.80 5</td>
<td>4.1 0.51 1</td>
</tr>
<tr>
<td>Public Relation</td>
<td>3.1 0.77 4</td>
<td>3.1 0.74 4</td>
<td>3.2 0.81 2</td>
<td>3.4 0.73 3</td>
</tr>
<tr>
<td>Staff*</td>
<td>3.2 0.71 3</td>
<td>3.2 0.68 3</td>
<td>3.2 0.74 2</td>
<td>-</td>
</tr>
</tbody>
</table>

*This function was excluded from the farmers' list since it is mainly related to the Ministry staff.

(a) - See also the graphic presentation of perception scores for the 3-group (Figure 6).
FIGURE 6
RESPONDENTS' PERCEIVED IMPORTANCE
OF EXTENSION FUNCTIONS BY MEAN SCORES

KEY:
— S = Senior Staff    N = 70
— J = Junior Staff    N = 109
— F = Farmers         N = 140

EXTENSION FUNCTIONS
Farmers in Ife and Akure divisions were particularly very critical about the ministry's failure to supply them with planting materials and the cash credits that were promised for the new planting of cocoa. For example, one farmer in Akure said, "what is the use of planting materials supplied after the planting season is over?"

The farmers' desire for service function could be justified on two grounds. Firstly, it is the type of extension activity they were used to receiving from the extension agents since the inception of agricultural extension services in the country. Secondly, given the inadequate infrastructure development in the rural areas, coupled with lack of commercial agencies to provide adequate agricultural inputs, the farmers would continue to demand more services from the government. Failure to meet their demands under these circumstances would further alienate the farmers from the extension services. The feeling of alienation by rural people from the country's economic mainstream has also been observed in other high quarters about government policy on rural development (Olatubosun, 1972).

In order to determine the magnitude of differences between the extension staff and their clients on their perceptions about the role that extension services should play, the data on role perceptions were subjected to multivariate and univariate analyses of variance (Finn, 1974). Two hypotheses were tested. Firstly, it was hypothesized that the role perception of the extension supervisors would be the
same as their junior extension workers. This hypothesis was tested in the null form of 'there is no significant difference between senior and junior extension workers in their role perceptions'. Secondly, it was hypothesized that 'an incongruent relationship exists between the role expectations of the MANR extension personnel and their client system. This hypothesis was also tested in the null form that 'there is no significant difference between the extension staff and the farmers in role expectations held for the Ministry of Agriculture and Natural Resources'. All hypotheses were tested at the alpha = .05 level.

When the senior and junior staff were compared against farmers on perception scores on four extension functions, the results indicated significant differences in their perceptions, while there were no significant difference between senior and junior staff on the staff function. (See Table 19).

Although the one way analysis of variance of the data revealed significant differences in the four functions, since the two groups of extension staff were compared against the farmers, it was necessary to determine which one among the respondent group differs significantly from the other. In order to accomplish this, a multiple comparison test was carried out using Scheffe's Multiple Comparison Test. The result revealed that there were no statistical significant differences between senior and junior staff on all the four functions.
**Table 19**

COMPARISON OF SENIOR, AND JUNIOR STAFF, AND FARMERS ON EXTENSION FUNCTIONS BY ANALYSIS OF VARIANCE

<table>
<thead>
<tr>
<th>Source of Variation (Extension functions)</th>
<th>df</th>
<th>M.S.</th>
<th>Univariate F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Education:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>2</td>
<td>40.24</td>
<td>129.04**</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Within</td>
<td>316</td>
<td>0.311</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Administration:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>2</td>
<td>37.09</td>
<td>77.43**</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Within</td>
<td>316</td>
<td>0.479</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Service</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>2</td>
<td>117.23</td>
<td>289.83**</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Within</td>
<td>316</td>
<td>0.404</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Public Relation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>2</td>
<td>4.81</td>
<td>8.22**</td>
<td>&lt;.004</td>
</tr>
<tr>
<td>Within</td>
<td>316</td>
<td>0.585</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Staff(^a):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>0.525</td>
<td>0.096</td>
<td>&lt;.756</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>0.050</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The Multivariate F = 168.04 which for 4 and 313 d.f. is significant at .05 level.

a. This function was excluded from the farmers list since it is mainly related to the Ministry staff.

** Significant at .01 level.

But both the senior and junior staff differed significantly from the farmers, on each of the four functions. (See Table 20). The two hypotheses tested on these data were thus confirmed.
Table 20
MULTIPLE COMPARISON OF SENIOR AND JUNIOR STAFF AND FARMERS ON FOUR EXTENSION FUNCTIONS BY SCHEFFE'S TEST

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Q. Sq.</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Senior vs Junior</td>
<td>0.204</td>
<td>0.025</td>
<td>&lt;0.975</td>
</tr>
<tr>
<td>2. Senior vs Farmer</td>
<td>72.433</td>
<td>89.538**</td>
<td>&lt;0.000</td>
</tr>
<tr>
<td>3. Junior vs Farmer</td>
<td>91.803</td>
<td>113.483**</td>
<td>&lt;0.000</td>
</tr>
</tbody>
</table>

** Significant at .01 level.

These findings on role perceptions of extension workers and the farmers differed from similar works in the United States and Canada among rural extension workers (Caul, 1960; Job, 1965; and Wilkening, 1958).

On the basis of the finding the author concluded that the needs of the farmers in the Western States of Nigeria were inadequately served in the process of defining the organizational role expectations of the Extension Service of the Ministry of Agriculture and Natural Resources. The author is also inclined to believe that the high role consensus among the extension personnel was probably derived from mere mechanic, rather than organic solidarity among extension workers. In other words, the sources of need identification, planning and goal setting were from within the organization rather than from the client system. Rural agricultural
extension cannot succeed as an adult education system when its goals and priorities are at variance with the goals and needs of rural adults.

The hypothesized relationship between role perceptions and socio-economic variables was tested in the null form that 'there are no relationships between the perceptions of respondents and their personal characteristics'. The null hypothesis was confirmed with respect to tenure of extension supervisors \( r = .091 \). But the age of supervisors was negatively correlated with perception score (Pearson \( r = -.306, p<009 \)); meaning that the older the extension supervisors become the less they see rural extension as an educational system. Formal education as an ordinal variable had no correlation with perceptions of the educational function (Jaspen's \( r = -.136, p<.261 \)), also participation in adult education had no association with perception score of the educational function (\( r_{pb} = .119, p<.323 \)). Therefore it is concluded that formal education and adult education were no predictors of perceptions.

The age and tenure of junior staff had no association with their perception scores \( r = -.153, p<.111 \), and \( r = -.174, p<.069 \) respectively). Therefore these variables were not predictors of perceptions among the sample population. The participation of junior staff in adult education had a significant correlation with extension as public relation function
(r^b_\text{pb} = .183, p<.051); meaning that those who had some on-the-job adult education tend to see public relation as an important function of Extension Service. This is consistent with the historical pattern of rural extension in Nigeria whereby local extension workers substitute 'propaganda' for educational service (Masefield, 1972, p. 65).

The relationships between farmers' perception scores and their socio-economic status were tested. It was found that age of farmers had no correlation with perception scores on education or service functions. The Pearson coefficient of age with education was (r = .126, p<.137) and with service function (r = .145, p<.085). These were not significant, and did not help to explain perceptions of farmers on the role of Extension Service. Similarly the number of wives, children, farm size and income had no relationships with perceptions (r = .075); meaning that these variables did not help in explaining perception.

On the basis of this finding, it could be asserted that the perceptions of respondents on the function of Extension Service is a complex phenomenon which socio-economic variables do not assist in explaining.

**Role Performance**

An important area of role analysis in extension work is to identify the degree of role-fulfillment that is achieved by the agent, that is, the extent to which he does what he
defines as important to his job. In order to accomplish this analysis, extension agents were asked to indicate how much of their total occupational time in percentage was devoted to each of the five extension functions. Since there were 50 role definition items which were clustered into five functions, the percentages assigned by respondents may be more or less than one hundred percent. This was allowed to afford respondents a free expression of their judgement of the situation. The percentages for each function area were then converted to a ratio estimate of the total time spent on extension functions (Steven's ratio estimation technique, 1951, 1966). There are five steps involved in the calculation.

1. All percentage scores for the items under each function were summed up.
2. The score obtained was divided by the appropriate number of items under each function to get a weighted relative score.
3. All the weighted relative scores were summed up to represent a grand total.
4. The relative score for each function area was then expressed as a ratio of the grand total.
5. Mean for each group was then recorded as percentage of their time devoted to each activity.

On this basis it was possible to examine role performance of extension staff as a percentage of time devoted to each extension function.
Extension supervisors devoted 22% to educational activities for the farmers and rural non-farm people, while the village level junior staff spent a similar proportion of their time (23.8%) on the same activities. The supervisors spent 27.6% on administration, while their subordinate staff devoted 23.9% to administration. It was expected that the supervisors should spend more time on administration than the junior field staff. The data further showed that both the supervisors and their subordinate staff spent the similar proportion of their time on service, public relations and staff functions. (Figure 7).

In order to determine the significant differences between the supervisors and the junior staff on role performance, the data were subjected to multivariate and univariate analyses. Since the percentage scores add up to 100%, it was then necessary to subject the scores to a arcsin transformation before analysis of variance. The result of the analysis of variance on role performance revealed that there were no significant differences between senior and junior staff in the time devoted to four of the extension functions, but the two groups differed significantly in time devoted to administrative functions. (Table 21). This is expected since supervisory position carries more administrative responsibilities. It is, however, surprising that the village level extension agents spent the same amount of time on administrative function (23.9%) as they spent on providing education for rural farmers.
FIGURE 7
PERCENTAGE DISTRIBUTION OF EXTENSION ROLE PERFORMANCE

Key:  
- Senior
- Junior

Functions are:
Ed. - Education
Adm. - Administrative
Serv. - Service
PR - Public Relations
Staff - Staff
The corollary is that the ministry provides an organizational climate for these rural extension agents which allows them to devote their time and energy to ways of becoming administrative technocrats rather than rural adult educators.

Table 21
COMPARISON OF SENIOR AGAINST JUNIOR STAFF ON ROLE PERFORMANCE BY ANALYSIS OF VARIANCE

<table>
<thead>
<tr>
<th>Source of Variation (Extension function)</th>
<th>df</th>
<th>M.S.</th>
<th>Univariate F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Education:</td>
<td>1</td>
<td>0.01</td>
<td>0.85</td>
<td>&lt;0.357</td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Administrative:</td>
<td>1</td>
<td>0.06</td>
<td>6.50*</td>
<td>&lt;0.011</td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Service:</td>
<td>1</td>
<td>0.01</td>
<td>1.92</td>
<td>&lt;0.166</td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Public Relation:</td>
<td>1</td>
<td>0.01</td>
<td>0.00</td>
<td>&lt;0.591</td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Staff Function:</td>
<td>1</td>
<td>0.01</td>
<td>0.00</td>
<td>&lt;0.948</td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Multivariate F = .5 which for 5 and 173 d.f. is not significant at .05 level.

* Significant at .05 level.

Although both the senior and junior personnel rated education as the second most important function of extension service, only about one-fifth of their total occupational time
was devoted to this function, while about 60% of their time was devoted to institutionally oriented functions; that is, administration, public relation and staff functions. There was no significant difference between senior and junior staff in amount of time spent on these functions except time spent on administration. (p<0.011) This finding is supported by other observations and criticisms against extension services in Africa and United States (F.A.O., 1965; Verner, 1959). By neglecting the rural people who produce to support the nation in the backwoods of the country, extension personnel seemed to be preoccupied with attempts to advance to the administrative elite class within the civil service structure while they were neglecting the very purpose which extension service was supposed to serve.

Extension Methods and Techniques

Agricultural extension service is a universal approach toward rural development, but extension and adult education are culture-bound (Verner, 1968). A list of twelve extension teaching techniques considered relevant to Nigerian situation, and which are being used in the extension service, were presented in the questionnaire. Extension workers were asked to rate how effective they found each technique in their work on a 5-point scale ranging from 5 = 'Very Effective', to 1 = 'Not at all Effective'.

It was found that none of the techniques was rated
'Very Effective' in rural extension in Nigeria and none was scored 'Not at all Effective. (Table 22):

<table>
<thead>
<tr>
<th>Techniques</th>
<th>Senior Staff Mean</th>
<th>Junior Staff Mean</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \bar{X} )</td>
<td>S.D.</td>
<td>( \bar{X} )</td>
</tr>
<tr>
<td>Bullets</td>
<td>2.6</td>
<td>1.19</td>
<td>2.7</td>
</tr>
<tr>
<td>Circular Letters</td>
<td>2.4</td>
<td>1.08</td>
<td>2.4</td>
</tr>
<tr>
<td>Office calls</td>
<td>3.2</td>
<td>0.91</td>
<td>2.9</td>
</tr>
<tr>
<td>Farm visits</td>
<td>4.3</td>
<td>0.49</td>
<td>4.6</td>
</tr>
<tr>
<td>General meetings</td>
<td>4.1</td>
<td>0.74</td>
<td>4.3</td>
</tr>
<tr>
<td>Workshops</td>
<td>3.5</td>
<td>0.81</td>
<td>2.7</td>
</tr>
<tr>
<td>Group discussions</td>
<td>3.7</td>
<td>0.81</td>
<td>3.8</td>
</tr>
<tr>
<td>Method demonstrations</td>
<td>4.4</td>
<td>0.74</td>
<td>4.1</td>
</tr>
<tr>
<td>Result demonstrations</td>
<td>4.1</td>
<td>0.79</td>
<td>3.9</td>
</tr>
<tr>
<td>Radio talks</td>
<td>3.4</td>
<td>0.84</td>
<td>3.2</td>
</tr>
<tr>
<td>Lectures</td>
<td>3.4</td>
<td>0.82</td>
<td>3.2</td>
</tr>
<tr>
<td>Posters</td>
<td>2.9</td>
<td>0.89</td>
<td>2.9</td>
</tr>
</tbody>
</table>

The supervisors and the junior staff agreed that bulletins, circular letters, workshops, and posters were 'Not Effective' in rural extension work in Western Nigeria. However, both the
senior and junior staff rated office calls, group discussions, radio talks and lecture as 'Somewhat Effective'.

Farm visits, general meetings and demonstrations were rated as 'Effective' techniques. The fact that the rural farmers are basically illiterate, coupled with a shortage of trained personnel and lack of material resources needed for the preparation of relevant and suitable bulletins, circular letters, and posters for mass distribution could account for the ineffectiveness of these teaching techniques in the Nigerian rural setting.

Although the two extension groups were unanimous in the rating of these methods and techniques, the magnitude of differences between the groups was established through a multivariate and univariate analysis of variance. (Table 23).

The analysis of variance revealed that there were significant differences between senior and junior staff in their rating of effectiveness of "farm visits, lectures, general meetings, and workshops". This could be attributed to the fact that the village level extension workers were not adequately trained to use and manage farmers' learning under workshop technique, while their supervisors might see it as a means of sharing their experience with other colleagues rather than teaching illiterate farmers.

The problem of practical application of the twelve extension techniques to field work was further investigated by asking extension supervisors to indicate how much of extension teaching they think should be done through each technique in percentage of total extension teaching.
### Table 23
COMPARISON OF SENIOR AND JUNIOR STAFF ON EFFECTIVENESS OF EXTENSION TECHNIQUES
BY ANALYSIS OF VARIANCE

<table>
<thead>
<tr>
<th>Source of Variation (Extension Techniques)</th>
<th>df</th>
<th>M.S.</th>
<th>Univariate F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bulletins:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>1.25</td>
<td>0.90</td>
<td>&lt;0.343</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>1.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Circular letters:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>0.16</td>
<td>0.14</td>
<td>&lt;0.708</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>1.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Office Calls:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>4.15</td>
<td>3.80</td>
<td>&lt;0.052</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>1.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Farm visits:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>2.80</td>
<td>9.25**</td>
<td>&lt;0.002</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>0.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. General meetings:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>2.46</td>
<td>4.74*</td>
<td>&lt;0.030</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Workshops:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>25.34</td>
<td>32.44**</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Group discussions:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>1.23</td>
<td>1.89</td>
<td>&lt;0.170</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>0.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Method demonstrations:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>1.90</td>
<td>2.75</td>
<td>&lt;0.098</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>0.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Result demonstrations:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>1.58</td>
<td>1.94</td>
<td>&lt;0.165</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Radio talks:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>1.55</td>
<td>2.76</td>
<td>&lt;0.098</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>0.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Lecture:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>2.37</td>
<td>4.71*</td>
<td>&lt;0.030</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>0.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Posters:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>0.02</td>
<td>0.01</td>
<td>&lt;0.891</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>1.12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Multivariate F = 4.88 which for 12 and 166 d.f. is significant at .05 level.

** Significant at .01 level.

* Significant at .05 level.
The village level junior staff were also asked to indicate the percentage of total teaching they actually did through each technique in the last two years. Through this procedure it was possible to establish a discrepancy between what extension administrators perceived as effective and what the field workers actually found practically feasible. It was found that extension supervisors emphasized 30.6% of teaching through bulletins, circular letters, result demonstrations, radio talks, and posters; the junior staff actually used these techniques 27.6% of the time. (Table 24). These techniques are normally used in a natural societal setting, and under such a setting, learning is incidental and is rarely efficient.

The supervisors emphasized a total of 69.4% teaching through office calls instruction, farm visits, general meetings, workshop, group discussion, method demonstration and lecture. These constitute techniques classified under formal instructional setting. (See Table 24). The junior staff actually used these techniques 72.4% of their total teaching. This means that the village level extension agents were more inclined to use formal instructional settings than were actually emphasized by their supervisors. This could be attributed to the fact that the use of bulletins, posters, and preparing radio talks materials, involved some degree of technical training and literary work, which are beyond the capabilities of the field staff.
<table>
<thead>
<tr>
<th>Techniques</th>
<th>Senior Staff Emphasized</th>
<th>Junior Staff Actually Used</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulletin</td>
<td>3.87</td>
<td>4.58</td>
<td>0.71</td>
</tr>
<tr>
<td>Radio</td>
<td>6.40</td>
<td>5.44</td>
<td>-0.96</td>
</tr>
<tr>
<td>Posters</td>
<td>7.01</td>
<td>4.38</td>
<td>-2.63</td>
</tr>
<tr>
<td>Circular Letters</td>
<td>3.71</td>
<td>3.93</td>
<td>0.22</td>
</tr>
<tr>
<td>Result demonstration</td>
<td>9.61</td>
<td>9.28</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td><strong>30.6</strong></td>
<td><strong>27.6</strong></td>
<td></td>
</tr>
<tr>
<td>Method demonstration</td>
<td>13.86</td>
<td>11.65</td>
<td>2.21</td>
</tr>
<tr>
<td>General meeting</td>
<td>13.48</td>
<td>12.91</td>
<td>0.57</td>
</tr>
<tr>
<td>Lecture</td>
<td>5.22</td>
<td>5.18</td>
<td>-0.04</td>
</tr>
<tr>
<td>Group discussion</td>
<td>7.85</td>
<td>9.20</td>
<td>-1.35</td>
</tr>
<tr>
<td>Office calls</td>
<td>5.91</td>
<td>7.65</td>
<td>-1.74</td>
</tr>
<tr>
<td>Farm visits</td>
<td>16.28</td>
<td>21.55</td>
<td>-5.27</td>
</tr>
<tr>
<td>Workshop</td>
<td>6.80</td>
<td>4.25</td>
<td>2.55</td>
</tr>
<tr>
<td></td>
<td><strong>69.4</strong></td>
<td><strong>72.4</strong></td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>
The author believes that with the present level of training facilities it would be difficult for local extension workers to produce and use these techniques, at least not effectively, and therefore they would probably adhere to conventional techniques that are compatible with their capabilities.

The magnitude of differences within and between groups on the use of extension techniques was established through a one way analysis of variance using arc-sin transformation.

There were statistical significant differences (p<.001) between supervisors and the junior staff in the use of farm visits, workshops and posters. (Table 25).

Overall, the extension staff in the Western States of Nigeria have shown some considerable disagreement in the use of most of the extension teaching techniques investigated in this study.

Sources of Farm Information

One of the criticisms against the extension services, is that they pay lip service to the 'cause' of farmers' welfare and education. It was then thought to compare the claims of extension staff on the use of educational methods in teaching farmers as reported with farmers' sources of information, extension techniques used in learning farm operations, and to test the impact of such methods and techniques on cocoa production.
### Table 25
COMPARISON OF SENIOR AND JUNIOR STAFF ON ACTUAL USE OF TECHNIQUES BY ANALYSIS OF VARIANCE

<table>
<thead>
<tr>
<th>Source of Variation (Techniques)</th>
<th>df</th>
<th>M.S.</th>
<th>Univariate F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bulletins:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>21.83</td>
<td>1.48</td>
<td>&lt;0.224</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>14.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Circular letters:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>0.95</td>
<td>0.10</td>
<td>&lt;0.747</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>9.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Office calls:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>128.62</td>
<td>2.85</td>
<td>&lt;0.092</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>45.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Farm visits:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>1185.60</td>
<td>7.61**</td>
<td>&lt;0.006</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>155.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. General meetings:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>13.76</td>
<td>0.23</td>
<td>&lt;0.627</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>58.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Workshops:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>278.78</td>
<td>11.48**</td>
<td>&lt;0.000</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>24.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Group discussion:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>76.02</td>
<td>3.19</td>
<td>&lt;0.075</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>23.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Method demonstration:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>212.79</td>
<td>3.44</td>
<td>&lt;0.065</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>61.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Result demonstration:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>7.25</td>
<td>0.18</td>
<td>&lt;0.665</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>38.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Radio talks:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>38.50</td>
<td>1.54</td>
<td>&lt;0.214</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>24.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Lectures:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>0.08</td>
<td>0.00</td>
<td>&lt;0.940</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>15.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Posters:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>307.55</td>
<td>15.12**</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>20.33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Multivariate F = 3.62 which for 12 and 166 d.f. is significant at .05 level.

** Significant at .01 level.
Through community development as an adult education method, identification of sources of farm information could also provide effective strategy for the utilization of total community resources for rural development (Verner, 1971).

The cocoa farmers were then asked to indicate their prime sources of farm information and knowledge out of a list of six sources. It was found that only 17% mentioned extension agents, while another 16% mentioned relatives and neighbours as their prime sources of farm information. This finding was similar to research findings among dairy farmers in British Columbia by Verner and Gubbels (1967, p. 38). Members of the Cooperative Union of Western States were the most frequent sources of information (38%), while radio accounted for 25%. Two per cent mentioned extension leaders, while only one per cent mentioned the village chief as sources of information. (Table 26).

Table 26
DISTRIBUTION OF FARMERS BY PRIME SOURCES OF INFORMATION

<table>
<thead>
<tr>
<th>Sources</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members of farmers coop.</td>
<td>53</td>
<td>37.9</td>
</tr>
<tr>
<td>Radio</td>
<td>35</td>
<td>25.0</td>
</tr>
<tr>
<td>Extension agents</td>
<td>24</td>
<td>17.2</td>
</tr>
<tr>
<td>Relatives and neighbours</td>
<td>23</td>
<td>16.4</td>
</tr>
<tr>
<td>Local extension leader</td>
<td>3</td>
<td>2.1</td>
</tr>
<tr>
<td>The village chief</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Although this analysis indicates the most frequent sources of information reported by this specific population, it does not evaluate the intrinsic worth of the sources. It is important to note that the village chiefs are not necessarily more innovative or sources of farm information, but they are trustees of the villages and their approval must be secured for any research or extension work in the communities. Furthermore it should be noted that while 64.3% of the farmers said they possessed radio (see page 144) only 25% of the total farmers sampled mentioned radio as prime sources of farm information. In other words, dissemination of information through radio to rural farmers for the purpose of learning could not be relied upon as an effective method since it could not be guaranteed that those who possess radios would all use them to receive farm information.

Farmers' Contact with Extension Agents

Although 17% of the farmers mentioned extension agents as sources of information, it was necessary to investigate how often the farmers come in contact with these agents for the purpose of learning. The farmers were then asked to indicate how many times in the last year they had come in contact with the agents. About one half of the farmers had never come in contact with extension supervisors and 33.6% never saw the local extension agents. (Table 27).

About 40% came in contact with senior and junior staff from 1 to 5 times, while 22% came in contact with
local extension agents from 6 to 14 times a year. Only 2% said they saw extension agents more than 20 times, while no farmer saw extension supervisors more than 10 times in the last year. This study agreed with similar research in Nigeria by Kidd (1968, p. 22). It is interesting to note that the contacts farmers have with local extension workers in the state were totally at variance with the number of farm visits per year reported by the extension staff. For example, the mean number of farm visits reported by one village level extension agent for the purpose of teaching farmers was 329 visits per year, while the average number of farmers served by one extension supervisor was 363 farmers. (Table 27).

Table 27
DISTRIBUTION OF FARMERS BY CONTACT WITH EXTENSION WORKERS

<table>
<thead>
<tr>
<th>Contact</th>
<th>With Junior Staff</th>
<th></th>
<th>With Senior Staff</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>None</td>
<td>47</td>
<td>33.6</td>
<td>73</td>
<td>52.2</td>
</tr>
<tr>
<td>1-5 times</td>
<td>59</td>
<td>42.2</td>
<td>56</td>
<td>40.0</td>
</tr>
<tr>
<td>6-10 times</td>
<td>20</td>
<td>14.3</td>
<td>11</td>
<td>7.8</td>
</tr>
<tr>
<td>11-14 times</td>
<td>10</td>
<td>7.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>15-20 times</td>
<td>1</td>
<td>0.7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Over 20 times</td>
<td>3</td>
<td>2.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
<td>100.0</td>
<td>140</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean 3.8
S.D. 5.63

Mean 1.5
S.D. 2.38
The farmers also asserted that although extension supervisors came to their areas occasionally they had no idea why they visited the area except for their routine administrative tour. Irregular farm visit was supported by the summarized data in Table 27 which revealed that the farmers only had an average of 3.8 contacts per year with the local extension agents, and only 1.5 contacts per year with extension supervisors.

These findings then suggest that the number of farm visits to farmers reported by local extension agents were either impracticable because of existing physical and financial resources, or that the local extension agents simply paid lip service to the actual teaching aspects of their work. In other words, it seems that the extension staff merely equate their local travelling around the rural areas with systematic instruction of farm practices for rural farmers.

Farmers' Learning from Extension Methods

The twelve extension techniques evaluated by the extension staff were presented in the interview schedule and farmers were asked to mention how they learned to carry out the five basic cocoa farm operations. These were (a) spraying against Black Pod disease and Capsid pests, (b) fertilizer application, (c) weeding, (d) mistletoe control and (e) fermentation process. Their responses were checked against the appropriate technique listed in the interview schedule. If a farmer said he knew the operation by learning through such a technique, a score of 2 was recorded, and if the farmer said
he did not know it, a score of 1 was entered (see appendix). More than one technique may be used for any given practice. The twelve techniques were classified into two categories - viz: Incidental Learning Techniques comprising five individual techniques, and Formal Instructional Techniques comprising seven individual techniques. (See Table 28).

In order to calculate the frequency of use, and the effectiveness of the techniques, five basic steps were involved:

1. The number of times a single technique, e.g. bulletin, was used was taken and expressed as per cent of the total learning responses (in this case 945).

2. The number of 2s scored against a technique in step 1 was registered as effectiveness raw score.

3. The effectiveness raw score in step 2, was expressed as per cent of total times the technique was used.

4. The 'per technique base' index was established by dividing the sub-total of effectiveness raw score in step 3 by the total number of single techniques under each category: for example, index for 'Incidental Technique' was obtained by adding the effectiveness raw scores of the first 5 techniques in Table 28 column 3 and divided by 5, which equals 124 divided by 5 = 24.8. The 'Formal Technique' equals 400 divided by 7 = 57.1. Therefore the relative weighted effectiveness raw score = 81.9.
### Table 28
EXTENSION TECHNIQUES RECALLED AND USED BY FARMERS

<table>
<thead>
<tr>
<th>Techniques</th>
<th>Recall Rate</th>
<th>Utilization Rate</th>
<th>Effectiveness (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.**</td>
<td>Raw - Score</td>
<td>Utiliz. Rate / Recall Rate</td>
</tr>
<tr>
<td>Bulletin</td>
<td>5</td>
<td>0.5</td>
<td>1*</td>
</tr>
<tr>
<td>Radio material</td>
<td>112</td>
<td>11.9</td>
<td>16*</td>
</tr>
<tr>
<td>Posters</td>
<td>28</td>
<td>2.9</td>
<td>2*</td>
</tr>
<tr>
<td>Circular letters</td>
<td>1</td>
<td>0.1</td>
<td>0*</td>
</tr>
<tr>
<td>Result demonstration</td>
<td>282</td>
<td>29.9</td>
<td>105*</td>
</tr>
<tr>
<td>Method demonstration</td>
<td>293</td>
<td>31.0</td>
<td>270</td>
</tr>
<tr>
<td>General meeting</td>
<td>71</td>
<td>7.5</td>
<td>33</td>
</tr>
<tr>
<td>Lecture</td>
<td>74</td>
<td>7.8</td>
<td>42</td>
</tr>
<tr>
<td>Group discussion</td>
<td>48</td>
<td>5.1</td>
<td>36</td>
</tr>
<tr>
<td>Office instruction</td>
<td>10</td>
<td>1.1</td>
<td>0</td>
</tr>
<tr>
<td>Farm visit instruction</td>
<td>15</td>
<td>1.6</td>
<td>13</td>
</tr>
<tr>
<td>Workshop</td>
<td>6</td>
<td>0.6</td>
<td>6</td>
</tr>
</tbody>
</table>

Total: 945 100.0 524

** For one respondent there are 5 farm practices. More than one technique may be used for a practice and vice-versa.
5. The per technique score is then expressed as per cent of relative total effectiveness score i.e. Incidental technique accounts for 24.8 scores out of a total of 81.9 which equals 30% (See Table 28).

On the basis of this analysis, 'Incidental Learning' techniques accounted for 45.3% of the total techniques used in teaching cocoa farmers in the Western State with a 30% effectiveness for all the times on per technique basis. On the other hand, 'Formal Instructional' techniques accounted for 54.7% of total techniques used in teaching farmers, and had a greater effectiveness score of 70% per technique for all the times.

This finding revealed a discrepancy between what the extension staff reported as proportions of teaching they carried out through these techniques, and the farmers' own experiences. (See Table 24, page 168). The extension supervisors had earlier emphasized a total of 30.6% teaching through incidental techniques and 69.4% through formal instruction setting. The data from the junior staff indicated they used incidental techniques 27.6% of the time, and formal instructional techniques 72.4% of the time. It is noteworthy that none of these official reports corroborated with the finding from the farmers. In other words, it appeared that programme evaluation and feed-backs from the client system to ascertain the effectiveness of extension teaching techniques were not objectively assessed as integral parts of the educational programmes designed for the farmers. (See Figure 8).
EFFECTIVENESS VS. RECALL RATE OF EXTENSION TECHNIQUES

- Workshop
- Farm Visit
- G. Discussion
- Lecture
- Meeting
- Bulletin
- Radio
- Poster
- M. Demon.
- R. Demon.
If the intrinsic value of educational services provided by the extension services to the rural farmers were to be regarded as effective and efficient, the intensity of the educational component must be of such magnitude as to have a strong impact on the farmers productivity either in absolute total yield or yield per acre unit. This could be achieved by maximizing the use of those techniques recalled by the farmers as the most effective teaching and learning techniques in Figure 8.

The formal instructional techniques and the incidental natural societal techniques were then used with other socio-economic variables of farmers as independent variables to predict 'cocoa production' as dependent variable. A separate Stepwise Regression (BMD:P9D) programme was used for this purpose. The criterion for entering a variable into the regression equation was at alpha .05 level. On per technique basis, formal instructional techniques were found to have a positive correlation with total yield ($r = .178$, $p<.035$), but showed no correlation with yield per acre ($r = .132$, $p<.117$), and farm size ($r = .07$). This means that farmers who learned under formal instructional setting tend to have more total yield. However, receiving information through the incidental natural societal technique correlated with neither total yield per acre ($r = -.007$).

The results of the stepwise regression analysis however, showed that neither the formal instructional techniques nor incidental techniques used by the extension staff emerged
as predictors of total average cocoa production. The number of wives per farmer accounted for 25.34% of the variance.

(Table 29)

Table 29
COCOA PRODUCTION (TOTAL YIELD) PREDICTED BY EIGHT SOCIO-DEMOGRAPHIC PREDICTORS (STEPWISE PREDICTOR COEFFICIENTS)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Cum. $R^2$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wives</td>
<td>0.2534</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Non-significant Potential Predictors | Partial r |
-------------------------------------|-----------|
Age                                  | 0.0780    | 0.3643 |
No. of children                      | 0.0665    | 0.4429 |
Years of farming                     | 0.0881    | 0.3033 |
Coop. membership                     | 0.1178    | 0.1633 |
Formal learning                      | 0.1282    | 0.1282 |
Incidental learning                  | 0.0322    | 0.7070 |
Radio possession                     | 0.0441    | 0.6122 |

In agriculture, the ultimate index of farm efficiency is the maximization of productivity per acre. Although such a procedure involves tedious farm management, supervision and control of farm inputs, any variable that enters into the farming enterprise must in the final analysis be evaluated on this basis. The educational component of the extension service was tested on this basis using the same stepwise regression analysis. The result indicated that income, farm size, and
Membership in a farmers' cooperative were predictors of cocoa production per acre (Table 30). These variables jointly explained 52.27% of the variance. The other potential independent variables with their partial correlation coefficients are listed in Table 30.

Table 30
COCOA PRODUCTION PER ACRE PREDICTED BY TEN SOCIO-DEMOGRAPHIC PREDICTORS (STEPWISE PREDICTOR COEFFICIENTS)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Cum. $R^2$</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>.2196</td>
<td>0.0000</td>
</tr>
<tr>
<td>Farm size</td>
<td>.5070*</td>
<td>0.001</td>
</tr>
<tr>
<td>Coop. membership</td>
<td>.5227</td>
<td>0.001</td>
</tr>
<tr>
<td>Age</td>
<td>.0316</td>
<td>0.7137</td>
</tr>
<tr>
<td>No. of wives</td>
<td>.0259</td>
<td>0.7573</td>
</tr>
<tr>
<td>No. of children</td>
<td>.0800</td>
<td>0.3554</td>
</tr>
<tr>
<td>Years of farming</td>
<td>.0647</td>
<td>0.4590</td>
</tr>
<tr>
<td>Formal learning</td>
<td>.0690</td>
<td>0.4285</td>
</tr>
<tr>
<td>Incidental learning</td>
<td>.0590</td>
<td>0.5004</td>
</tr>
<tr>
<td>Radio possession</td>
<td>.1186</td>
<td>0.1635</td>
</tr>
</tbody>
</table>

* Negative predictor

Overall, the findings indicated that the extension and adult education methods and techniques used by the extension services in the Western States of Nigeria have not been effective enough to have much of an impact to be used.
as predictors of cocoa production either on total yield or on yield per acre basis. This was highlighted by the failure to maximize systematic instruction among farmers. On the other hand, income generated by the farmers, farm size, and membership of farmers in the farmers Cooperative Marketing Union were the predictors of cocoa production per acre. This finding reflects the real life situation in the country that farm production either of export crops or food crops still depends on the efforts of the peasant farmer and his family labour. It also reflects the high rating and enthusiasm given by the farmers for role definition items on service functions such as supply of credits, loans, and labour during the interviews. There were general requests by all the farmers for these services throughout the region.

Rating of the Extension Services

In order to provide a balanced view of how the Extension Services Division of the Ministry of Agriculture and Natural Resources has performed its educational function to the rural farmers, the three respondent groups were asked to rate the extension services on a 5 point interval scale ranging from 5 = 'Excellent job' to 1 = 'Poor job'.

The finding indicated that 5.7% of senior staff, 17.4% of junior staff, and 12.9% of the farmers thought the extension service was doing an 'Excellent job'. Over forty per cent of extension staff thought they are doing a 'Very good job', whole only 11.4% of the farmers rated it as 'Very
good job'. It is noteworthy that the extension staff did not see the service as 'Poor job', while 37% of the farmers thought the extension service was doing a 'Poor job'. (See Figure 9).

A one-way analysis of variance of the data indicated a statistically significant difference among the respondents' rating of the educational work of the extension service. (See Table 31).

Table 31
ANALYSIS OF VARIANCE OF EDUCATIONAL EFFECTIVENESS RATING BY FARMERS AND EXTENSION STAFF

<table>
<thead>
<tr>
<th>Source of Variation (Extension Rating)</th>
<th>df</th>
<th>M.S.</th>
<th>Univariate F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension Rating:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>2</td>
<td>56.050</td>
<td>42.58**</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Within</td>
<td>316</td>
<td>1.316</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Significant at .01 level

Overall, the extension staff rated the educational service provided for farmers as a 'Good job', while the farmers gave it a mean rating of 'Fair job'.

The data on extension evaluation was further subjected to Scheffe's Multiple Comparison Analysis in order to detect where the significant differences among respondent groups actually lie. The Scheffe's Multiple Test showed no significant difference between senior staff and junior staff in their rating of the extension service (Scheffe F-ratio = 0.35, p<.704).
FIGURE 9
PERCENTAGE DISTRIBUTION OF RESPONDENTS
BY EXTENSION RATING

EXTENSION WORK RATING

<table>
<thead>
<tr>
<th>Rating</th>
<th>Senior Staff</th>
<th>Junior Staff</th>
<th>Farmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>37%</td>
<td>24%</td>
<td>9%</td>
</tr>
<tr>
<td>V. Good</td>
<td>47%</td>
<td>40%</td>
<td>10%</td>
</tr>
<tr>
<td>Good</td>
<td>17%</td>
<td>24%</td>
<td>29%</td>
</tr>
<tr>
<td>Fair</td>
<td>14%</td>
<td>13%</td>
<td>40%</td>
</tr>
<tr>
<td>Poor (Job)</td>
<td>10%</td>
<td>36%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Key:
- Senior Staff
- Junior Staff
- Farmer

\[ \bar{x} = 3.4 \quad \text{S.D.} = 0.75 \]
\[ \bar{x} = 3.6 \quad \text{S.D.} = 0.94 \]
\[ \bar{x} = 2.3 \quad \text{S.D.} = 1.42 \]
The farmers differed significantly from the senior staff in the rating of extension service (Scheffe F-ratio = 21.44, p<.001), and there were significant differences between farmers and junior staff (Scheffe F-ratio = 36.21, p<.001).

The relationship between farmers' rating of extension service and farm income, yield, and age was established by calculating the Pearson-Product moment correlation coefficients for these variables. Extension rating correlated with farm income (r = .183, p<.030), but no association with age (r = .147, p<.110), and correlated with average yield per acre (r = .169, p<.045). The evidence from these data then suggest that farmers with higher farm income and higher yield per acre tend slightly to perceive the extension services to be doing a 'Good job' for them. Age was not a predictor of extension rating. One reason for this finding could be that farmers who are higher on the socio-economic brackets are able to benefit more from extension than those down on the socio-economic ladder. The hypothesis that extension rating by farmers would be positively related to higher socio-economic variables was confirmed. The author conclude that any service rendered to the farmers that will make them increase their productivity and income will be deemed as very good service; or that the best educational services go to farmers who are higher on the income scale, while extension education for poorer farmers remains at the periphery of their lives.

Extension rating had no correlation with years of experience of extension supervisors (r = -.150,
p<.215), but was found to have correlation with formal education, (Janspen's r = .227, p<.051). This means that those with higher education tend to rate the extension service provided for farmers as a 'Good job', but field experience of the supervisors was not a predictor of their extension rating. From this finding one could argue that although higher professional education is essential for extension personnel it does not mean that such staff will provide services deemed as good jobs by rural farmers.

Extension rating also had a positive correlation with age and tenure of the field staff (r = .224, p<.017, and r = 184, p<.051 respectively). There was no relationship between the formal education of field staff and their rating of extension services provided for the farmers (Jaspen's r = 001). The rating given to extension services by the field staff could be attributed to their low educational level coupled with the fact that the Ministry has conditioned them to rate institutionally oriented functions as also good services to rural farmers.

**Job Satisfaction**

The job satisfaction of both the extension supervisors and junior staff was evaluated, since their role perceptions and role performance will have an influence on their morale as extension workers. The job satisfaction score was obtained by asking extension staff to indicate how satisfied they were with 5 job dimensions. Each dimension consisted of
5 job descriptive statements, and were asked to indicate satisfaction on a 5-point scale ranging from 5 = 'Very well satisfied' to 1 = 'Very dissatisfied'. The mean scores and standard deviations were then used as an index of satisfaction with each job dimension, while the overall mean score was used as a general index of extension job satisfaction. (Table 32).

Table 32
MEAN SCORES, STANDARD DEVIATIONS OF JOB SATISFACTION OF EXTENSION STAFF

<table>
<thead>
<tr>
<th>Job Dimension</th>
<th>Senior Staff</th>
<th></th>
<th>Junior Staff</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X}$</td>
<td>S.D.</td>
<td>$\bar{X}$</td>
<td>S.D.</td>
</tr>
<tr>
<td>Supervision</td>
<td>3.6</td>
<td>0.51</td>
<td>3.8</td>
<td>0.62</td>
</tr>
<tr>
<td>Work Group</td>
<td>3.5</td>
<td>0.50</td>
<td>3.8</td>
<td>0.46</td>
</tr>
<tr>
<td>Job Content</td>
<td>3.7</td>
<td>0.42</td>
<td>3.9</td>
<td>0.49</td>
</tr>
<tr>
<td>Salary</td>
<td>3.1</td>
<td>0.62</td>
<td>2.8</td>
<td>0.74</td>
</tr>
<tr>
<td>Promotion</td>
<td>2.6</td>
<td>0.72</td>
<td>2.3</td>
<td>0.70</td>
</tr>
</tbody>
</table>

Overall Mean 3.3
S.D. 0.55

Overall Mean 3.3
S.D. 0.60

$^a$ See also a graphic presentation of job satisfaction score in Figure 10.

The differences between supervisors and junior staff satisfaction on all the job dimensions were tested by multivariate and univariate analyses of variance.

The two groups were significantly different on all the five job dimensions measured. (Table 33).
FIGURE 10
EXTENSION STAFF MEAN SCORES
ON JOB SATISFACTION

KEY:
— S = Senior Staff N = 70
— J = Junior Staff N = 109

JOB DIMENSIONS

Mean Scores

Supervision Work Group Job Content Salary Promotion
Table 33

SENIOR AND JUNIOR EXTENSION STAFF COMPARISON OF JOB SATISFACTION

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>M.S.</th>
<th>Univariate F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Supervision:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>36.50</td>
<td>4.36*</td>
<td>&lt;0.038</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>8.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Workgroup:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>60.25</td>
<td>10.57**</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>5.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Job content:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>31.42</td>
<td>5.69*</td>
<td>&lt;0.018</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>5.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Salary:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>52.55</td>
<td>4.28*</td>
<td>&lt;0.039</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>12.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Promotion:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between group</td>
<td>1</td>
<td>106.19</td>
<td>8.38**</td>
<td>&lt;0.004</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>12.66</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Multivariate F = 5.70 which for 5 and 173 d.f. is significant at .01 level.

** Significant at .01 level.
* Significant at .05 level.

The supervisors were dissatisfied with their salary rating, while the junior staff were dissatisfied with their salary ratings and promotion opportunities. The general remark among the field staff was that promotion opportunities were more or less based on who you know in the elite class rather than the work you do in the field. This notion was
borne out by the fact that there was no correlation between the 'job content' dimension and 'promotional opportunities'. Pearson coefficient (r = .061).

Overall, the findings showed that both extension supervisors and their subordinate staff had 'job satisfaction mean scores of 3.3 which means they were "Somewhat satisfied". However, the field staff expressed low morale during the field research. This was consistent with similar findings among extension staff on food crop projects in the States (Williams and Alao, 1972). The field staff complained about lack of transportation, non-payment of their motor cycle allowances, which rendered them unable to visit peasant farmers.

Summary of Findings

Role Perceptions

The extension supervisors and their village level extension workers in the Western States perceived administration functions as the most important ideal role of rural extension while they ranked education second. In contrast, the cocoa farmers ranked service functions as the most important ideal role and education was also rated second. There was no significant difference between supervisors and junior extension staff on role perceptions, but there was a significant difference in the perceptions of extension staff compared with farmers' perceptions of the role that extension service should play in the States.
Role Performance

There were no significant differences between extension supervisors and junior staff in the proportion of time devoted to the various extension functions except for administrative function. All together, the extension staff spent over 60% of their time on administrative and institutionally oriented functions, and spent only about 35% on rural education and service to the adult farmers.

Extension Methods and Techniques

The extension supervisors emphasized 30% use of incidental learning techniques, while the field staff used such techniques only 27% of the time. The junior extension staff in the States reported that 72% of the total teaching was through the use of systematic instructional techniques, while their supervisors had emphasized that such techniques should be used 69% of the time. However, it was found that 45% of all the farmers' learning about their farm operations occurred under incidental techniques. Only 55% of the total learning by the farmers occurred under systematic instructional techniques. These findings contradict the claims made by extension staff in the States. The incidental natural societal techniques were found to be effective only 30% of the time, while the systematic instructional techniques had an effectiveness of 70%.

Techniques such as method demonstration, workshops, group discussion, and general meetings which were found to have high rate of effectiveness among the farmers in Western states
were only used on sporadic bases rather than as systematic teaching techniques. The farmers obtained most of their farm information from members of the Farmers' Cooperative Union, relatives, and their neighbours. Extension agents accounted for only 17% of sources of farm information.

Extension Rating

The extension staff in Western States of Nigeria rated the extension service given to rural farmers as a 'Good job', while the farmers generally rated it as a 'Fair job'. Farmers with higher socio-economic status in the States tend to rate the extension services they received as a 'Good job'. The rating of extension services was also positively related to the status of the extension staff. However, extension supervisors with longer field experience tend to have negative attitudes toward the extension services provided by the Ministry of Agriculture and Natural Resources.

Job Satisfaction

Generally, the extension staff in the States had a mean job satisfaction score of 3.3; meaning that they were 'Somewhat satisfied' with extension work. But there were significant differences between supervisors and their junior staff on all the five job dimensions measured. Overall, the findings revealed a somewhat low morale among the extension staff; and the fact that there was no correlation between job
content and promotional opportunities means that these aspects of their job could not serve as motivators for employee job performance in the States.
References for Chapter V


Chapter VI

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Nigeria is basically an agricultural country. Although the country is rich in petroleum and other mineral resources, these are finite and easily exhaustible. Agricultural development still remains the requisite foundation for social and economic progress of the people. One of the major institutions responsible for the country's agricultural and rural development is the Ministry of Agriculture and Natural Resources of each state government.

Agricultural research stations in Nigeria and in many parts of tropical Africa are now repositories of knowledge that could profoundly affect productivity but they have encountered continuing difficulty in putting this knowledge to work. The gap between knowledge and practice is usually long, but in some parts of Africa, it has seemed to be infinite.

Increased agricultural productivity can only be achieved by the farmers if they adopt recommended new practices that are proven and backed by scientific research that are relevant to the farmers' socio-cultural milieu. New farming techniques that are to be introduced to replace the traditional practices must be based on the concept of "Appropriate Technology" and imaginative functional educational programmes will be required for effective and efficient transmission of such technologies to the peasant farmers.
The focus of this study has been on an analysis of the roles of the Ministry of Agriculture and Natural Resources of Western States of Nigeria as an adult education system. Pursuant to the theoretical frame of reference, which was based on Verner's Conceptual framework for evaluating "Cooperative Extension Service" as an adult education system, the MANR's role, extension programme, methods, and the client system were included in the study as role centric-factors which combine to make the total organizational setting in which the extension workers operate. A number of issues have emerged from the study, and based on the findings, the author has made certain conclusions on these issues.

1. Extension Foundation - "Does Agricultural Extension Service have a legal and administrative foundation that makes it accountable for the out-of-school adult education system"? The answer seems "No". In historical perspective, there has never been any single legislative act or statute passed in Nigeria either at the National or State level to spell out, and make provision for the specific and systematic functions of extension service as adult education system. All that exists at least in the Western States, are sporadic departmental policy statements on agricultural projects that were based on state economic incentives. Moreover, documentary evidence from the Ministry revealed that the systematic instruction of the farmers engaged in such projects and the continuing education for the extension agents who run such projects were more or less classified as miscellaneous.
activities. The goals and objectives of the state agricultural programmes are so diffused and sometimes ambiguous enough to permit a wide range of interpretations. Although the generality of goals and objectives widens the discretion of programme administrators, under such a system the organizational purpose will be weak. Since the educational work competes with other organizational programmes it was therefore concluded that the criteria for decision making will come from the day-to-day pressures of the influential clienteles, thus relegating rural adult education to a marginal position.

2. To what extent are extension staff role perceptions congruent with those of their clientele? The findings from the study revealed that the extension workers perceived administrative, and institutionally oriented functions as their ideal roles, rather than the education of rural farmers. The farmers on the other hand ranked service functions as most important and education as quite important. The magnitude of incongruence between farmer's demands and perceived role expectations of the agency was sufficient to conclude that the client system has been alienated from the role definition for the agricultural extension services in Western States of Nigeria. Given that circumstance, the very essence of extension education as a means of improving rural life will either be stagnant or entirely defeated.

3. How well do extension staff perform their educational role? Although educational function was rated 'important' by extension agents, and 'quite important', by farmers, about 76%
of extension agents' time was spent on routine administrative duties. The coordination of extension methods and techniques used to teach peasant farmers was so weak that the extension supervisors' emphasis on the use of each of the twelve extension teaching techniques investigated were at variance with the junior staff's actual use of these techniques. The study revealed that the junior staff were more prone to use formal instructional techniques, such as demonstrations, general meetings, and farm visits, to teach farmers than were emphasized by their supervisors. The educational contacts made with farmers were few and limited by financial and physical facilities.

4. What are the prime sources of farm information available to the farmers? Over one-third of the farmers in Western States of Nigeria received farm information mostly from the members of the Farmers' Cooperative Marketing Union, while extension agents accounted for 17% of the information. The farmers learned their farm operations through result demonstrations, method demonstrations, and general meetings. Those farmers who learned through posters, radio, and bulletins were not satisfied with such techniques since they did not know how to carry out the farm operations learned under such techniques, and hence such instructional techniques were incomplete. Since the farmers are basically illiterate, any teaching techniques which must be managed by the farmers themselves only result so far in inefficient incidental learning. Generally, the learning experiences of the peasant
cocoa farmers have been through relatives, neighbours and their own personal efforts.

5. Are the extension staff suitably trained to work effectively as adult educators? The answer appears "No". There is a general shortage of extension personnel particularly among the supervisory cadre. The majority of the few staff available (87%) are sub-professional personnel who lack adequate training in extension, adult education, and the relevant social sciences. Moreover, there is at present no systematic in-service or continuing education programme in the Ministry specifically designed to provide the basic expertise needed for rural adult education. The institution itself does not make specific provision for the training of rural farmers on a systematic basis, rather, training of farmers has been classified more or less as miscellaneous function. Under such a system, the Ministry of Agriculture cannot provide effective adult education for rural farmers, and non-farmers. The educational component of the extension service as it is now cannot have sufficient impact on peasant farmers to be used as predictor of farm productivity. The intrinsic worth, planning and management of rural adult education will have to be drastically improved, and intensified efforts need to be mounted to get such functional education to the peasant farmers.

6. How do extension staff and their clients rate the extension services provided for rural people? Generally the extension staff have rated the rural extension services provided for the
farmers as a good job, while 60% of the farmers have rated it from fair to poor job. In evaluating extension work, one could either judge performance against a criteria set by the agency and the clients, or judge it against the standard of performance of educational programmes in similar communities. In the present circumstance where the demands of the clients are at variance with the perceived roles and role performance of the extension agents, it is concluded that extension staff evaluation of their job performance was not based on accurate feedback from their clientele. The farmers were generally dissatisfied with the services provided by the Ministry. In order to improve the present situation, the educational needs of the farmers in the States must be thoroughly assessed, and systematic instruction and services provided to improve their livelihood.

7. How satisfied are the extension staff with their job? Generally the extension staff in Western States are reasonably satisfied with their job. However, no staff member was very well satisfied, and both supervisors and junior staff were not satisfied with their promotional opportunities, and salary gradings. There seemed to be a feeling of low morale among the extension workers in the State. The older staff have more satisfaction with their work group than the younger staff.

8. What are the factors impeding extension work? The study has identified a number of organizational and situational factors which affect the success and effectiveness of extension
in the State. They include administrative bottlenecks within the Ministry itself, and also interministerial conflicts. Most of the traditional administrative channels of business transactions are not keyed to rapid and efficient delivery of educational and material resources to field staff and rural farmers. Frequent failure to keep promises made to the farmers has further aggravated the distrust for extension workers by rural farmers. Shortage of physical facilities such as transportation, efficient vehicle maintenance, and unmanageable agent-farmer ratio are the major obstacles impeding effective rural extension work.

On the basis of results from this study, the author concluded that:

- there is no legal instrument that makes the Ministry of Agriculture and Natural resources of Western States of Nigeria publicly accountable for the adult education of rural farm and rural non-farm people.

- the fact that there is no systematic budgeting of money, and allocation of physical resources for the education of rural adults have further relegate adult education to a marginal position in the hierarchy of functions of the Ministry of Agriculture and Natural Resources.

- the expectations of cocoa farmers in the states were not what the extension staff in the states considered the most important functions, and extension staff spent most of their time on institutionally oriented functions.
sex of extension staff seemed not to be a significant factor in carrying out farm visits to teach farmers. If extension staff were to carry out adequate and effective farm and home visits, both male and female extension workers should be motivated to do so, and adequate provision of resources should be made for this purpose.

extension teaching methods and techniques that were most effective among rural farmers were those least used by extension staff. Techniques based on group and personal contacts such as method demonstration, group discussion, and farm visits were the most effective. The use of such techniques should be maximized.

farm size was a negative predictor of cocoa production per acre. As the farm size increases, yield per acre decreases indicating that the farmers could not efficiently manage the farms particularly since the farms are on fragmented holdings.

since membership in the farmers' cooperative union was a significant predictor of cocoa production, both the staff and members of the cooperative unions should be included in the planning, and delivery of agricultural extension services in the States. The interaction effects among the cooperative members provide useful adult education forum which should be utilized for effective education of rural adults especially the cocoa farmers.
Implications for Extension Administration

The agricultural extension service in Western States of Nigeria no doubt has played major role in the agricultural and rural development of the State. It has also provided training, and administrative guidelines for other states in the country. However, this study revealed that if the Ministry will have to continue this leadership role, it must address itself to major philosophical and administrative inconsistencies identified in this study. The fundamental objective of the Extension Service in Western Nigeria is to raise the general level of living and income of the farming population through educational process that will ultimately result in socio-economic development of all the people.

But development will not occur by simply transplanting from external sources projects based on state or national economic incentives. It will occur if developmental planning and programmes are based on adequate provision for functional educational processes and inputs which will equip both the client system and the change agents in the effective selection of strategies that will combine social and economic factors from within the regions and communities concerned.

Any extension's philosophy, objectives and goals should be clear, not only to its personnel but to the people—that is, those that it intends to aid, assist, to execute programmes jointly worked out by mutual agreement. The ministry must undertake to formulate fundamental and general objectives for rural adult education. It must also secure
administrative means–end–chains for accomplishing these objectives.

Farmers in Western Nigeria are basically illiterate and are scattered in the remote parts of the State. The infrastructural development of rural areas is inadequately developed. Lack of good all seasons roads, electricity, and water limit the type of farm, health and environmental education that can presently be provided. Absence of these facilities also limits the use of certain educational methods and techniques that could be used to teach rural people. If rural extension staff are to perform their functions effectively, they must possess adequate professional and technical training, and regular provision must be made available to them for continuing improvements in the cognitive, affective, and psychomotor domains of life-long educational aspirations. On this basis the author makes the following recommendations:

1. The nature of extension work demands an interdisciplinary approach in the training of its personnel. The paucity of professional personnel that now exists in the ministry coupled with lack of systematic on-the-job training for the majority of extension personnel can only worsen the problem of executive capacity in the administration of extension service in the States. If the Ministry of Agriculture and Natural Resources would be considered an adult education system, it needs the professionals in the field to provide educational and administrative leadership for agricultural and rural development. That is, indeed, the point. It is
recommended that as a matter of top priority, the Ministry should embark on massive retraining programmes for its extension personnel to equip them with the requisite professional and technical expertise needed for the day-to-day implementation of rural development programmes.

Since the Ministry controls the recruitment and training programmes for the junior extension workers, efforts should be made to make the content of their training fit requirements that would best serve the needs and interests of rural people. More emphasis should be placed on subjects such as adult education methods, community development, so as to reorient the village level extension workers toward commitment and favourable attitudes to rural development.

2. The Ministry should involve agricultural researchers in the States in a process of thorough assessment of the farmers' needs, and problems so as to make new agricultural technologies appropriate to the needs, interests, and aspirations of the peasant farmers.

3. The study revealed that one extension worker in the State provides service for an average of 2175 farm families. It is practically impossible for field staff to effectively provide for the needs of so many farmers. There should be an accelerated increase in the number of trained technical junior staff in order to solve the problem of lack of contact between farmers and extension workers. The present meagre facilities make it impossible or cripple farm visits by extension agents, let alone the intrinsic value of the educational work.
Since the majority of rural people are illiterate and live in remote parts of the country they could not be reached by newspapers. There is a complete absence of farm magazine in native languages, therefore radio constitutes for many the only source of information and education. The study also revealed that farmers learned more farm news from radio than from extension agents. In other words, radio is very often still the only link with the outside world for those living in remote areas, and for those, who because of different geographic and climatic conditions, live far away from administrative, cultural and educational centres. On this basis, the author concluded that the present farmers' radio programmes broadcast twice at nights during the week is inadequate and ineffective. Radio and television can disseminate knowledge, but without especially devised feed-back mechanisms the educator cannot know who actually receives the message, or how they react to it since radio and television are more or less "blind media". The one-way nature of radio broadcasting does not provide for resolving misunderstanding which may appear in the process of delivering information, and it cannot answer questions that are not anticipated before transmission of the programme.

It is also important for adult educators who rely on radio broadcasting as a teaching technique to know that radio cannot supervise learners' activities, nor control and verify progress made by them. Because it is aimed usually at large audiences, the pace of instruction, the gradation of
difficult material, the amount of material delivered in one programme unit must take into consideration the ability of an average learner. In other words, broadcasting cannot take care of individual needs of the student.

Because of the nature of radio broadcasting as a teaching technique, the author recommends that there be an immediate evaluation of the present farmers' radio programmes to determine among other things, the audience size that listens to the programmes, the adequacy of pacing, reaction of farmers to the programmes, and the effective prime time for broadcasting.

The local rediffusion stations or programmes can be used more effectively for educating farmers and rural non-farmers by providing more programmes for rediffusion broadcasting, and since the farmers have no chance of tuning to other stations (on rediffusion boxes) the chances of receiving the farm programmes on the radio is greatly increased.

4. The proposal to ban women from entering the technical field staff cadre should be repealed. This policy will not be justified by any research or contingency plan. By Yoruba culture any health and nutrition education taught to farmers' wives should be taught by female staff of the Ministry. To ignore this suggests that the state government has concluded not to provide educational services for farm families. The Ministry cannot develop the farmer in isolation from his family, since to do this is incompatible with the culture and tradition of the people. The whole community is a supportive socio-psychological system, and any educational work must have
as the basis of planning all the community resources, and cultural norms as guidelines for its operation.

5. In order to ameliorate the problem of contacts with farmers, and the refusal of women to work in rural villages, it is recommended that the Ministry should establish "Mobile Farmers'" schools similar to "Knapp School" in the United States in the early part of this century. The mobile schools (which will be some well-equipped vehicles) will be used to go to villages by extension workers and the home economic agents while they operate from the divisional headquarters. A similar facility provided by the USAID in the mid-sixties should be revived and expanded. We must endeavour to reach the rural people both adults and youths. The use of mobile schools will even make supervision of field staff more effective since their itinerary could be centrally controlled and or monitored. It will also encourage some degree of competition among the field workers to get to their clients. This is the only way the Ministry and any agency charged with rural development could have any impact on the life of the people.

Emphasis should be placed on the use of group and personal instructional techniques and devices.

6. The budgets for financing the education of farmers and on-the-job continuing education of extension staff should be separated from the miscellaneous account. Education of rural people on all aspects of their life should be an integral part of state budget allocation system. This will serve as a
motivating factors to farmers, rural non-farmers, and field staff alike to continuously seek sources of new information, and to serve as an incentive for adoption of recommended practices.

7. The Ministry should make it a policy to involve the university staff in providing effective and expanded out-reach programmes for rural people in the country. The present system that makes each institution operate almost in isolation should be improved in order to provide opportunities for cross-fertilization of ideas.

8. Finally, the author recommends that extension administration should be more effectively decentralized. The present zonal structure seems to be self-defeating in that non-agricultural extension personnel are made to coordinate, plan and administer programmes which they themselves are least qualified to formulate. There are too many experienced and hard-working personnel on senior technical grades. These officers should be given immediate recognized post-graduate training in local universities or abroad with full pay. This will give them intrinsic motivation to better serve the state, than to keep them in administrative structure that only frustrate their human potentials and aspirations.

9. The Ministry should reinstate the annual in-service seminars for its field staff. This should be decentralized to divisional or zonal levels to provide ongoing continuing educational opportunities for extension workers of all categories.
Recommendations for Further Research

A review of the results of this study raises questions that need to be investigated. What is the most realistic and practically possible number of farmers that an extension agent can visit in one month under our present system of fragmented land holdings? This needs to be thoroughly researched on an experimental basis so as to provide the basis for manpower development and allocation of physical resources. The present agent-farmer ratio is simply not feasible for effective agent-farmer contacts.

What are the various operations that farmers must carry out in their communities? What kind of knowledge and skills are needed for such operations? Answers to these questions should then provide as basis for curriculum development in the schools of agriculture and also serve as a basis for agricultural research.

The administrative channels for making farm supplies available to farmers are too clumsy and ineffective, with the result that farmers usually get their supplies after the planting or required time. The administrative process should be studied empirically with a view to cut down on the overlapping and unnecessary duplication of efforts, and human and physical resources.

The average cocoa yield in the state is below "expected". Either the recommendation of the Ministry is economically unrealistic or the farmers lack correct knowledge
to achieve such results. There is a need to investigate what can be expected from an acre of peasant farm.

Finally, the practice of verification trials throughout the Western States and agricultural research should be conducted on the verification plots on farmers' farms to serve as learning centres for the farmers. The Ministry must determine from the farmers the most appropriate prime time they are likely to receive farm news on the radio, so as to gear the Ministry's farm broadcasting to such opportune times.
BIBLIOGRAPHY

BOOKS


JOURNALS, BULLETINS AND REPORTS

*The Nigerian Census 1963. The 1963 Nigerian Census is officially used since subsequent census of 1973 has resulted in public controversy and has been cancelled.


Gross, Neal. et. al. "The Executive Committee Member in the County Extension Organization in Pennsylvania". Pennsylvania State University, Agricultural Experiment Station, University Park: Station Bulletin No. 665.


Ilgen, D.R. and Hamstra, B.W. "Performance satisfaction as a function of the difference between expected and reported performance at five levels of reported performance", Organizational Behaviour and Human Performance, (1972) 7: 359-370.
The Inaugural Speech by the Permanent Secretary Mr. T.A. Akinyele, on the occasion of the Launching of the Zonal Field Organization for the M.A.N.R. Ibadan, 25th August, 1975.


O'Reilly, III and Roberts, K.H. "Individual Differences in Personality, Position in the Organization, and Job Satisfaction". Organizational Behaviour and Human Performance, (1975) 14: 144-149.


Rogers, Everett M. and Capener Harold R. "The County Extension Agent and his constituents". Wooster Ohio. Agricultural Experiment Station, Research Bulletin No. 858, (1960).


Statutes of Canada, 1913, C.5.


UNPUBLISHED MATERIALS


APPENDIX A

Research Instrument For Data Collection
QUESTIONNAIRE FOR EXTENSION STAFF - SECTION I

Instruction:

Extension Activity Expectations

Extension Service perform many functions for rural farmers and rural non-farmers. The purpose of this study is to obtain from you how you see the importance of such extension functions, and what proportion of your occupational time is devoted to such functions.

Below are 50 activity items each reflecting certain areas of extension work. For each item, we would like you to provide TWO information.

1. Rate the importance you attached to each activity by placing a number from 1 to 5 in the first space behind the statement.
   Where: 5 = 'very important'
   4 = 'quite important'
   3 = 'moderately important'
   2 = 'somewhat important'
   1 = 'least important'

2. In the second space behind the statement, assign a 'percentage' out of 100% that represent the proportion of your time on extension devoted to such activity.
   Example: Preparing Production forecast 3 5%
   i.e. it is 'moderately important' and 5% of the time was devoted to such activity.

NOTE: THERE IS NO RIGHT OR WRONG ANSWERS
DO NOT write your Name on the questionnaire. All information given are confidential and will be used for this research only.
SECTION I - ALL RESPONDENTS

Extension Activity Expectations

ID No.__________________

1. Teaching farmers how to use improved farm practices.
   ____ • ____

2. Teaching farmers how to plan and operate their farm programmes. ____ • ____

3. Holding group meetings with farmers to discuss farm problems. ____ • ____

4. Conducting method demonstrations on farmers' farms.
   ____ • ____

5. Teaching farmers how to prepare calendar of work for farm activities. ____ • ____

6. Selecting and training extension local leaders. ____ • ____

7. Teaching individual farmers to prepare farm budgets and keep farm records. ____ • ____

8. Helping to determine educational needs of rural people. ____ • ____

9. Provide for adult basic education (e.g. reading, writing) to the people who need it in the community. ____ • ____

10. Teaching short courses on home-making for rural women. ____ • ____

11. Teaching farmers how to build storage cribs and silos. ____ • ____

12. Conducting training programmes on family living for farm and non-farm wives. ____ • ____
13. Teaching farmers how to control weeds in their farms.

14. Organize farmers' wives into small discussion groups on home-making.

15. Teaching rural people how to improve farm water and sewage disposal.

16. Visiting farms to collect information on prevailing pests and diseases.

17. Writing and replying to official letters.

18. Preparing production forecast.


20. Writing agricultural reports.


22. Planning and evaluating agricultural extension programmes in the district.

23. Attending to contractors and other businessmen in the office.


25. Enlighten farmers on their relationship with produce inspectors.

26. Distributing planting materials and fertilizers to farmers.

27. Helping farmers to obtain help from other agencies in the community.
28. Performing the role of "salesman" for information and ideas from the Ministry.

29. Helping farmers and non-farmers on how to obtain loans and credits.

30. Helping farmers to find market for their local food crops.

31. Helping farmers in constructing storage cribs.

32. Assist farmers to obtain help in planning and building farm houses.

33. Providing information and help for farmers and non-farmers on how to build artisan wells.

34. Providing information on produce regulations for rural produce buyers.

35. Assisting farmers to find labour for their farm works.

36. Prepare radio and TV talks.

37. Make press release on extension programmes.

38. Providing people in the districts with information about government policy and on rural development.

39. Visiting and giving talks to high school students in the community about agriculture.

40. Promoting government programmes among rural people.

41. Working on committees sponsored by MANR and other organizations.
42. Writing articles and pamphlets for the use of local extension workers.

43. Accompanying senior officials on familiarization tour of the district.

44. Take senior officials to inspect extension projects in the districts.

45. Attending meetings with other civil servants to discuss Ministry Programmes.

46. Attend workshops and seminars for extension agents and animal health agents.

47. Organize workshops and seminars for extension agents.

48. Organize workshops and meetings for animal health agents.

49. Assisting agricultural researchers in conducting experiments and surveys.

50. Discussing farm practices and problems with senior officials.
SECTION II - EXTENSION STAFF ONLY (Senior and Junior)

Instruction:

The purpose here is to provide some information on the degree of satisfaction you have on various aspects of extension work.

Below are 25 items. For each item assign a number from 1 to 5 in the space behind it, that describes your satisfaction.

Where: 5 = 'very well satisfied'
4 = 'well satisfied'
3 = 'somewhat satisfied'
2 = 'dissatisfied'
1 = 'very dissatisfied'

Example: Choosing Agricultural Extension as a career. 4 i.e. 'well satisfied'

NOTE: THERE IS NO RIGHT OR WRONG ANSWERS.
JOB SATISFACTION ITEMS:

1. The way your work is being supervised. ____
2. The amount of consideration given to you by your superior officers. ____
3. The freedom you get in planning and executing your work. ____
4. The recognition you get for work done. ____
5. The way complaints and grievances are being handled by the superior officers. ____
6. The attitude of other extension workers toward rural extension work. ____
7. Your relationship with superior officers. ____
8. Your relationship with other extension officers in the circle. ____
9. The opportunity for discussing and planning extension work with other extension workers. ____
10. The help you receive from co-workers on personal problems. ____
11. The way other extension workers help you in your work. ____
12. The methods and procedures for planning and evaluating your extension work. ____
13. Methods and techniques of teaching farmers. ____
14. Your achievement as rural extension worker. ____
15. Choosing agricultural extension as a career. ____
16. Your salary. ____
17. The way your salaries and wages are being paid. ____
18. The financial benefits you receive from extension work.

19. Your salary compared with other government workers of the same educational standing.

20. Your fringe benefits and allowances compared with other government workers of less educational standing.

21. The opportunity for your educational advancement.

22. The promotion you get.

23. The status as extension worker.

24. The opportunity for getting promotion in the extension division.

25. The amount of information you get regarding promotional opportunity.
SECTION III (Junior staff only)

FOR RESEARCH USE ONLY

NOTE: To help us in the statistical analysis of the date we need the following information. (Please answer all questions).

1. Tenure: A. How many years have you been working in the extension division? ____

2. Tenure: B. How many years have you been with the MANR? ____

3. Sex: Male ____ Female ____

4. Your age: What is your age? ____

5. Formal education: (check highest completed)
   Certificate ____
   Diploma ____

6. No. of farmers: What is the total number of farmers that you provide service for? ____

7. Training: How adequate do you consider your training for your work (check one).
   1. Very adequate ____
   2. Adequate ____
   3. Somewhat inadequate ____
   4. Very inadequate ____
   5. I am not sure ____

8. Competence: If you consider your training inadequate what area of technical competence do you desire
improvement? (Example: Farm Management, Extension methods, Livestock improvement, adult education techniques, etc.).

List:

9. Contact with farmers: For the purpose of teaching farmers on specific farm practices, how many farm visits do you make in a year? (Give exact or approximate figure).

10. Continuing Education: Have you attended any in-service training courses in the last two years?
1. _____ No
2. _____ Yes

If yes, where did the majority of people who conducted the course come from or their affiliation?
1. _____ Senior MANR officials
2. _____ Agric. Research Institutions
3. _____ Universities
4. _____ Business or Industry
SECTION III  (Senior staff only)

FOR RESEARCH USE ONLY

To help in the statistical analysis of the data we need the following information. (Please answer all questions).

1. Tenure: How many years have you been working in the senior supervisory position (give actual figure). ____

2. How many years have you been with MANR? ____

3. Field Experience: How many years did you work as junior extension worker in the field? ____

4. Age: What is your age? ____

5. Sex: 1. Male ____ 2. Female ____

6. Formal education (check the highest completed).
   1. ____ Certificate
   2. ____ Diploma
   3. ____ Bachelor's Degree
   4. ____ Bachelor and Post-graduate Diploma
   5. ____ Master's degree

7. Span: What is the total number of staff under your supervision? ____

8. Farm Families: Approximately how many farm families are under your supervision? ____

9. Specialization: In what area of agriculture did you specialize?
   List:
10. Adult Education: Have you had any training in adult education?
   1. _____ No
   2. _____ Yes
   If yes, list courses taken.

11. Have you had any training in extension?
   1. _____ No
   2. _____ Yes
   If yes, list type of course (Example: Induction course, post-graduate in-service training etc.).

12. Professional organization: Which professional organization do you belong to?
   List:
SECTION IV - EXTENSION STAFF (Senior and Junior)

EXTENSION METHODS AND TECHNIQUES

We would like to know from your work experience how you see the effectiveness of certain extension teaching methods and techniques.

Below are 12 extension teaching techniques. Rate each one according to how effective it has been for you in rural extension work by assigning a number from 1 to 5 in the space provided.

Where: 5 = very effective
4 = effective
3 = somewhat effective
2 = not effective
1 = not at all effective

Example: Circular Letters 1 i.e. not at all effective.

1. Bulletins _____
2. Circular letters _____
3. Office calls _____
4. Farm visits _____
5. General meetings _____
6. Workshop _____
7. Group discussion _____
8. Method demonstration _____
9. Result demonstration _____
USE OF EXTENSION TECHNIQUES (Senior staff only)

Instruction:
Consider all extension teachings and dissemination of information that you carried out in the last two years. What proportion of your teaching or information dissemination was done through each technique listed below.

Assign a percentage of that teaching done by using each of these techniques.

Note: Percentage must add up to 100%
Example: ____% of teaching was by radio talks.

1. ____% by bulletins
2. ____% by circular letters
3. ____% by office calls
4. ____% by farm visits
5. ____% by general meetings
6. ____% by workshops
7. ____% by group discussions
8. ____% by method demonstration
9. ____% by result demonstration
10. ____% by radio talks
11. ____% by lecture
12. ____% by posters
____% TOTAL
USE OF EXTENSION TECHNIQUES (Senior staff only)

Instruction:
Consider all extension techniques that you use in teaching and dissemination of information to farmers. What proportion of teaching rural farmers would you emphasize to be carried out under each technique.

Assign a percentage of total teaching to be done through each technique in the space in front of each technique.

Note: Percentage must add up to 100%

Example: _____ of teaching should be by radio talks.

1. _____% by bulletins
2. _____% by circular letters
3. _____% by office calls
4. _____% by farm visits
5. _____% by general meetings
6. _____% by workshops
7. _____% by group discussion
8. _____% by method demonstration
9. _____% by result demonstration
10. _____% by lecture
11. _____% by posters
12. _____% by radio talks
   _____% TOTAL
EXTENSION AGENTS' CONTACT WITH FARMERS

Instruction:
As a supervisor we would like to know what emphasis you think should be placed on extension agents' personal contacts with farmers for the purpose of teaching agricultural practices or related activities.

Rate this statement on a 5-point scale below it.

Statement: In rural extension work, personal contacts with farmers by the village level extension workers is (check appropriate point).

Very important  Moderately important  Important  Somewhat important  Least important
SECTION V  OVERALL STATE OF THE ART OF EXTENSION SERVICES (All Respondents)

How would you rate the extension services provided by the MANR? Below is a 5-point scale with words that may describe how you see the extension service given to the farmers.

Place a circle around a number on the scale that describes your opinion.

Statement: In my opinion I believe that the extension service given to the farmers is (check one).

<table>
<thead>
<tr>
<th>Excellent job</th>
<th>Very good job</th>
<th>Good job</th>
<th>Fair job</th>
<th>Poor job</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
INTERVIEW SCHEDULE FOR FARMERS

Introduction:

My name is ____________________ (Give name), and I am a student at the University of British Columbia (that is in Canada). I am about to ask you for information concerning your cocoa farm operations for research purposes as we discussed at the meeting.

All information you provide will be treated in confidence and will not be used for any other purpose. We will not ask for your name so that no one else can know what you said.

Instruction:

Your local extension agent from the Ministry of Agriculture and Natural Resources has some activities that he must perform for farmers and rural non-farmers.

The purpose of this interview is to obtain information from you how important you see these activities and how do you learn about them from your local extension agents.

For each activity there is a possible 5 points represented by these tokens (money). 1 = Least important and 5 = Most important activity.

Read out each activity item to the farmer and let him assign a number that describes his perception of the importance.

The same procedure would be used whenever interval measurement is needed.
SECTION II - FARMERS ONLY

Sources of Farm Information:

1. The following are possible sources of information for your current farm practices. Which is the most frequent source of information on your farm (1-7; 1 = Most frequent source, 7 = Don't know how I heard it).

   1 - Extension agent
   2 - Relative or neighbour
   3 - Member of farmers cooperative
   4 - Local extension leader
   5 - From the village chief
   6 - Radio
   7 - Don't know how I heard it
METHOD AND TECHNIQUES OF LEARNING FARM PRACTICES (farmers).

Methods or techniques of learning farm practices.

What method was used to teach you any of these farm operations by your extension agent?

Farm Operations

Extension Techniques:
1. Method demonstration
2. General meeting
3. Bulletin
4. Radio talks
5. Result demonstration
6. Lecture
7. Posters
8. Group discussion
9. Instruction in office calls
10. Circular letters
11. Farm visit instruction
12. Workshop

Effectiveness of Learning: Do you know how to carry out the operation as a result of the teaching and learning from this technique?  No = 1,  Yes = 2

Insert code number against technique Vs operation.
SECTION III - QUESTIONNAIRE FOR FARMERS

Background and farm experience:

1. Identification number ____
2. Marital status (check one).
   1. single ____
   2. married ____
   3. divorced ____
   4. widowed ____
3. Age: What is your age? ____
4. Number of wives: How many wives do you have? ____
5. Number of children: How many children do you have? ____
6. Years in farming: How many years have you been farming? ____
7. Size of farm: What is the size of your farm? (acres) ____
8. Time devoted to farming: How much time do you devote to farming?
   1. Full time farming (60% of time or more) ____
   2. Part time farming (40% of time or less) ____
9. Formal education: How many years of schooling did you complete? ____
10. Cooperative membership: Are you a member of the cooperative society?
    1. ____ No
    2. ____ Yes
11. Income: What is your annual income from agric. product ____
12. Income: What is your annual income from Non-Agric _____

13. Net Income: _____


What is the yield of your crop for 1975 _____ lbs.

15. Do you have a radio?

   1. _____ No

   2. _____ Yes

SECTION II:

Contact with Extension Agents

Contact with Village level junior extension agents:

   How many times in a year do you come in contact with the junior extension agents for the purpose of learning or discussing your farm practice? _____ times.

   (See code 1-8)

Contact with Extension Supervisors

   How many times in a year do you come in contact with the extension supervisors for the purpose of learning or discussing your farm practice? _____ times.

   (Same code 1-8)
APPENDIX B

Letters
March 4, 1977

Dr. P. A. Larkin, Dean
Faculty of Graduate Studies
The University of British Columbia
2075 Wesbrook Mall
Vancouver, B.C., CANADA

Dear Dean Larkin:

The thesis of Mr. Raphael O. Opeke, which he has prepared as partial fulfillment for his Ed.D. degree, arrived Monday. Appreciating the tight schedule under which such examinations are held, I took the manuscript with me this week while traveling. Upon returning to the office today, I am hastening to share with you my judgment concerning it.

I found this manuscript to be very interesting reading and certainly informative. Mr. Opeke has selected a very broad problem, as defined by the ten objectives for the study and the many independent and dependent variables, which he has attempted to analyze. The manuscript does present a useful body of information for the adult educator and more specifically for the extension administrators in the western state of Nigeria. The somewhat detailed analysis of the history, organization and functions of extension of various countries, with particular emphasis on the U.S.A. and the western state of Nigeria, should prove valuable to persons teaching introductory courses in Extension and Adult Education. The same observation would apply to his Review of Literature. The Review of Literature on theory, extension administration roles and job satisfaction is fairly comprehensive. However, I am somewhat concerned that this analysis of theory is not related more closely to the discussion of methodology for his study, the analysis of his data, and particularly the final chapter on Conclusions and Recommendations.

The Questionnaire which he developed for his field research has obviously received a lot of attention. Mr. Opeke has profited by the judgment of the practitioners and the academicians, as a reaction panel, concerning the appropriateness of the questions and the scales which he has used. Appropriate statistics have been used in analyzing his data. The findings have been presented in a clear and concise form in his manuscript. Unfortunately, the nature of the study, the number of variables involved, and limited data from respondents did not afford the rigorous type of testing of hypotheses which one would like to see, particularly if the person plans to pursue a career in research. Possibly this is not Mr. Opeke's major professional objective.
Opeke, R.O. and Oshungbohun, M.O., *The level of contacts the farmers have with Extension Workers and the effectiveness of such contacts.*, Departmental Monograph, School of Agriculture, Ibadan, Nigeria, 1968.
