COMPARATIVE ANALYSIS OF THE TRAINING NEEDS OF POTENTIAL AGRICULTURAL EXTENSION WORKERS, AND PRINCIPAL PROBLEMS OF EXTENSION IN THE NORTHERN STATES OF NIGERIA

by

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ABSTRACT

purpose of the study was to ascertain the training needs for potential extension agents in the northern states of Nigeria. This could facilitate the development of an appropriate program of training to provide agents with the knowledge, skills, and attitudes that would make I ore competent and proficient in their jobs.

The training needs were identified from 126 specific topics of training in seven general areas. Data on training needs and relat extension questions were obtained through questionnaires administered to experienced agents at in-service training meetings by extension specialists of Ahmadu Bello University.

A total of 189 junior and 96 senior extension staff from the six northern state: responded. This represented nearly 68 percent of junior staff in the sample and 50 percent of senior stafi ged in exti work in the northern states.

Analysis of the data collected was made by comparing respons* of agents based on the independent variables of status, tenure and i ricultural training. The opinion of agents about the seven general areas of training and other extension topics were also compared by states. Significant differences in the opinions of junior and senior extension staff were determined by the use of the "Student's" t-test on weighted mean scores calculated for the various topics. Responses of agents by tenure and agricultural background were analyzed by means of the Chi-square statistic. Significant relationships were tested at the five percent level.

The results of the study appeared to support the following conclusions:

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Chapter I

INTRODUCTION

The strategic importance of agriculture in accelerating the social, economic and political growth in many developing countries has been well recognized. In many African, Asian and Latin American countries, agriculture is the main source of livelihood, and provides the principal means of wealth for the people. With the rapid expansion of the population of these countries, estimated as increasing at a rate of 2.5 percent or more annually, greater emphasis is being focused on increasing agricultural productivity to feed the growing population and to provide resources for developmental programs. Most African countries depend on agriculture for industrial expansion. It provides the main basis for foreign exchange earnings, as well as funds for recurrent and capital expenditures. Eugene de Benko expressed the significance of agriculture in most African countries when he stated that:

> Agriculture remains the most important single activity in the developing economies of Black Africa. The agricultural sector employs as many as 70 to 80 percent of the labor force and constitutes between 50 to 70 percent of the national income of the respective countries. While subsistence production still predominates in the agricultural economy of the area, during the last few years an increasing percentage of farm products entered the market economy.[1]

In spite of the overwhelming importance of agriculture in the economies of Black African nations, farming is still carried out at a

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[1]Eugene de Benko, Canadian Journal of African Studies, Vol. III, 1970, p. 190.

subsistence level. Farming methods are largely traditional, with the use of primitive hand implements and intensive labor. The yields from these farms are usually low. Farming is regarded as a way of life rather than a business. Most of the farming is done by uneducated men and women, living under poor village conditions. The younger generation who have had some formal education tend to look down on farming. Instead, they often migrate to the cities in search of higher paying and more sophisticated jobs.

Agriculture and Nigeria's Rural Development

The economy of Nigeria has thrived on agriculture for several decades. In 1960, the Ashby Commission on Higher Education in Nigeria noted:

> Three out of every four Nigerians work on the land. Seventeen shillings out of every pound earned from Nigeria's exports come from agricultural products. Investment in agricultural improvement and agricultural education could double Nigeria's wealth.[2]

Despite a rapid growth in the non-agricultural sector since this report was published, 70 percent of the population is still employed in agriculture, which contributes an average of 50 percent of the GNP and is the second largest foreign exchange earner after oil.[3] In 1969, agricultural exports from Nigeria totaled EN142 million ($426

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[2] Investment in Education, The Report of the Commission on Post-School Certificate and Higher Education in Nigeria, Lagos: Federal Ministry of Education, 1960, p. 21.

[3] Glenn L. Johnson et al., Strategies and Recommendations for Nigerian Rural Development 1969/1985, Consortium for the Study of Nigerian Rural Development (CSNRD 33), July 1969, p. 2.

million) accounting for 48 percent of all exports valued at EN298.3 million ($895 million).[4]

The dominant importance of agriculture in the Nigerian economy notwithstanding, much of the farming is still done at a subsistence level. Production comes primarily from the farms of more than five million small holders who cultivate an average of only two to three acres in the southern part and up to six to eight acres in the northern part of the country.[5] The yields from the farmers' farms are low compared to what is obtainable in research and experimental plots. Although agricultural research was started in Nigeria about 1920, research findings have had very little influence on the traditional farming system across the country. About the farming system in West African countries, Janelid wrote:

> The farming system is affected by economic, social, cultural, physical and political forces. The technical obstacles to agricultural improvements could be overcome rather quickly, since there is sufficient knowledge accumulated in agricultural research. The major constraints are mainly institutional and human and the findings of research do not filter very easily down to the farmer's level. The knowledge, skills and managerial ability of the family labor, the tools and techniques used in agricultural production and the size of the farming unit determine the final yields and income.[6]

This statement expresses the views of many experts on the farming system in traditional African societies. The traditional Nigerian

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[4]Snider W. Skinner, The Agricultural Economy of Nigeria, U.S. Department of Agriculture (Washington: ERS-Foreign 329, 1972), p. ii.

[5]Johnson et al., op. cit.

[6]Ingrid Janelid, "The Socio-Economic Role of Farm Women in Agricultural and National Development in West Africa," Paper presented at the West African Conference on Agricultural Education at the Intermediate Level, Zaria, Nigeria, 13 to 18 December, 1971, p. 1.

farming systems are often dismissed as primitive, and unworthy of consideration. Nigerian farmers are accused of being too conservative, illiterate, culturally oriented, and unwilling to accept change. It is only in recent years that a conscious effort has been made to study the socio-economic conditions of the farmer and the factors which influence the receptivity of innovations in a predominantly rural society.

While it may be true that the attitude, ignorance and poverty of the peasant farmer have been a major obstacle to agricultural change, it is equally true that most of the agricultural research conducted in Nigeria has not taken into account the traditional farming system. There has been some conscious or unconscious effort to transplant foreign values and systems into Nigeria's predominantly rural society with little or no adaptation to local cultures, values and systems.

Harbinson[7] has stressed the importance of rural transformation in Nigeria's economic progress. He noted that, "Nigeria's successful growth will depend primarily, though not exclusively, on improved levels of productivity and earnings in its rural sector."

A program in agriculture and rural development could be successful if it is possible to improve farm income and reconstruct the rural home so as to give village life a new outlook and dignity. This is one way to keep in check the present trend of migration of the younger generation to the cities. The country cannot expect to retain the educated youth in villages which do not reflect the realities of

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[7]Fredrick H. Harbison, "From Ashby to Reconstruction: Manpower and Education in Nigeria," Growth and Development of the Nigerian Economy, eds. Carl K. Eicher and Carl Liedholm (Michigan State University Press, 1970), p. 400.

the modern age. Rural transformation can be accomplished when there are more progressive farmers in each locality, adequate number of qualified advisors in agriculture and other fields, and when there are facilities for providing agriculturally related services.

It has been demonstrated in many Western countries that an effective agricultural extension is one way to achieve rapid and widespread progress in agriculture. Mellor[8] enumerated the primary role and objectives of production-oriented extension education programs as:

1. To stimulate a framework of farmer attitude and aspirations conducive to acceptance of technological change.
2. To disseminate to farmers the results of production-increasing research, and to carry farmers' problems back to research organizations.
3. To provide training and guidance to farmers in decision making.

The task of motivating farmers to accept change and guiding them to make profitable decisions could prove quite critical in facilitating a rapid advance toward a dynamic agriculture.

A country such as Nigeria, where agriculture is relatively less developed and characterized by many small holders faced with a shortage of capital and credit facilities as well as marketing problems, the rapid progress in agriculture will depend to a very large extent on an adequate number of well-trained extension personnel. The extension service in many developing countries, as in Nigeria, consists mainly of

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[8]John W. Mellor, The Economics of Agricultural Development (Ithaca: Cornell University Press, 1966), pp. 356-358.

middle-echelon personnel trained locally at agricultural schools. The schools are designed to produce the necessary manpower needed to fill technical positions in agricultural research, in extension services and in agri-related industries.

The importance of this level of training in agriculture in developing countries cannot be over-emphasized. Dr. Audu stressed the value of the training in the Schools of Agriculture in Nigeria when he said:

> Nigeria will continue to rely on these "middle echelon" personnel to bear the brunt of the agricultural development programs, well into the 1980's. The truth of the matter is we just cannot train enough degree holders in the fields of agriculture and veterinary medicine to meet the needs of development.[9]

Much has been accomplished in the training of intermediate level personnel in agriculture since the publication of the Ashby Commission report which stressed the need for greatly increased emphasis on agricultural research, extension and agricultural education at all levels in Nigeria. However, the output from the existing Schools of Agriculture in Nigeria is hardly adequate to meet the needs of agricultural development of the present time. The large scale expansion in agricultural programs in the country has created a greater demand for the middle-echelon personnel in agriculture. These expansions necessitate a re-examination of the programs of the training institutions to determine whether they are preparing the trainees in subject matter

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[9]Opening address to the Second Annual Schools Conference by Dr. I. S. Audu, Vice Chancellor of Ahmadu Bello University, Zaria, Proceedings of the Second Working Conference on Intermediate Level Agricultural and Livestock Services Training Programmes of Ahmadu Bello University, Zaria, October 28-30, 1970.

content and depth which will serve the needs of the individuals when they get on the job and whether the training provided serves the long-term needs of Nigeria's agricultural development.

AGRICULTURAL EDUCATION AND EXTENSION SERVICE IN NORTHERN NIGERIA

The purpose of this section is to provide a historical account of agricultural education and extension in Nigeria with particular reference to developments in the six northern states. Such background information is essential for a proper understanding and appreciation of the present study.

Agricultural Education

Agricultural education at the university degree level has a recent history in Nigeria. The first agricultural faculty was opened at the University College, Ibadan, in 1948 in cooperation with the University of London. The first class of students graduated in 1953. By 1965, four Nigerian universities were awarding degrees in agriculture. Veterinary graduates were first awarded degrees in 1967 from Ahmadu Bello University, Zaria. A College of Home Economics was opened in 1962 at the University of Nigeria, Nsukka. Before these faculties were opened, Nigerians who wanted to pursue careers in agriculture at the degree level had no option but to go abroad if they could secure the necessary funds.

Agricultural education at the sub-degree level made a much earlier start in Nigeria. A National Department of Agriculture was established by the British Colonial Administration in 1921 at Moor

Plantation, Ibadan. The department had as part of its functions, the introduction of agricultural education for the training of Nigerians, and the establishment of the beginning of an extension service in Nigeria.[10]

The first School of Agriculture was established simultaneously with the establishment of the Department of Agriculture at Moor Plantation in 1921. The school was to train various cadres of staff for the country-wide Department of Agriculture.

In 1931, a second School of Agriculture was opened at Samaru near Zaria. These two schools together provided the basic manpower needs of the Department of Agriculture in Nigeria until 1954 when a new constitution was introduced in the country resulting in the regionalization of government departments. The two schools became regional institutions with the Samaru school coming under the direct control of the Northern Nigeria Ministry of Agriculture with headquarters at Kaduna.

The School of Agriculture at Kabba was established in 1964 by the Ministry of Agriculture, Northern Region. The purpose of the school was to supplement the training at Samaru and to cater to the special needs of extension workers in the riverain areas of the north. The Livestock Services Training Centre (L.S.T.C.) at Mando Road, near Kaduna, was established in 1960 by the former Northern Nigeria Ministry of Forest and Animal Resources to train intermediate level staff in livestock and animal husbandry.

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[10]Other objectives of the Department of Agriculture were experimental production of export crops, the improvement and maintenance of soil fertility and the efficient marketing of agricultural produce.

Following the abolition of the regional governments in Nigeria in 1968 and the creation of new states, the three schools at Samaru, Kabba and Mando Road were transferred to the Ahmadu Bello University. In 1971, the University decided to combine the three institutions into a new division known as the Division of Agricultural and Livestock Services Training (D.A.L.S.T.). The University, also initiated arrangements for a fourth school in the Division, which would be concerned with training in irrigation agronomy.

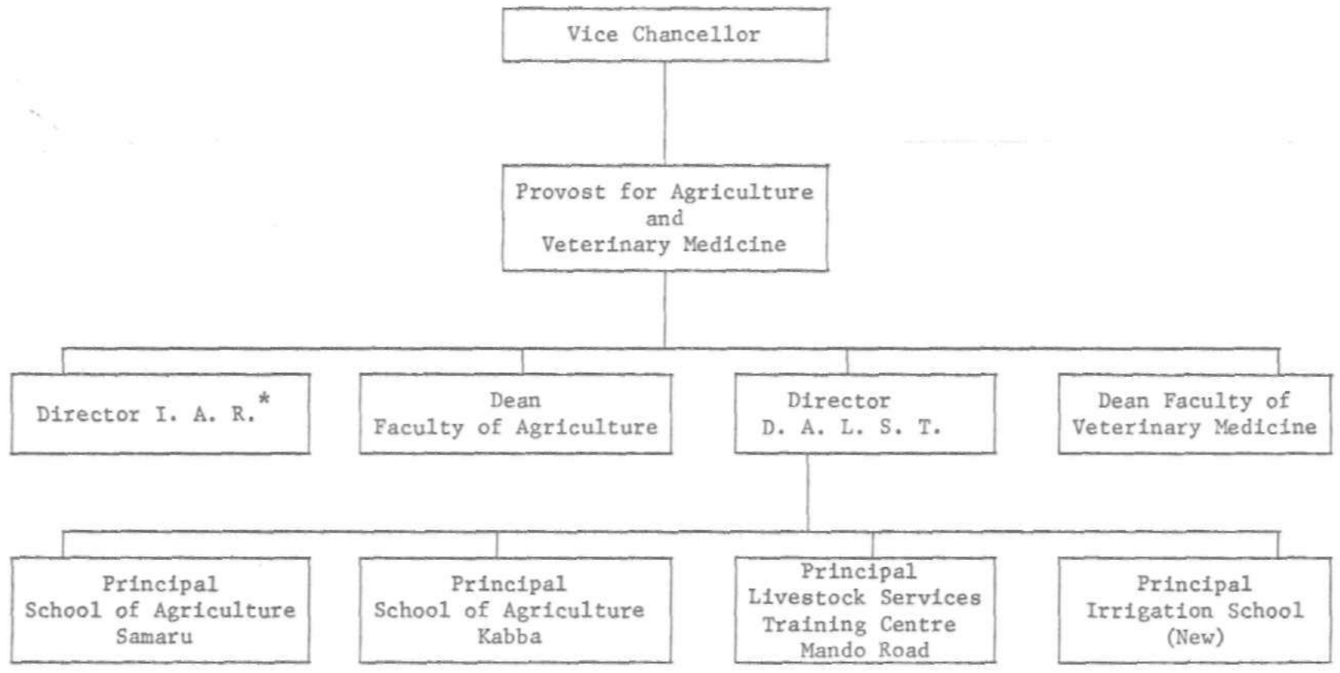
The Schools' Division under Ahmadu Bello University is administered by a director who is responsible to the Provost for Agriculture and Veterinary Medicine. A Board of Governors appointed by the University and presided over by the Vice-Chancellor, with representatives from the Ministries of Natural Resources of each of the six northern states, is responsible for formulating policy guidelines for the Division. A professional and academic committee guides the Schools on professional and academic matters. Each School is headed by a principal who holds responsibility for internal administration of the School. The principals are answerable to the director of the Division (see organizational chart in figure 1).

The main function of the Schools' Division is to provide training in agriculture, home economics, animal health, animal husbandry and extension education for young men and women who will assume technical positions in the extension services and research institutions in Nigeria, as well as in neighboring African countries.

The Division offers two types of courses: a two-year certificate course and a diploma-level course. Students admitted into the

FIGURE 1

THE DIVISION OF AGRICULTURAL AND LIVESTOCK SERVICES TRAINING (D.A.L.S.T.) WITHIN THE AGRICULTURAL COMPLEX OF AHMADU BELLO UNIVERSITY



*Institute for Agricultural Research

certificate course are mostly secondary school graduates while the diploma programs are essentially in-service courses for upgrading extension personnel.

The training provided at the Schools for extension workers differs from that obtained in advanced countries in one important respect. The trainees come into the institutions with only secondary school education and quite often without a farming background. Training has to be provided in both technical agriculture and in extension methodology. In most advanced countries, extension staff have B.S. degrees, so most of their training is related to orientation courses in extension methodology and related social science subjects.

Agricultural Extension Service

The Extension Service in Nigeria had a modest beginning in 1921, when the Department of Agriculture was established at Moor Plantation, Ibadan. The main emphasis of the Department was research and experimental work on export crops. A high priority was placed on the production of export crops of direct benefit to British industries. Expatriate agricultural officers were appointed to take charge of provincial agricultural offices throughout the country.

The provincial agricultural officers (PAO) were responsible for the maintenance of experimental stations, for collection and collation of information about crops, and for multiplication and distribution of improved seeds such as cocoa, oil palm, groundnuts and cotton seeds to farmers.

Extension work then consisted mainly of providing services to farmers. In addition, extension workers were responsible for enforcing

laws and regulations established by the Department of Agriculture for the protection of export crops. This regulatory function created a lot of mistrust between farmers and extension workers.

In 1954, when the regional constitution was introduced into the country, separate Ministries of Agriculture were established in each of the new regions. Extension workers in the new regions were still mainly concerned with the supervision and maintenance of agricultural schemes of the government. In Northern Nigeria, this concerned the maintenance of seed multiplication schemes, experimental farms, a few demonstration unit farms, soil conservation, and minor irrigation schemes. Advisory service and the actual contact with farmers was left to the Native Authority agricultural staff, who, although well meaning, lacked adequate technical training in agriculture and modern extension teaching methods.

Agricultural extension, education, and research received very serious attention in the National Development Plan for the period 1962-68. In Northern Nigeria several changes took place. A new university was established at Zaria and the Ministry's Research Station at Samaru was transferred to the university. A new organizational structure was introduced in the Ministry of Agriculture which was divided into six main divisions: General Administration, Field Services, Irrigation, Education and Training, Produce Inspection and Pest Control.[11] Agricultural extension came under the Field Services Division which was

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[11] James M. Kincaid, Jr. et al., Extension Priorities: A Critical Analysis of Selected Extension Questions and Issues for Nigeria, CSNRD-11, East Lansing: Michigan State University, July, 1968, p. 36.

headed by a Chief Agricultural Officer. A Provincial Agricultural Officer was posted as before to each of the 12 provinces in the north. Under him were agricultural officers or superintendents in charge of the Divisions with Assistant Agricultural Superintendents (AAS), Agricultural Assistants (AA) and Agricultural Instructors (AI) filling lower level staff positions.

At the bottom of the extension organization were Agricultural Instructors, who maintained direct contact with farmers and were the main strength of the extension service in carrying out its function of disseminating agricultural information. However, they were also the least educated and most inadequately trained for this important function. Most individuals were appointed as Agricultural Instructors after graduation from elementary schools. They were given nine months of training in technical agriculture at Farm Training Centres located throughout the Region.

The objective of the Ministry of Agriculture was to have one extension worker to every 2,000 farmers. In 1964, Rowat[12] reported that the ratio of extension workers to farmers in Nigeria was "at least 1:2,000 on an average and as high as 1:5,000 in places," as compared to extension services in more highly developed countries which operated at a ratio of 1:400-500. He argued that the target set by the Ministry of Agriculture in Northern Nigeria would not provide for an efficient extension activity. Instead, he recommended that "an objective of one

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[12]R. Rowat, "Report to the Federal and Regional Governments of Nigeria on the Development of Education and Training in the Field of Agriculture and Related Subjects" (Rome: Food and Agricultural Organization, 1965), p. 17.

full-time extension worker per 1,000 farm families is a practical one which will give reasonable coverage and be within the countries' resources to maintain."[13]

Prawl stated in a report in 1971 that:

> The goal of most state Ministries of Agriculture and Natural Resources is to provide one extension worker for every 1,000 farmers by 1975. This goal cannot be achieved but concrete steps to improve the situation significantly are underway.[14]

The political events in Nigeria between 1966 and 1970 and the constitutional changes which took place resulted in the creation of six new states out of the former Northern Region. The new states each established seven new ministries, including a Ministry of Agriculture and Natural Resources. This Ministry was made up of four main divisions: agriculture, forestry, veterinary services, and cooperatives. The Agricultural Division was subdivided into several units as in the former Ministry of Agriculture. A major change was the transfer of some of the training functions to the Ahmadu Bello University. It was significant that for the first time, agriculture, livestock, forestry and cooperatives came under a unified ministry and were responsible to a single administrative head. The organizational structure of the extension service in the new states is illustrated in figure 2.

The primary function of the extension service in the new states was that of disseminating information concerning improved agricultural practices to the farmer and his family in the rural community. There

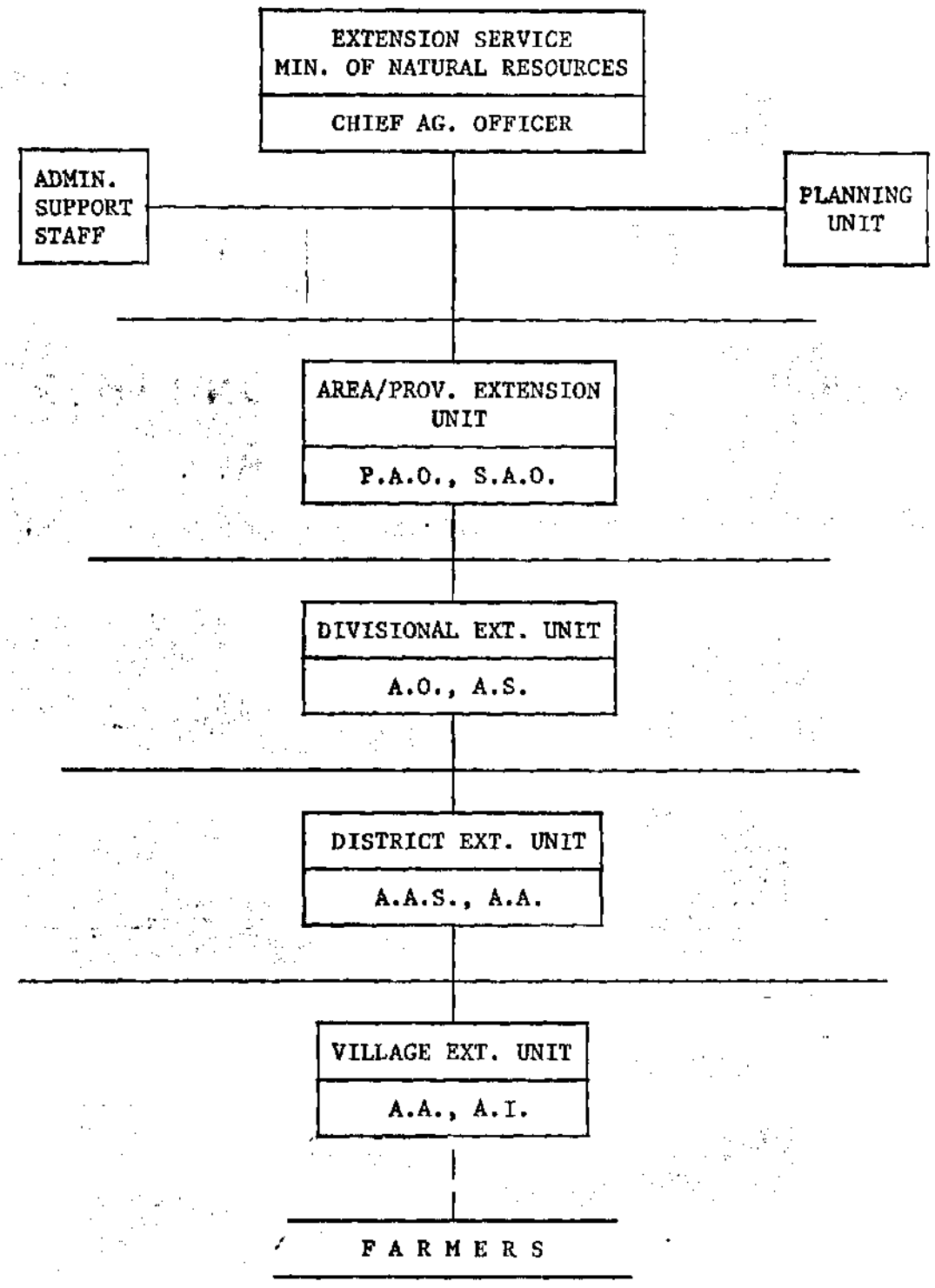
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[13] Ibid.

[14] Warren L. Prawl, Director, Division of Agricultural and Livestock Services Training, Ahmadu Bello University, Zaria, Nigeria, Semi-Annual Report, July to December, 1971, p. 1.

FIGURE 2

ORGANIZATION CHART OF THE STATE EXTENSION SERVICES



has been a general realization that the value of scientific research and practical effort in agriculture depends upon the degree to which the results are made the common property of the farming community.

The former Ministry of Agriculture took practical steps to make research information readily available to farmers. In 1963, the Ministry established the Extension and Research Liaison Section, which was staffed by subject-matter specialists in various fields. The Section was attached to the Institute for Agricultural Research at Samaru. Its main tasks were two-fold: first, to bring the problems of farmers to the attention of research staff; and, second, to transform the results of research into a form that extension workers and farmers could easily understand. This latter function was accomplished by publishing extension materials in the form of bulletins, guides, recommended practices, posters and flipbooks. Specialist staff traveled extensively to the states to visit farmers and extension workers in the field and to assist in solving the various technical problems confronting them. The specialists also assisted in providing in-service training courses for extension workers to keep them up-to-date on the latest findings from research. In addition, they put out regular farmers' radio programs to reach a wider audience.

The Extension Research Liaison Section was transferred to the Ahmadu Bello University after the creation of states in 1968 and is now part of the Institute for Agricultural Research, Samaru. The work of this Section has been effective in maintaining a strong link between agricultural research and the extension services. It has helped insure a two-way flow of agricultural information between the two agencies.

Although the extension services have principally an educational function, they have also been responsible for providing essential agricultural production inputs for farmers, since the agri-business sector of the economy is still in a developmental stage. The extension workers are responsible for seed multiplication and distribution, fertilizer sales and distribution, and making available a supply of plant materials and pesticides. The extension service also undertakes other activities to boost agricultural production, such as the tractor hiring units, crop production programs, farm settlement and land reclamation schemes. Other activities include assisting farmers with marketing of produce, organizing farmers' cooperatives and young farmers' programs. The extension workers are also responsible for conducting field experiments for research workers at the University and for collecting crop data and meteorological reports.

Thus, the extension service in Northern Nigeria, as in other developing countries, functions in a much broader area than in more advanced countries as far as agricultural production is concerned. However, most of the regulatory functions carried on by Extension in the past are now handled by other government agencies; therefore, a much healthier climate now exists between the village workers and the farmers.

Purpose of the Study

The major purpose of this study was to determine the main areas of training needed by potential extension workers in Northern Nigeria, as reflected by the opinion of experienced extension workers in the field. The information obtained from the study will serve as a basis

and guide for developing training programs for newly recruited extension workers, so that their training in the Schools of Agriculture will have more relevance to the work they later perform in the extension services.

The specific objectives of the study were as follows:

1. To determine to what extent junior and senior extension agents consider the program of training at the Schools of Agriculture appropriate to the work of extension personnel.
2. To determine the level of satisfaction with the program of training, and what changes, if any, should be introduced to improve it.
3. To determine what priority should be given to the various areas of training identified in the study.
4. To determine what differences exist in training needs of extension agents in each of the six northern states of Nigeria.
5. To identify the primary functions of extension agents in the northern states of Nigeria in order to make it possible to develop a training program which would prepare the agents adequately for their future work.
6. To identify the principal problems of extension in the northern states, and indicate how they relate to the training of agents.

Significance of the Study

A constant review of the curriculum in a training institution is essential in insuring that the training provided will satisfy

on-the-job requirements of trainees as well as the long-term needs of the agricultural industry in the country.

Oyenuga expressed the view that:

> Agricultural extension methods require special techniques in order to succeed since they deal with not only the productive but also the social, cultural and economic aspects of rural life. Well developed agricultural extension . . . is an adult educational program which aims at the educational development of the farmer and his family in relation to their community and their environment.[15]

The work of an agricultural extension agent is very diverse and requires many broad qualifications. He is both a technician, an educator and a public relations officer. The Seminar on Agricultural Education and Training in Africa held at Zaria in 1965, stated in its final report that:

> The extension worker forms the essential link between agricultural research and the higher administrative structure, and the farming community. His duties and responsibilities extend far beyond those of conveying technical information. He must be an agent of progressive thinking and cooperative action, developing qualities of leadership within the farming community itself. His training and subsequent in-service training need to be substantially improved in many countries. In particular, much more emphasis needs to be placed upon training in rural sociology and the methodology and techniques of extension work.[16]

In a report on the Strategies for the Improvement of Agricultural Extension Work and Non-degree Agricultural Training in Nigeria, Kincaid recommended that:

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[15] V. A. Oyenuga, Agriculture in Nigeria (Rome: Food and Agricultural Organization, 1967), p. 287.

[16] Agricultural Education and Training in Africa, Report of a Seminar held at the Ahmadu Bello University, Zaria, Northern Nigeria, 28 June-7 July, 1965 (Rome: Food and Agricultural Organization, 1965), p. 38.

> . . . more deliberate attention be devoted to a determination of what is expected of a majority of trainees upon their completion of a particular training curriculum. Once this is fully specified, the curricula and course syllabi should be planned so that the basic skill requirements for the work to be done are met.[17]

Apart from the pioneer work by Williams,[18] who studied the training needs of extension workers in Western Nigeria, very little effort has been made to conduct similar studies in other parts of Nigeria. To date, no study to identify the training needs of extension agents has been undertaken in the six northern states of Nigeria.

A major revision of the curriculum of study at the Schools of Agriculture, Samaru and Kabba, and the Livestock Services Training Centre, Mando Road, was carried out in 1969. The decision to undertake this revision was a result of widespread criticism of the training programs at the schools by extension administrators. However, the revision was not based on a fundamental study of the training needs of extension workers in the six northern states.

The present study should provide some basic information on the work of agricultural extension agents in the north and help to identify their training needs. The implications of this study, it is hoped,

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[17] James M. Kincaid, Jr., Strategies for the Improvement of Agricultural Extension Work and Non-degree Agricultural Training in Nigeria, Consortium for the Study of Nigerian Rural Development (East Lansing: Michigan State University, September, 1968), p. 141.

[18] S. K. T. Williams, "Identification of Training Needs of Extension Workers in Western Nigeria as a Basis for Developing a College Training Curriculum" (unpublished Doctor's dissertation, Cornell University, 1967).

would influence the program of training at the agricultural schools in Nigeria and in other developing countries with similar programs.

Hypotheses

The following hypotheses were developed:

1. There are no differences in the training needs of extension agents as perceived by junior and senior extension personnel.
2. There are no differences in the opinions of various tenure groups on the training needs of extension agents.
3. There are no differences in the opinions of respondents, based on differences in their agricultural background, on the training needs of agents.

In addition to the above hypotheses, the opinions of extension personnel on the training needs of extension agents in selected areas of training and related extension questions were compared by states.

Assumptions

The value and significance of this study rests on two important assumptions:

1. That the views of extension staff bear a true reflection of the actual training needs of extension workers in the northern states of Nigeria.
2. That the extension workers who participated in this study are capable of providing useful and valid information which can be used as a basis for determining the training needs of other agents.

Limitations of the Study

There are two major limitations to the study which should be indicated. The first is the method used in collecting the data. An opinion questionnaire was mailed to Nigeria and the respondents registered their opinions and feelings about various aspects of training needs of extension workers. The reliability of the information given by the respondents could not be verified objectively.

The second important limitation of this study deals with the sampling procedure used. Because of physical difficulties, and the lack of personal data about extension workers in the northern states, it was not possible for the investigator to closely control the sampling procedure and the method used in administering the questionnaires.

Definition of Terms

Exact definitions of certain terms and words used is considered necessary in order to insure clarity and similarity of meaning.

Extension Worker--The term extension worker or extension agent refers to a person who has responsibility for agricultural extension programs in the village, district or division. The term also includes other staff holding administrative responsibility in the extension service at the provincial or area offices and at state headquarters in any of the six northern states of Nigeria.

Need--refers to the disparity between the present situation (what is) and a desired situation (what ought to be).

Situation--a description of the existing economical, social, and cultural facts and trends.

Training Need--the knowledge, skills and understanding required for performance of the duties of an extension agent in a given situation.

Training Program--refers to a set of systematic activities, formal or informal, in order to help people acquire knowledge, skills, attitudes and abilities which will fulfill existing training needs.

Ministry Staff Positions[19]

Senior Staff--For the purpose of this study, senior staff refers to agricultural personnel holding the rank of Agricultural Superintendent (AS) and above. They include Higher Agricultural Superintendent (HAS), Agricultural Officer (AO), and Senior Agricultural Officer (SAO) grades.

AO--Agricultural Officer--Senior Staff, usually University graduates. Tend to achieve rapid promotions through the administrative hierarchy.

AS--Agricultural Superintendent--Senior Staff, usually holding a diploma or AAS training and field experience.

Junior Staff--For the purpose of this study, junior staff include the following: Assistant Agricultural

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[19]Adapted from Kincaid, Jr. et al., op. cit., p. 10.

Chapter II

THEORETICAL FRAMEWORK

The behavior of an individual within a given situation is often determined by his needs. A person can be motivated to a higher level of performance, in a work situation, if the job satisfies his most important needs. Barnett[1] stated that "needs" were relative to time and place and were highly particularistic, involving a psychological disposition, having a direct impact on the mind of the individual. It results in an intimate appreciation of self-involvement which provides the motivational force attributable to needs.

The concept of need focused attention on the learner as an active, rather than as a passive recipient, in the learning process. An effective extension training program, should, therefore consider the needs and related interests of the agent and attempt to develop training geared toward meeting his real needs as well as those of the organization which he represents.

The Meaning of Need

A definition of need is relevant to an understanding of the concept of need in extension training programs. Webster[2] defines a

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[1] H. G. Barnett, Innovation: Basis of Cultural Change (New York: McGraw-Hill Book Company, 1953), p. 98.

[2] Merriam Webster, Webster's Seventh New Collegiate Dictionary (Springfield: C & G Merriam Company, 1969).

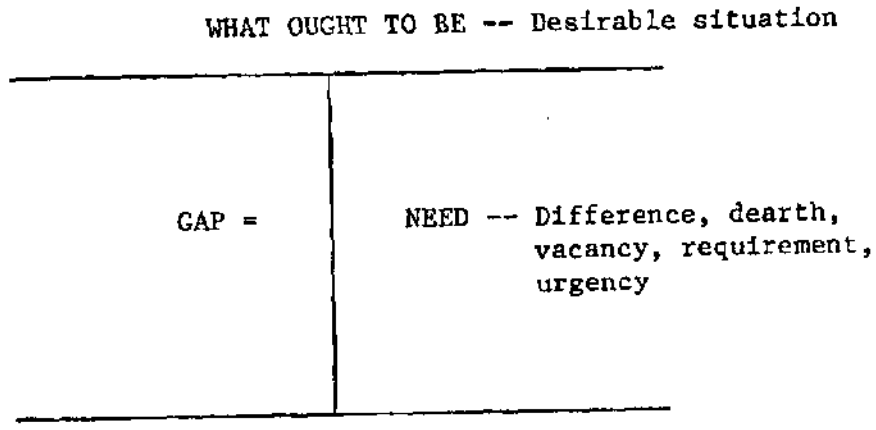
"need" as "A lack of something requisite, desirable and useful." A broader concept of the term was provided by Leagans who gave the following definition:

> Needs represent an imbalance, lack of adjustment, or gap between the present situation or status quo and a new or changed set of conditions assumed to be more desirable.[3]

In other words, it is a gap that exists between what is and what ought to be. Leagans provided a more insightful illustration of need as shown in Figure 3.

FIGURE 3

DEFINITION OF NEED



Tyler[4] stated that "need" represents "a gap between some conception of a desirable norm, that is some standard of philosophic value and the actual status."

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[3] J. Paul Leagans, "A Concept of Needs," Journal of Cooperative Extension, Vol. II, No. 2 (Summer, 1964), p. 92.

[4] Ralph W. Tyler, Basic Principles of Curriculum and Instruction (Chicago: University of Chicago Press, Thirteenth Impression, 1970), p. 7.

2. Safety or security needs: the need to be free of the fear of physical danger and deprivation of the basic physiological needs.

3. Social or affiliation needs: man is a social being, and he has a need to belong, to be loved and to be accepted by various groups.

4. Esteem or ego needs: the need for self-esteem, recognition and respect from others, satisfaction of which produces feelings of self-confidence, prestige, power, and control.

5. Self-actualization needs: the desire for self-fulfillment; to become what one is capable of becoming.

Maslow postulated that the satisfaction of the more basic physiological needs is essential for maintenance of life, but as observed by Hersey and Blanchard,[10] "if one level of needs has been somewhat gratified, then others emerge as dominant."

They further stated that:

> In reality, most people in one society tend to be partially satisfied at each level and partially unsatisfied, with greater satisfaction tending to occur at the physiological and safety levels, rather than at the social, esteem and self-actualization levels.[11]

In general, most people exhibit all the need drives, but their motivation for behavior differs in time and situation.

In his motivation-hygiene theory, Herzberg[12] categorized human need into two groups which are essentially independent. The first, he called, the hygiene factors, because of their relationship to man's

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[10] P. Hersey and K. H. Blanchard, Management of Organizational Behavior (Englewood Cliffs: Prentice Hall, Inc., 1969), p. 26.

[11] Ibid.

[12] F. Herzberg, Work and the Nature of Man (Cleveland: The World Publishing Company, 1966).

environment. He termed the second group, the motivators or job satisfiers. The characteristics of both categories are listed below:[13]

FIGURE 4

MOTIVATION AND HYGIENE FACTORS

HYGIENE FACTORS (Environment)	MOTIVATORS (The Job Itself)
1. Policies and administration	1. Achievement
2. Supervision	2. Recognition for accomplishment
3. Working conditions	3. Challenging work
4. Interpersonal relations	4. Increased responsibility
5. Money, status, security	5. Growth and development

The hygiene factors, Herzberg maintained, were important in influencing job choice and the predisposition of personnel either to stay on the job or leave. The motivators provide satisfaction and are important in determining personnel involvement, commitment and level of motivation. Job satisfaction is a subjective response to the gap between needs and provisions, which in large part, is a reflection of the skills and qualifications of the individual.

According to Hersey and Blanchard, both Herzberg's motivation-hygiene theory and Maslow's hierarchy of needs have compatibility in relation to human need satisfaction and motivation. In their opinion, the hygiene factors of Herzberg embrace the basic physiological needs as well as needs for security, affiliation, and some aspects of the needs for esteem (status). The motivators include the need for

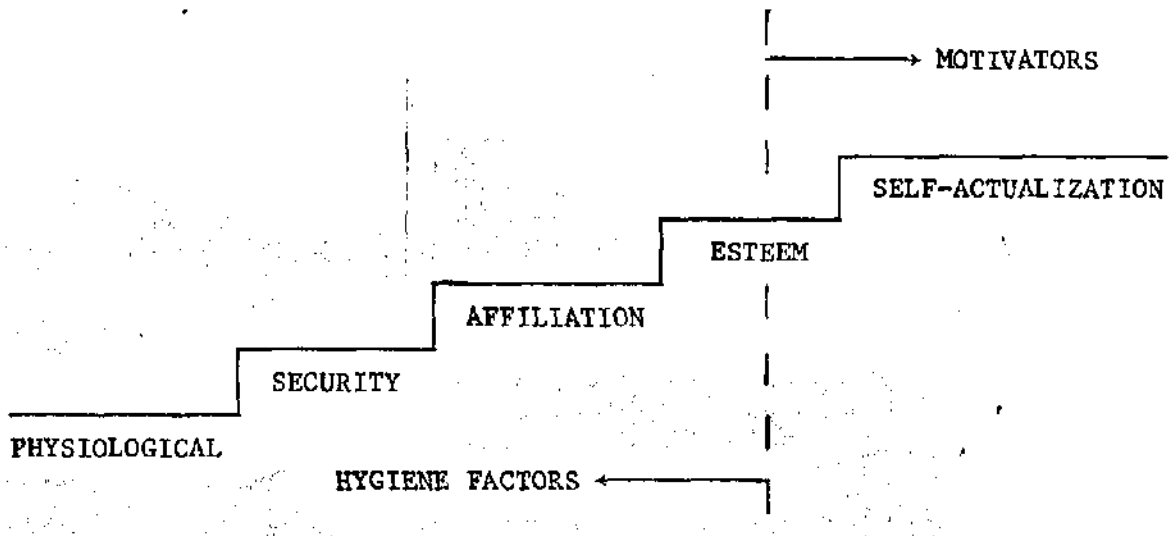
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[13]Hersey and Blanchard, op. cit., p. 55.

recognition, which is related to esteem and self-actualization. Their integrated model is illustrated below.[14]

FIGURE 5

THE RELATIONSHIP BETWEEN THE MOTIVATION-HYGIENE THEORY AND MASLOW'S HIERARCHY OF NEEDS



This concept of need has very important implications for developing extension programs. In developing training programs, it is essential to clearly understand the needs of people and to develop programs that are related to these needs.

It has been shown that as lower-level needs are relatively satisfied, they become less directly motivating for behavior. Motivation arises as a result of the next level of unsatisfied needs. Training programs are designed to influence the behavior of people. In order to influence the level of motivation of people, it would be

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[14] Ibid., p. 56.

appropriate to understand which needs are applicable to the people involved that can serve as levers for motivation, and that are relatively unsatisfied.

The Need for Training

The success of any organization depends to what extent it has articulate and well-trained personnel to execute its programs efficiently. Most organizations have realized the value and importance of training and have extensively utilized large resources in developing good training programs for its personnel.

The need for men of high ability and training is an inevitable consequence of development. John Gardner wrote:

> The demand for high talent manpower is firmly rooted in the level of technological complexity which characterizes modern life, and in the complexity of modern social organization. And more important than either of these is the rate of innovation and change in both technological and social spheres.[15]

The importance of providing extension personnel with adequate training cannot be overemphasized. There is a need to provide training to keep pace with the ever changing demands of the job and to cater to the needs of the individuals in light of these demands.

Prewett, speaking about the need for extension training was reported as saying that:

> Extension's capital stock and investment is carried in its personnel. The degree of progress we make as an extension

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[15] John W. Gardner, Excellence: Can We be Equal and Excellent Too? (New York: Harper and Row Publishers, 1961), p. 34.

> service, depends on the recruitment and training of new workers who come into the organization.[16]

The extension service can only accomplish its objectives through developing all available human resources. In his introduction to Warren's book, Rummler expressed the opinion that:

> Human resources are now emerging as the most important natural resource to nearly every organization. And yet, people are still the most exploited, wasted and misapplied of all natural resources. The training function is probably the single most critical function in the effective use of human resources to meet today's pressing manpower needs.[17]

In most of the developing countries, with a predominantly agricultural economy, the production of trained manpower in agricultural extension and rural development remains one of the greatest challenges to agricultural development efforts. Farmers in these countries, who are mostly illiterate, are faced with problems of poverty, disease and ignorance. The difficulty is one of providing adequate facilities to train competent staff in agricultural extension, who in turn will assist farmers to acquire the skills and knowledge essential in improved agricultural production.

In his study on training of Cooperative Extension Workers, Duncan pointed out that:

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[16] J. D. Prewett, "Problems Encountered in Recruiting and Training New County Personnel," Talk at supervisors' conference, Baton Rouge, Louisiana, April 16, 1953, cited by James A. Duncan in Training Cooperative Extension Workers: The Coordinated Approach, University of Wisconsin (April, 1957), p. 3.

[17] Malcolm W. Warren, Training for Results: A System Approach to the Development of Human Resources in Industry (Reading: Addison-Wesley Publishing Company, 1969).

> Systematic organization and coordination is the keynote to successful longtime extension training programs. An efficient and successful extension training program must consider the total training needs of personnel in all phases of the Extension Service Program.[18]

Extension training should be designed to stimulate interest in new agents and to arm them with the necessary skills and technical know-how which will give them competence and pride in the profession, and help them identify with the needs and aspirations of the rural community.

A Concept of Training

The word "training" has different meanings to different people, organizations and institutions. Therefore, a clear definition of the word is considered appropriate for an understanding of its concept. Webster[19] defines training as "to teach so as to be fitted, qualified, or proficient." The purpose of training is to impart knowledge and skills to an individual so that he can perform some desirable tasks.

Matthews,[20] in his study of methods for determining training needs of county agents, contended that all activities aimed at improving the ability of the county agent to do his work, including acquiring information, developing abilities and fostering attitudes which resulted in greater professional competence constituted training. The

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[18] James A. Duncan, Training Cooperative Extension Workers: The Coordinated Approach, Cooperative Extension Service, University of Wisconsin (April, 1957), p. 3.

[19] Merriam-Webster, op. cit.

[20] J. L. Matthews, "A Method for Determining the Training Needs of County Extension Agents as a Basis for Planning Training Programs" (unpublished Doctor's dissertation, University of Chicago, 1950), p. 3.

significance of training lies in its motivational influence on personnel competence and achievement on the job.

David Korb[21] offers yet another definition of training. He said it was "a continuous process, activating, reinforcing and building the human elements of the organization."

In very similar terms, DePhillips and others defined training as:

> The process by which an organization seeks, in a planned, coordinated and continuous manner, to develop in all employees those understandings, skills and attitudes that will maximize individual's present and future efficiency and the effectiveness of the overall company operation.[22]

Thus, these two definitions emphasize the importance of building the training program with the ultimate objective of ensuing organizational growth as well as developing the individuals in the organization.

A good training program should be composed of three elements: (1) improving each individual's skills, knowledge and attitude, (2) contributing to efficiency on the job, and (3) meeting the demands of the organization. There should be a balance between individual interests and goals as well as those of the organization.

This idea was expressed by Planty and others[23] who indicated that training should strive ". . . to build continuously and

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[21]David Korb, "How to Determine Supervisory Training Needs," Personnel, Vol. XXXII, No. 4 (January, 1956), p. 335.

[22]Frank DePhillips, William Berliner and James Cribben, Management of Training Programs (Homewood: Richard D. Irwin, Inc., 1960), p. 24.

[23]Earl G. Planty et al., Training Employees and Managers (New York: Roland Press Company, 1948), p. 25.

systematically to the maximum degree and in proper proportions, that knowledge and those skills and attitudes which contribute to the welfare of the organization and the employee."

If the training process is to be progressive and forward looking, the long-term needs of the individuals and the organization should be reflected in the training program both in terms of projected goals established through job analysis and in light of anticipated expansion programs.

Folley[24] advanced the view that training should be an opportunity to bring about learning. He proposed that the training action should consist of ". . . an overt process, a sequence of experiences, a series of opportunities to learn, in which the trainee is exposed in some more or less systematic way to certain materials or events."

The best form of training takes place when there is a deliberate and systematic effort to plan the program. The end result of training should lead to a modification or change in attitude and behavior of trainees in some discernable ways. However, it should be realized that training cannot solve all employee and organizational problems, but if properly organized, will go a long way in creating a favorable climate for both personnel and organizational growth and development.

The Purpose of Determining Training Needs

A fundamental problem associated with any training design is that of properly determining the training needs of the clientele and building a training program to satisfy these needs.

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[24]John D. Folley, Jr., "The Learning Process," Training and Development Handbook, eds. Craig and Bittel (New York: McGraw-Hill Book Company, 1967), p. 34.

The purpose of need identification, Warren[25] indicated, should be ". . . to provide an organization or system with a clearly defined end product as the objective of developing an action for behavior change."

Johnson[26] advanced four main reasons why in industry, it is essential to identify training needs of workers. He gave the reasons as follows:

1. So that people will be more productive on their jobs and be ready for advancement.

2. Because the success of the enterprise requires that everyone perform at his optimum level. This calls in part for determining and meeting the specific growth needs of each which should be translated into training.

3. Because all "good" people, regardless of organizational level, can do a good job--if they are given the chance. This chance comes through provision by the company of opportunities for a person to improve his knowledge, skill or attitude.

4. Because time, money, and effort can be wasted through training that is not based on valid or emerging needs.

The agricultural extension worker is faced with the problem of keeping up to date with the latest information and most recent developments in agricultural technology. Consequently, he should be provided with a sound technical background in appropriate areas so that he can cope favorably with his responsibilities.

Eugene Staley provided further insight into this problem when he noted that:

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[25] Warren, op. cit., p. 49.

[26] Richard B. Johnson, "Determining Training Needs," Training and Development Handbook, eds. Craig and Bittel (New York: McGraw-Hill Book Company, 1967), pp. 16-88.

> To neglect systematic analysis of needs may result in expensively wasteful efforts to produce the wrong kinds of skills, while really urgent requirements for other types of skills that are so scarce as to constitute bottlenecks in the country's development go unattended.[27]

Developing countries, in particular, are faced with acute shortage of resources for development. They can ill afford any form of wastage. Therefore, there is a greater responsibility for countries like Nigeria to utilize all available resources in the most logical and effective manner. The identification of training needs of extension agents is not only a necessity for Nigeria, but an absolute obligation that should be met.

The purpose of need identification was well summarized by Leagans who stated that:

> . . . needs must always be recognized and dealt with in some form and to some degree. Changes that are important to people are those which help them meet their needs for biological, economic, social, aesthetic, or moral well-being. Basically then, all programs for promoting change exist to help people meet their needs. The element of needs, therefore, becomes a central concern of the Extension Educator. . . . Effective programs are developed by identifying individual and group needs and interests and arranging action that helps meet them.[28]

Methods for Identifying Training Needs

The problem of identifying training needs of extension agents is an extremely difficult task. It is difficult because human needs are very diverse and no one single approach can be wholly successful.

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[27] Eugene Staley, Planning Occupational Education and Training for Development (New York: Praeger Publishers, 1971), p. 20.

[28] Leagans op. cit., pp. 89-90.

Leagans emphasized this difficulty when he observed that:

> Need identification is immensely complex. It is complex because people are complex; their problems and the technology that relates to solutions are complex; their customs and value systems are complex; the economic, social and physical environment giving rise to needs, and in which needs must be met are complex.[29]

This difficulty notwithstanding, the extension educator has an obligation to see that his training program conforms with the real needs of people as indicated by a thorough analysis of existing situations, while recognizing the gap between the actual, the possible and the desirable.

Leagans further stated that "what is" can be determined through a study of the present situation. He went on:

> To be adequate, such facts must be obtained that generally fall into four categories: (1) current trends and outlooks, (2) people (what they think their needs are), (3) physical factors, and (4) public problems and policy . . . "what ought to be" can be determined from research findings and value judgments of lay leaders and extension workers.[30]

Another approach for identifying training needs is the critical incident technique. Williams[31] used this technique to determine the training needs of extension agents in Western Nigeria. The critical incident technique was advanced by Flanagan.[32] He described it as consisting of a set of procedures designed to facilitate the collection

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[29] Ibid., pp. 92-93.

[30] Ibid.

[31] S. K. T. Williams, "Identification of Training Needs of Extension Workers in Western Nigeria as a Basis for Developing a College Training Curriculum" (unpublished Doctor's dissertation, Cornell University, 1967).

[32] J. C. Flanagan, "The Critical Incident Technique," Psychological Bulletin, Vol. LI, No. 4 (July, 1954), p. 327.

of direct observations of human behavior, in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles.

Duncan[33] favored appointing a committee representing all phases of extension and the college (or training institution) to work out procedures for determining training needs. He suggested that the committee can use the "needs or problem inventory" to determine training needs of extension workers. The method may be implemented either through survey questionnaires, or by means of personal or group interview. In either case, the needs inventory form should be prepared by the training committee in a way that it can yield pertinent data and information that will help in determining the training needs of agents.

Traxler[34] also reported studies in industry using the survey technique, but suggested that in order to maximize the effectiveness, it should be used in conjunction with other methods.

The North Central States Workshop in Supervision[35] prepared a list of methods which could be used in identifying training needs:

1. A formal study of the job through analysis.
2. A survey of the training needs.
3. A listing by supervisors of what they feel the training needs to be.

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[33]Duncan, op. cit., p. 33.

[34]Ralph N. Traxler, Jr., "Training Needs Spotted by Attitude Surveys," Personnel, Vol. XXXIV, No. 1 (May, 1957), p. 15.

[35]Report of the North Central States Workshop in Supervision, Middle Management in the Cooperative Extension Service (University of Wisconsin, 1957), p. 80.

4. A review of material, such as workshops, community and special reports on training needs for the job.

5. A review of research and studies from other states with related problems.

6. Ask people who are actually doing the job to indicate what their needs are.

Johnson[36] listed several methods which could be used to determine training needs of employees. They include an analysis of activity, problems, the behavior of people and the organization. He also suggested an appraisal of performance and the use of committees and consultants to determine training needs.

Knowles[37] stated that three sources of needs and interests should be considered in developing training programs:

1. Those of individuals to be served.

2. Those of the sponsoring organization or institution.

3. Those of the community or society at large.

McGehee and Thayer[38] suggested a three-fold approach for analyzing and determining training requirements for an organization:

1. Organizational analysis--determining where within the organization training emphasis can and should be placed.

2. Operations analysis--determining what should be the content of training in terms of what an employee must do to perform a task, job, or assignment in an effective way.

3. Man analysis--determining what skills, knowledge, or attitudes an individual employee must develop if he is to perform the tasks which constitute his job in the organization.

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[36]Johnson, op. cit.

[37]Knowles, op. cit., pp. 91-120.

[38]William McGehee and Paul W. Thayer, Training in Business and Industry (New York: John Wiley and Sons, Inc., 1961), p. 25.

A good training program should not place undue emphasis on organizational objectives, while ignoring the needs of the individuals. A prerequisite for successful extension training would be to identify the specific areas in which agents need to be trained, the topics in which they need and desire training, and the priority which should be established for training at various levels of the extension service.

Limitations of funds and resources, especially in developing countries, and the need for prudent spending makes it imperative that every effort should be made to identify training needs of extension agents and to gear training programs to satisfy priority needs.

Chapter III

REVIEW OF RELATED LITERATURE

The literature in the analysis and determination of training needs of extension agents is quite extensive, especially in the United States and other advanced countries. In Nigeria, very little has been published in this area.

The purpose of this review is to discuss what information is available from Nigeria and elsewhere as it is considered pertinent to the present study. An important distinction between the training of extension workers in most developing countries and the advanced countries has already been indicated. This difference stems from the fact that extension workers in advanced countries are generally graduates of four-year agricultural colleges, while, in developing countries, the extension service is staffed mostly with high school graduates with an additional two or more years of training in technical agriculture and extension education. The training provided in Nigeria is therefore more basic and not confined to induction or in-service education.

Nevertheless, as noted by Higgs:

> In all parts of the world, the needs of the extension men are the same--devotion, understanding of human beings, patience and a good understanding (I advisedly say "understanding" rather than "knowledge") of sociology and social psychology. Surprisingly perhaps, I put technical competence second to these qualities.[1]

Association of Land-Grant Colleges and State Universities identified nine general areas in which they considered extension workers needed competence:[3] (1) The Cooperative Extension Service, (2) Human Development, (3) Program Development, (4) Education Process, (5) Social System, (6) Communication, (7) Philosophy and Values, (8) Technology, and (9) Research and Evaluation.

The National Task Force went further to suggest three main steps for identification of training needs. The steps were:[4]

1. Locating areas of training needs through
   (a) Analysis of job
   (b) Analysis of program emphasis.

2. Identifying the individual workers in need of training through
   (a) Self-surveys of felt needs and interests
   (b) Observation
   (c) Analysis of performance evaluation.

3. Determining priorities in training needs.

Although this procedure deals mainly with in-service types of training, it has equal applicability to pre-service training situations also.

Duncan[5] observed that most training programs, either at the state or area basis, were built around certain problem areas which he diagnosed as:

1. Philosophy, objectives and policies of Cooperative Extension Work.

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[3] National Task Force on Cooperative Extension In-service Training, "An In-service Training Program for Cooperative Extension Personnel," Washington: Federal Extension Service; Division of Research and Training, 1957, pp. 13-14.

[4] Ibid.

[5] James A. Duncan, Training Cooperative Extension Workers: The Coordinated Approach, Cooperative Extension Service, University of Wisconsin (April, 1957), pp. 32-33.

2. Principles, procedures, and organization in county program development.

3. Extension teaching methods and communications.

4. Principles and practices in leadership development to include selection training and functions of volunteer and professional leaders.

5. Methods of dealing with public policy problems in agriculture and home economics.

6. The farm and home unit approach, including basic principles, operational procedures and technical and economic subject matter related to this phase of extension work.

7. 4-H club organization and program techniques.

8. Reporting and evaluating extension results.

9. Technical subject matter in agriculture and home economics such as: (a) Agronomy, (b) Insect control, (c) Livestock, (d) Water systems, (e) Home furnishing, (f) Foods and nutrition, (g) Home management.

10. Economic subject matter such as: (a) Consumer education, (b) Outlook information, (c) Marketing, (d) Credit and farm operating agreement.

Although the broad areas of training are clearly spelled out in greater detail, there are strong similarities with the areas identified by the National Task Force. There is an obvious notion that a conscious process of analysis and a systematic approach at identifying training needs of extension agents of all categories will result in a more fruitful utilization of available resources.

Studies of Training Needs of Extension Agents in the United States

A study conducted by Mount[6] emphasized the importance of studies

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[6]John T. Mount, "Training for Extension Work in Agriculture" (unpublished Master's thesis, University of Wisconsin, 1949), pp. 92-95.

organization and administration, and understanding social systems had the lowest ratings.

She arrived at the conclusion that ". . . wide discrepancies in the ratings assigned to items in importance and educational needs of agents indicate that extension agents may not always be able to identify their needs."

The presumption that extension agents can always identify their training needs may not hold true in all cases. Therefore, some caution is necessary in making interpretations of opinion surveys of agents on their expressed needs for training.

Another study of training needs of agents was made by Kalangi[14] in Ohio. He compared the training needs of agents in urban and farm counties, and concluded that all extension agents, irrespective of their status or situation felt a need for intensive training in areas of the educational process, human development and human relations, program development, and communications. Extension agents in urban counties, he found, expressed greater desire for training in all the areas considered than the farm county extension agents.

Bouchard[15] in a study of all agricultural extension agents in Quebec, compared the training needs of the agents in seven general areas of training which he had identified. He found that the agents

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[14]Christopher J. Kalangi, "An Analysis of Training Needs of Extension Agents in Urban and Farm Counties" (unpublished Doctor's dissertation, Ohio State University, 1963), pp. 160-185.

[15]A. J. Bouchard, "Training Needs of County Agricultural Extension Agents in Quebec, Canada" (unpublished Doctor's dissertation, Ohio State University, 1966), p. 232.

indicated the greatest amount of need for training, in order of priority, in the areas of (1) program planning, (2) psychological and educational principles, (3) performance of educational activities, (4) research and evaluation, (5) knowledge about extension service, (6) social knowledge, and lastly (7) technical subject matter. The agents indicated the least need for training in the technical subject matter.

Studies of Training Needs of Extension Agents in West Africa

A significant study of the training needs of extension workers in Nigeria was conducted by Williams[16] in 1967. Using the critical incident technique, Williams isolated as many as "502 behaviors comprising 365 effective and 137 ineffective elements" from extension administrators, and extension agents of professional, technical and village level grades. He classified the behaviors into five major categories according to the most important functions of extension workers in Western Nigeria. These were:

1. Creating appropriate teaching-learning situations for clientele.
2. Planning, organizing and implementing extension programs and projects.
3. Demonstration of interpersonal relationships with staff members within agency and with outside agencies.
4. Working with groups of clientele.

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[16] S. K. T. Williams, "Identification of Training Needs of Extension Workers in Western Nigeria as a Basis for Developing a College Training Curriculum" (unpublished Doctor's dissertation, Cornell University, 1967), pp. 122-126.

5. Conducting and organizing training programs for co-workers and clientele.

Williams concluded from this study that the extension worker in Western Nigeria required training in the areas of social and behavioral sciences in addition to technical agriculture. His conclusion supported findings from similar studies in the United States, and he identified eleven specific subject areas in which extension workers in Western Nigeria needed training. These were listed as follows:

1. Teaching-learning theory
2. Program planning procedure
3. Social system, leadership selection and social action process
4. Planned change and change process
5. Principles of human relations
6. Theory of motivation
7. Communication process
8. Theory and practice of administration
9. Theory or organization
10. Nature and importance of training
11. Technical training related to agriculture

According to Williams, program planning procedure was the most important area of training need, followed by staff relationships within agency and with outside agencies and thirdly, the teaching-learning situation. Williams stressed the importance of a "thorough knowledge of technical subject matter in agriculture as a first basis for effectiveness in extension work."

Gyamfi,[17] in a recent study, surveyed the opinions held by a group of agricultural assistants and their senior officers, regarding specific aspects of the intermediate level training of extension workers at the Kwadaso Agricultural College in Ghana. He listed the specific aspects of training studied as:

1. The extent to which the agricultural assistants considered the subjects they studied at Kwadaso valuable to the work assigned to them.

2. The extent to which the agricultural assistants considered the quantity of material covered in the subjects adequate for the work assigned to them.

3. The extent to which the agricultural assistant found each subject interesting.

4. The extent to which the agricultural assistants found each subject difficult.

5. The extent to which the agricultural assistants considered the training they received at Kwadaso adequate in the areas of: basic agricultural knowledge or skill supervision of labor, social adjustment, and the ability to communicate ideas to others.

6. The extent to which the supervising senior officers considered the Kwadaso subject important to the work which they had assigned to their charges--the agricultural assistants.

7. The performance of the agricultural assistants, as rated in the areas of: basic agricultural knowledge, supervision of labor, social adjustment, ability to communicate, and readiness to take responsibility.

Gyamfi concluded from his findings that there was a general agreement between the opinion of the agricultural assistants and their superiors on the importance of the subjects taught at the college. He

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[17] Kwame Gyamfi, "Curriculum Guide for the Kwadaso Agricultural College, Ghana, Based on Opinion Survey of Specified Aspects of the Curriculum" (unpublished Master's report, Kansas State University, 1971), pp. 130-132.

also found that the subjects which appeared more interesting to the agricultural assistants were also most valuable to their work and at the same time least difficult.

The entire literature review has focused attention on the primary function of extension workers, which is generally accepted as educational. The function of the extension worker was to provide strong educational leadership to individuals and groups by helping them to obtain some desirable change which they themselves have identified.

Role Behavior of Extension Agents

Quinn and Boone[18] provide further insight on the role of the extension worker and the professional competencies which he needed in order to perform his role adequately. They identified ten major dimensions of the agents' educational role:

1. The Extension worker is an organizer and planner.
2. The Extension worker is a teacher.
3. The Extension worker is an interpreter of research findings.
4. The Extension worker is an educational consultant.
5. The Extension worker is an educational catalyst--he is responsible for providing an important share of the information on which people can make more rational and effective judgments about issues affecting their welfare.
6. The Extension worker is an educational spokesman of the Land-Grant Institution and the United States Department of Agriculture--he has responsibility for informing the public about the programs and activities of these agencies.

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[18]Emily H. Quinn and Edgar J. Boone, "Raising Our Professional Sights in Extension," Adult Education, Vol. XV, No. 1 (Autumn, 1964), pp. 23-24.

7. The Extension worker is a liaison person--transmitting problems and needs of people to research and resident teaching staff and helping people interpret and apply research findings to real-life problems.

8. The Extension worker is a developer of leaders.

9. The Extension worker is an educational statesman--with primary responsibility for establishing and maintaining good working relationships with all government and private agencies and organizations operating at the national, state, county and local levels.

10. The Extension worker is an evaluator--he has to continually appraise the effectiveness of his efforts and the Extension Service in affecting desirable changes among the people.

Having designated these major roles which extension workers are expected to fulfill, Quinn and Boone proceeded to identify the main professional competencies needed by extension workers in order to accomplish their functions satisfactorily. The competencies they identified were:[19]

1. The Extension worker needs to understand the Cooperative Extension Service, its objectives, organization and relationship to the Land-Grant Institution.

2. The Extension worker needs to know and understand technical subject matter appropriate to his needs and the needs of the people with whom he works.

3. The Extension worker needs to know and understand the principles and processes of programming and to have a high degree of proficiency in applying these concepts.

4. The Extension worker needs to know and understand the principles of learning and teaching and to have a high degree of proficiency in applying these principles.

5. The Extension worker needs to understand and have a high degree of proficiency in the communication process.

6. The Extension worker needs to know and understand what is known about the structure and dynamics of human society.

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7. The Extension worker needs to understand the human development process and maintain a high degree of skill of human relations.

8. The Extension worker needs to understand the principles of management and maintain a high degree of proficiency in applying these principles.

9. The Extension worker needs to keep informed about current issues and problems confronting people, and to be proficient in discussing them in an objective and informative manner with groups.

10. The Extension worker needs to know and understand the principles of administration and supervision.

11. The Extension worker needs to know and understand and be proficient in applying the principles and techniques of evaluation.

Summary

What seems most noteworthy is the rather unanimous agreement about the role and functions of the extension worker and the type of training most suitable for accomplishing his unique roles. Institutions engaged in training extension workers must appreciate the variety and changing roles of the agent and make adjustments in course content to increase proficiency on the job. This involves providing adequate training in technical subject matter as well as in the social, psychological and educational areas.

The rapidity of technological change and the ever changing conditions of problems in rural communities in which extension agents operate make the issue of determination of training needs a more difficult task.

Even though there have been dramatic achievements in studies of training needs in more advanced countries which could provide valuable guidelines for similar studies in developing countries, the rather

unique characteristics of extension operations and the training programs only go to emphasize the importance and need for intensive and continuous efforts to develop more appropriate criteria for diagnosing the training needs of extension workers in developing countries.

Chapter IV

METHODOLOGY

Different approaches have been used in doing research on training needs of extension agents. However, there has been a preponderance of the survey questionnaire in this type of study.

McCormick,[1] Price,[2] Clark[3] and many others used survey questionnaires based on the areas of competence identified by the National Task Force on In-Service Training to analyze the training needs of extension agents in the United States. Applying a different approach, Williams[4] used the critical incident technique to identify the training needs of extension workers in Western Nigeria.

The variations and differences in questionnaires used to study training needs of extension agents reflect differences in objectives, situational factors, and characteristics of the population under study.

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[1]Robert W. McCormick, "An Analysis of Training of County Extension Agents in Ohio" (unpublished Doctor's dissertation, University of Wisconsin, 1959).

[2]Randel K. Price, "An Analysis of Educational Needs of Arkansas Extension Agents" (unpublished Doctor's dissertation, University of Wisconsin, 1960).

[3]H. E. Clark, "An Analysis of the Training Needs of Wisconsin County Extension Personnel" (unpublished Doctor's dissertation, University of Wisconsin, 1960).

[4]S. K. T. Williams, "Identification of Training Needs of Extension Workers in Western Nigeria as a Basis for Developing a College Training Curriculum" (unpublished Doctor's dissertation, Cornell University, 1967).

None of the instruments used in the other studies reviewed had direct application and suitability for this study. The instruments were inappropriate because of the educational level of the junior extension workers in northern Nigeria, the functions which they perform, and the nature of the training program at the Schools of Agriculture in Nigeria. It was therefore necessary to develop a questionnaire which was applicable to local conditions in the six northern states of Nigeria. The writer, however, drew from the experiences of McCormick and Kalanji[5] in preparing the questionnaire for this study.

Developing the Questionnaire

The literature, including the study by Williams, indicated that different groups of extension workers considered seven main areas of training essential for successful job performance. Based on these seven areas and the curriculum of study for the agricultural assistant course at the Schools of Agriculture in northern Nigeria, a survey questionnaire was developed. The seven broad areas of training were as follows:

1. Agricultural extension philosophy, organization, and administration
2. Sociological factors
3. Educational process and human development
4. Program planning
5. Communications in extension

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[5]Christopher J. Kalangi, "An Analysis of Training Needs of Extension Agents in Urban and Farm Counties" (unpublished Doctor's dissertation, The Ohio State University, 1963).

6. The use of research methods and evaluation in extension programs
7. Technical knowledge in agriculture

Two instruments were used to obtain data for the study. The first was designed for responses from the junior staff, and the second was for the senior staff. Both instruments were essentially similar except for the second page which requested for personal information about individual respondents. This page differed slightly in the two instruments because of differences in the background of the two groups.

The rest of the questionnaire was divided into five main sections:

Sections I-III were intended to obtain responses on the seven areas of study identified. The three sections contained 126 items.

Section IV was concerned with identifying the main functions of extension workers in the six northern states.

Section V dealt with major problems of extension in the northern states of Nigeria.

Each questionnaire contained 179 items. In each of the seven areas of training, agents were requested to indicate "To what extent training should be provided in each area." The agents could express their opinion about the need for training as: "very much" needed, "much" needed, "somewhat" needed, "little" needed or "not" needed. On the duties of extension workers, agents were asked to indicate how important they felt the duties listed were in relation to their work.

They could indicate their opinion as: "very important," "quite important," "some importance," "little importance," or "no importance." In Section V, agents were asked to indicate how serious they considered a number of problems to be in terms of hindering their job performance and in limiting the progress of extension. They were asked to indicate their opinion as: "very serious," "serious," "somewhat serious," or "not serious." Respondents were provided with additional space in each section to add other needs they felt were significant, but which were not included in the questionnaire. (Appendices A and B show further details of the questionnaires.)

Pre-testing of the Questionnaire

The draft questionnaire was first pre-tested on Nigerian graduate students majoring in Agricultural Education at Kansas State University. The students had considerable experience in both the extension service in northern Nigeria and in the Schools of Agriculture where they had been instructors. The pre-testing led to some modification of the instrument in respect to content and clarity of the questions.

Twelve of the revised draft questionnaires were air mailed to the Principal of the School of Agriculture at Kabba who again pre-tested them with extension workers who had recently been admitted into the School for the Assistant Agricultural Superintendent course. This second pre-testing resulted in further modifications made to simplify some terminology and to improve the understanding of the content and procedure for completing the questionnaire.

The revised version was circulated to members of the graduate advisory committee for suggestions in improving the instrument. The committee's approval was obtained before final copies were duplicated.

Selection of Respondents

All extension workers holding the rank of agricultural assistant and above who were employed in the six northern states at the time of the study with assignment for extension duties, were potentially available for inclusion in the study groups.

Because of physical handicaps, accentuated by poor transportation and communication facilities in northern Nigeria, it was not possible to reach the majority of extension workers in the six northern states. For the junior staff, stratified samples of approximately 25 percent of the extension workers from widely diversified geographic locations were taken. Samples were selected from 13 provincial centers in the six northern states. Only agricultural assistants who had a minimum of one year of field experience after completion of training at one of the Schools of Agriculture were requested to complete the junior staff questionnaires, along with some assistant agricultural superintendents. The necessity for a selected sample in experience surveys was justified by Selltiz et al., who commented that ". . . it is a waste of time and effort to interview people who have little competence, or little relevant experience, or who lack ability to communicate their experience."[6] This limitation reduced the potential population available to about 900 from a possible number of 1077 agents.

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[6]Claire Selltiz et al., Research Methods in Social Relations (New York: Holt, Rinehart and Winston, Inc., 1959), pp. 55-56.

Because of the rather small number of senior officers as compared to the junior staff, concerted efforts were made to obtain responses from the majority of senior officers assigned extension responsibilities. There were 192 senior staff potentially available for the study.

It was not possible in the circumstances of the study to ensure a random sample selection. In view of the lack of an extension staff list of any kind in the six states, a table of random numbers could not be used to select the required sample. However, a projection was made on the junior staff number who should answer the questionnaire at each location to meet sample requirements. It was recommended that the simple procedure advocated by Borg[7] for obtaining an approximately random sample be used. This involved placing the names of each individual in a container and drawing the required number of names of respondents.

The actual procedure used in selecting the sample of the junior staff was controlled by the writer's former colleagues who were subject-matter specialists at Ahmadu Bello University, Zaria. The specialists were responsible for administering the questionnaires to extension workers in Nigeria. Tables 1 and 2 indicate the distribution of potential and actual respondents by states.

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[7]Walter R. Borg, Educational Research, An Introduction (New York: David McKay Company, Inc., 1967), p. 169.

TABLE 1

NUMBER OF JUNIOR STAFF RESPONDENTS

State	Potential Population	Potential Sample	Actual Number of Respondents	Percent of Response
Benue-Plateau	157	45	45	100
Kano	64	15	12	80
Kwara*	190	48	17	36
North-Central	210	50	24	48
North-East	204	60	60	100
North-West	252	62	31	50
Total	1,077	280	189	67.5

*Data were collected from only Assistant Agricultural Superintendents with a total population of 30.

TABLE 2

NUMBER OF SENIOR STAFF RESPONDENTS

State	Potential Population	Actual Number of Respondents	Percent
Benue-Plateau	24	16	66.6
Kano	27	8	29.6
Kwara	32	19	59.3
North-Central	20	9	45.0
North-East	39	26	66.6
North-West	50	18	36.0
Total	192	96	50.0

Collection of Data

A total of 300 junior staff and 200 senior staff questionnaires were sent by air freight on June 5, 1972 to the Deputy-Director of Extension at Ahmadu Bello, University, Zaria, Nigeria.

All the data for the study were collected in group sessions. Data from Kano, Kwara, and North-East states were collected by extension specialists in July and August, 1972, during the mid-season in-service training meetings of extension workers in the three states. The completed questionnaires were sent back to the writer at the end of August, 1972.

Data from the remaining three states--Benue Plateau, North-Central and North-West, were collected by the same specialists during the in-service training meeting of the states in October, 1972. These questionnaires were sent by air freight to the writer in November, 1972.

Both the junior and senior staff questionnaires were administered at the same in-service training meetings. Special time was allocated at each meeting for the agents to complete the questionnaires. The purpose of the questionnaires was explained, and detailed instructions for completing them were given by the extension specialists. Approximately one hour was allowed for completing the questionnaires, which were collected from the agents soon after they were completed. Because of difficulties in mailing, data for the study were collected only from extension personnel who were present when the questionnaires were administered at each of the training meetings.

The questionnaires returned represent 67.5 percent of the junior staff sample and 50 percent of the senior staff. This was a satisfactory return considering the physical barriers which had to be overcome in undertaking the study.

Analysis of Data

Information recorded on the questionnaires completed by junior and senior extension personnel in the northern states of Nigeria was pre-coded and the data were punched on IBM cards. Tabulation and subsequent analysis of data were performed at the Computer Center at Kansas State University.

Respondents in the study were asked to express their opinion about the need for extension agents' training in specific subject areas. These areas, expressed on a scale portraying five categories of needs, were weighted by assigning numerical values. A value of five was assigned to the category of "very much" training needed, a value of four to "much" training needed, a value of three to training "somewhat"

needed, a value of two to "little" training needed and a zero for cases where there was missing information or no response. An equal interval was assumed between each of the categories of training need. A similar system was used in assigning numerical values to all other sections of the questionnaire.

The number of respondents in each of the items was multiplied by the values assigned in each category of training. The product was divided by the total number of respondents to each scale of value. The result represented weighted mean scores for agents in each of the items of training. It was the weighted mean scores so derived that were used in analyzing the data for this study.

The purpose of the analysis was to test three main hypotheses:

1. That there were no differences in the training needs of extension agents as perceived by junior and senior extension personnel.
2. That there were no differences in the opinions of various tenure groups on the training needs of extension agents.
3. That there were no differences in the opinions of respondents based on differences in their educational background, on the training needs of agents.

In addition to these hypotheses, the opinions of extension personnel on the training needs of agents in selected areas of training and related extension questions were compared by states.

The hypothesis of no difference between the responses of junior and senior extension staff was tested by using the "Student's" t-test statistic to compare the weighted mean scores for the two groups on

related items of training and other extension questions. The t-test was calculated from the formula:[8]

$$t = \frac{M_1 - M_2}{S_{M_1-M_2}} \; ; \quad \text{where } df = n_1 + n_2 - 2.$$

And:
$$S_{M_1-M_2} = \sqrt{\frac{SS_1 + SS_2}{n_1 + n_2 - 2} \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

In the above formula:

M_1 = mean score for items rated by junior staff

M_2 = mean score for items rated by senior staff

$S_{M_1-M_2}$ = difference between standard error of means for the two groups

df = degrees of freedom

SS_1 = sum of squares for junior staff

SS_2 = sum of squares for senior staff

n_1 = number of junior staff respondents

n_2 = number of senior staff respondents.

The Chi-square statistic was used to determine statistical significance of association between personal characteristics of respondents such as tenure and educational background and their opinion about training needs of agents. The Chi-square was calculated from the following formula:[9]

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[8]John T. Roscoe, Fundamental Research Statistics for Behavioral Sciences (New York: Holt, Rinehart and Winston, Inc., 1969), pp. 166-167.

[9]Ibid., pp. 197-198.

$$X^2 = \Sigma \frac{(O - E)^2}{E}$$

where X^2 = Chi-square

O = observed frequencies

E = expected frequencies

The degrees of freedom were calculated from the formula:

$$df = (r - 1)\ (c - 1)$$

where r = number of rows

c = number of columns

The probability level $P < .05$ was used as a basis for accepting or rejecting the hypotheses. The abbreviation "ns" was used to indicate a situation in which no significant differences were found. Where there was a significant difference in responses, the probability level of significance was indicated.

In addition to the statistics outlined above, some of the data were reported as weighted mean scores, rank orders, and as descriptive narratives.

Summary

The account in this chapter describes the method used in collecting the data for the study. Information about the training needs of extension agents in the northern states of Nigeria was obtained by means of survey questionnaires which were administered to experienced agents in the states by specialists at Ahmadu Bello University, Zaria.

Data collected were pre-coded on IBM cards and analyzed at the Kansas State University Computer Center. Three main hypotheses were tested, the results of which are reported in the next three chapters.

Chapter V

TRAINING NEEDS OF EXTENSION AGENTS IN THE SEVEN GENERAL AREAS OF COMPETENCY

This chapter is based on an analysis of the opinions expressed by extension personnel on the training needs of potential agents in the northern states of Nigeria within the seven general areas of competency.

In order to characterize the opinions of all respondents, weighted mean scores for each of the training areas were computed for the entire sample. The mean scores were ranked to determine the highest and lowest training needs.

Opinions of agents concerning the importance of training needs were compared by status, tenure, and educational background. These three variables were classified as follows:

A. Status
   1. Junior staff
   2. Senior staff

B. Tenure (Experience)
   1. 0 to 4 years
   2. 5 to 9 years
   3. 10 years and over

C. Agricultural Training (Education)
   1. Agricultural Assistant (AA)

2. Assistant Agricultural Superintendent or Diploma (AAS)

3. University graduate (B.S. degree)

The "Student's" t-test was used to compare the significance of difference between weighted mean scores for each area of training by junior and senior staff.

The Chi-square statistic was used to analyze responses by tenure and by agricultural training. In both of these, only situations where there were significant findings in responses were reported.

In addition to the analysis enumerated above, the responses of extension personnel in the general areas of training were compared by states. The weighted mean scores were computed as previously discussed and the values arranged in rank order. These were compared by states.

Opinion of All Extension Personnel in the Seven General Areas of Training

The responses of all extension personnel in the seven identified areas of training are shown in Table 3.

The seven areas were rated from a mean of 3.96 to 4.64. A mean score of 4.0 or higher indicated a training need which was "quite" or "very" important. Since the scale ranged from one to five, the lowest rating of 3.96 was relatively high on the scale.

The three areas ranked as most important for the training of potential extension workers by all respondents were these:

1. Technical knowledge in agriculture
2. Agricultural extension philosophy, organization, and administration
3. Communications in extension

TABLE 3

TRAINING NEEDS OF AGENTS IN THE SEVEN GENERAL AREAS OF TRAINING, IN THE OPINION OF EXTENSION PERSONNEL
N = 285

General Areas of Training	Weighted Mean	Rank Order
Technical knowledge in agriculture	4.64	1
Agricultural extension philosophy, organization, and administration	4.60	2
Communications in extension	4.55	3
Program planning	4.46	4
The use of research methods and evaluation in extension programs	4.35	5
Educational process and human development	4.00	6
Sociological factors	3.96	7

The areas next in order of importance were program planning, research methods and evaluation, and educational process and human development. The sociological factor area was rated lowest by all the respondents.

This response may be explained by virtue of the fact that technical agriculture and agricultural extension still constitute the most important areas of need for the training of extension agents in a country dependent on subsistence agriculture. The newly recruited extension agents have no basic foundation in agriculture. Therefore, it was essential that they should be well trained in the technical subject area which form the basis for the teaching of farmers. The high rating of communications by extension staff may indicate a feeling

that the successful performance of the job of agents depended largely on the ability to communicate with farmers.

Responses of Junior and Senior Staff in the Seven General Areas of Training

The opinions of junior and senior extension staff on the seven general areas of training are compared in Table 4.

The junior extension staff indicated highest training needs for potential agents in the three areas listed below:

1. Technical knowledge in agriculture
2. Agricultural extension philosophy, organization, and administration
3. Communications in extension

The two areas which received the lowest rating by junior extension staff were educational process and human development, and sociological factors.

The senior extension staff rated the following three areas highest:

1. Agricultural extension philosophy, organization, and administration
2. Technical knowledge in agriculture
3. Communications in extension

The three areas were very close in the priority ratings of senior staff. As with the junior staff, the senior staff had slightly lower ratings for educational process and human development. Sociological factors was rated last by both groups.

TABLE 4

OPINION OF JUNIOR AND SENIOR STAFF IN THE SEVEN GENERAL AREAS OF TRAINING COMPARED

General Areas of Training	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
Technical knowledge in agriculture	4.63	1	4.67	2	-0.58	275	ns
Agricultural extension philosophy, organization, and administration	4.55	2	4.69	1	-1.65	271	ns
Communications in extension	4.52	3	4.61	3	-1.04	275	ns
Program planning	4.43	4	4.49	4	-0.74	273	ns
The use of research methods and evaluation in extension programs	4.39	5	4.28	5	1.07	275	ns
Educational process and human development	3.96	6	4.09	6	-1.17	274	ns
Sociological factors	3.89	7	4.07	7	-1.60	272	ns

*Two-tailed test $P < .05$, $t \geq 1.96$

Both junior and senior staff rated all of the seven areas of training very high, indicating that they considered them all important in the training of extension agents. The junior staff ratings ranged from a mean of 3.89 to 4.63 while the senior staff gave the lowest rating of 4.07 and the highest of 4.67.

Senior extension staff indicated a slight preference for agricultural extension philosophy, organization, and administration over technical knowledge in agriculture. This suggested that senior officers showed more concern for extension organization and administration. Both junior and senior staff rated communications quite high, 4.52 and 4.61 respectively.

There was no significant difference, based on the t-test, between responses of the two groups in the seven general areas of training. This indicates almost identical views between the junior and senior extension staff on competencies needed by agents. Based on the high mean scores, there was little doubt about their opinion of the importance and relevance of the seven areas to the training of extension workers.

Training Needs in the Seven General Areas by Tenure Groups

In only one of the seven general areas of training was there a significant difference in the responses of extension personnel based on tenure.

Data in Table 5 indicate a significant difference at the .05 level between tenure groups in the area of educational process and human development.

TABLE 5

EDUCATIONAL PROCESS AND HUMAN DEVELOPMENT COMPARED BY TENURE

Years of Tenure	Degree of Importance in Percent					Number of Agents
	Very	Quite	Some	Little	Not	
0-4	24.7	41.1	24.7	8.2	1.4	73
5-9	23.7	48.4	25.8	2.2	0.0	93
10 and over	36.4	50.9	10.0	1.8	0.9	110

$X^2 = 19.41$, Significant at .05 level.

The longer the tenure of extension agents, the higher their rating of educational process and human development as a training need. In approximate terms, this subject was considered "quite" or "very" important by nearly two-thirds of those with 0-4 years tenure, by over seven out of ten with 5-9 years and by nearly nine out of ten of those who had been extension agents 10 or more years.

Training Needs in the Seven General Areas by Agricultural Background

There were significant differences in the responses of extension personnel in three areas as a result of differences in educational training. The three areas were these:

1. Educational process and human development
2. Program planning
3. Research and evaluation

Data in Table 6 show a significant difference at the .05 level in the opinions of agents according to their agricultural background.

TABLE 6

EDUCATIONAL PROCESS AND HUMAN DEVELOPMENT COMPARED BY AGRICULTURAL TRAINING

Agricultural Training	Degree of Importance in Percent					Number of Agents
	Very	Quite	Some	Little	Not	
AA	29.9	44.3	21.3	3.4	1.1	174
AAS/Diploma	34.3	55.7	10.0	0.0	0.0	70
BS	5.0	55.0	35.0	5.0	0.0	20

$X^2 = 15.99$, Significant at .05 level.

Assistant agricultural superintendents rated this training area much higher than did the other two groups. There was a progressive increase in the need for training expressed by both agricultural assistants and B.S. graduates. The former indicated more need in this area than the latter. About 5 percent of agricultural assistants and B.S. graduates who responded felt it was "little" or "not" important, whereas none of the assistant agricultural superintendents rated it so low.

The responses of agents in program planning is shown in Table 7. There was a significant difference at the .005 level between the groups. There was indication that of the three groups, assistant agricultural superintendents felt the highest need for training in program planning, closely followed by agricultural assistants. Although a majority (85 percent) of B.S. graduates indicated that program planning was important, a higher proportion of them than in the other two groups indicated less importance in the area.

TABLE 7

PROGRAM PLANNING COMPARED BY AGRICULTURAL TRAINING

Agricultural Training	Degree of Importance in Percent					Number of Agents
	Very	Quite	Some	Little	Not	
AA	51.7	39.0	9.3	0.0	0.0	172
AAS/Diploma	66.2	31.0	2.8	0.0	0.0	71
BS	25.0	60.0	10.0	5.0	0.0	20

X^2 = 23.82, Significant at .005 level.

Data in Table 8 indicate a significant difference in the responses of extension personnel at the .01 level in the area of research and evaluation in relation to their agricultural training. B.S. graduates indicated a relatively lower need for training of staff in this area than either agricultural assistants or assistant agricultural superintendents. About one-third of them considered it

TABLE 8

RESEARCH AND EVALUATION COMPARED BY AGRICULTURAL TRAINING

Agricultural Training	Degree of Importance in Percent					Number of Agents
	Very	Quite	Some	Little	Not	
AA	54.0	33.3	9.2	2.9	0.6	174
AAS/Diploma	49.3	46.5	4.2	0.0	0.0	71
BS	20.0	45.0	25.0	10.0	0.0	20

X^2 = 20.74, Significant at .01 level.

only of "some" or "little" importance. Thirteen percent of the agricultural assistants and 4 percent of the assistant agricultural superintendents rated it this low. Those with assistant agricultural superintendent background rated training in research and evaluation highest. Nearly 96 percent felt it was "quite" or "very" important.

Responses of Extension Personnel in the Seven General Areas of Training by States

The opinions of the respondents as to the training needs of potential extension workers in the seven general areas of training are compared by states in Table 9. Respondents from Benue-Plateau state rated agricultural extension philosophy, organization and administration, first; communications in extension, second; and program planning, third, in order of priority as the three areas in which extension agents needed the most training. These three were closely followed by technical knowledge in agriculture.

Kano state respondents differed only very slightly from Benue-Plateau by rating program planning second. Communications and technical knowledge in agriculture tied for third place.

Both Kwara and North East state staff had identical views on the training needs of extension agents in the seven areas of training. The three most important areas rated by these two states were technical knowledge in agriculture, communications in extension, and agricultural extension philosophy, organization, and administration.

North Central and North Western state respondents rated technical knowledge in agriculture and agricultural extension philosophy, organization, and administration in the first two places. North West rated program planning instead of communications as a third choice.

TABLE 9

IMPORTANCE OF THE SEVEN GENERAL AREAS OF TRAINING, IN THE OPINION OF EXTENSION PERSONNEL, BY STATES

General Areas of Training	Benue-Plateau N = 61		Kano N = 20		Kwara N = 36		N. Central N = 33		N. East N = 86		N. West N = 49	
	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank
Agricultural extension philosophy, organization and administration	4.71	1	4.75	1	4.67	3	4.72	2	4.41	3	4.59	2
Communications in extension	4.64	2	4.60	3.5	4.69	2	4.59	3	4.42	2	4.53	4.5
Program planning	4.53	3	4.65	2	4.56	4	4.28	5	4.33	4	4.54	3
Technical knowledge in agriculture	4.51	4	4.60	3.5	4.86	1	4.75	1	4.52	1	4.80	1
The use of research methods and evaluation in extension program	4.37	5	4.30	5	4.33	5	4.41	4	4.24	5	4.53	4.5
Educational process and human development	3.90	6.5	4.05	6	4.03	7	4.22	6	3.86	7	4.18	6
Sociological factors	3.90	6.5	3.63	7	4.12	6	4.19	7	3.95	6	3.90	7

In general, technical knowledge in agriculture and agricultural extension philosophy, organization, and administration were rated as the two most important training areas which were of major concern to extension workers. The next most important areas, by rank, were communications, program planning, and the use of research methods and evaluation in extension programs. There was almost unanimous agreement in the ratings for the lowest two areas: educational process and human development, and sociological factors.

Summary

The results presented in this chapter indicate no major philosophical differences between the junior and senior staff in their opinions about the training needs of agents in the seven general areas of training.

Technical knowledge in agriculture and agricultural extension were major areas in which the extension staff felt the greatest amount of training was needed.

The importance shown in communications in preference to program planning would indicate that respondents perceive the work of extension agents in the northern states as being to a great extent one of disseminating technical information in agriculture to farmers, rather than as initiators of programs. Therefore, the importance of program planning as an essential element in the educational process notwithstanding, it may not be as important an aspect in the work of extension agents in northern Nigeria.

The need for training in research and evaluation was rated next in order of importance, followed by educational process and human

development. Sociological factors received the lowest rating by both groups.

When the responses of extension personnel were compared by tenure, only the opinion on educational process and human development differed significantly. Agents with longer tenure indicated the greatest need for training in the area.

In the three general areas where there were significant differences by agricultural training, there were clear indications that assistant agricultural superintendents and agricultural assistants felt a higher need for training in all areas. It could be inferred from the data that B.S. graduates felt a comparatively lower need for training of staff in all three areas, although they still felt that all areas were important.

There was greater diversity of opinion when the seven areas of training were compared by states. Four states ranked technical knowledge in agriculture as the area with the greatest need for training. This was the highest rating for any subject area. Agricultural extension philosophy, organization, and administration was ranked first, second, and third by each of two states. Communications was ranked second by three states while only one state ranked program planning in second place.

Most states ranked research and evaluation in fifth place, while educational process and human development was ranked sixth by four states. This was closely followed by sociological factors, which was ranked seventh place by three states.

In general the states followed a similar sequence as the junior and senior staff in ranking the seven general areas of training. It was noteworthy that all seven areas were highly rated by the respondents. This implied that all the areas were important in the training of extension agents. Some of the differences brought out in this chapter should be helpful in determining where emphasis should be placed in planning training programs for extension staff in the six northern states of Nigeria.

Chapter VI

SPECIFIC TRAINING NEEDS OF EXTENSION AGENTS IN THE SEVEN GENERAL AREAS OF COMPETENCY

In this chapter, an analysis of specific training needs of extension agents in the seven general areas of competency is presented. The seven general areas are these:

1. Agricultural extension philosophy, organization, and administration
2. Sociological factors
3. Educational process and human development
4. Program planning
5. Communications
6. Research and evaluation
7. Technical knowledge in agriculture

The analysis consists of four parts. In the first part, weighted mean scores for the total sample were computed for each item of training. The mean scores for items in each general area were ranked from the highest to lowest scores.

The second analysis involved a statistical comparison of the mean scores in each item of training by junior and senior staff, using the "Student's" t-test to determine the significance of difference. A positive t-value indicated a higher mean score by junior staff, and a negative t-value represented a higher mean score by senior staff. The

five percent probability level was used for accepting or rejecting the hypothesis of no difference between the means.

The third analysis consisted of comparing the responses of extension staff by tenure. The Chi-square statistic was used to determine the significance of difference between tenure groups. The data reported here represent items in which there were significantly different responses between the groups.

The final analysis in this chapter was a Chi-square comparison of all items based on agricultural training of respondents. As in the previous test, only items showing statistically significant differences were reported.

AGRICULTURAL EXTENSION PHILOSOPHY, ORGANIZATION, AND ADMINISTRATION

Responses of All Extension Staff

The relative need for training in agricultural extension philosophy, organization, and administration as viewed by all extension staff is shown in Table 10.

The means for the twelve specific training areas ranged from a low of 3.90 to a high of 4.68. This indicated that agents felt a considerable need for training in all the topics listed.

The three areas which were ranked as being most important for the training of agents were:

1. The role and functions of extension workers
2. Organization of extension in Nigeria
3. Philosophy and objectives of extension service; and the functions of the Extension Demonstration Unit (E.D.U.).

TABLE 10

TRAINING NEEDS OF AGENTS IN AGRICULTURAL EXTENSION PHILOSOPHY, ORGANIZATION, AND ADMINISTRATION, IN THE OPINION OF EXTENSION PERSONNEL
N = 285

Specific Training Area	Weighted Mean	Rank Order
The role and functions of extension workers	4.68	1
Organization of extension in Nigeria	4.46	2
Philosophy and objectives of the extension service	4.40	3.5
The functions of Extension Demonstration Unit (EDU)	4.40	3.5
The functions of Extension and Research Liaison Section (ERLS) and the role of extension specialists	4.34	5
Administration of local extension programs	4.33	6
Government procedure and conditions of service	4.32	7
The functions of divisional officers and extension area supervisors	4.26	8
Administrative structure of Ministries of Natural Resources	4.10	9.5
Organization of Agricultural research in Nigeria	4.10	9.5
History of extension education in Nigeria	3.99	11
Relationship of extension service with other organizations and agencies	3.90	12

The three areas indicated as having the least training need were these:

1. Organization of agricultural research in Nigeria
2. History of extension education in Nigeria
3. Relationship of extension service with other organizations and agencies

The data indicated that although extension workers felt the greatest need for training in their role and functions, they also considered that training in organization of extension in Nigeria and in general extension philosophy and objectives were very important. They indicated a lesser need for training in the history of extension and relationships with other organizations and agencies.

Junior and Senior Staff Responses Compared

Data in Table 11 show that junior and senior extension staff had some differences of opinion about the training needs of extension agents in the area of agricultural extension philosophy, organization, and administration.

The three items in which the junior staff felt the greatest amount of training was needed, in rank order, were:

1. The role and function of extension workers
2. Organization of extension in Nigeria
3. Organization of Extension Research Liaison Section (ERLS) and role of extension specialists

The senior staff ranked the three most important items of training in order of preference as:

TABLE 11

TRAINING NEEDS OF AGENTS IN AGRICULTURAL EXTENSION PHILOSOPHY, ORGANIZATION, AND ADMINISTRATION, BY JUNIOR AND SENIOR STAFF

Specific Training Area	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
The role and functions of extension workers	4.65	1	4.74	1	-1.16	282	ns
Organization of extension in Nigeria	4.47	2	4.47	5	-0.01	280	ns
The functions of ERLS and role of specialists	4.38	3	4.27	7	1.04	282	ns
The functions of extension demonstration units (EDU)	4.36	4	4.48	4	-1.30	282	ns
Government procedure and conditions of service	4.35	5	4.24	8	1.02	276	ns
Philosophy and objectives of the extension service	4.34	6	4.63	2	-2.79	279	.01
Administration of local extension program	4.25	7	4.49	3	-2.34	277	.05
The functions of division officers and area extension workers	4.24	8	4.33	6	-0.80	281	ns
Administrative structure of Ministries of Natural Resources	4.16	9	4.05	11	0.93	282	ns
Organization of agricultural research in Nigeria	4.08	10	4.14	10	-0.48	275	ns
History of extension education in Nigeria	3.96	11	4.03	12	-0.53	278	ns
Relationship of extension service with other organizations and agencies	3.80	12	4.19	9	-3.53	281	.001

*Two-tailed test $P < .05$, $t \geq 1.96$

1. The role and functions of extension workers
2. Philosophy and objectives of the extension service
3. Administration of local extension program

There were significant differences between the responses of the two groups in three items of training:

1. Philosophy and objectives of the extension service
2. Administration of local extension program
3. Relationship of extension service with other organizations and agencies

In all three cases, senior staff indicated a greater need for training in these items than did junior staff. The difference between the responses of junior and senior staff in the area of philosophy and objectives of the extension service was significant at the .01 level. Junior staff ranked this item sixth in priority need for training, as compared to a ranking of second by senior staff.

There was a significant difference at the .05 level in the need for training in administration of local extension programs, which was ranked third by senior staff and seventh by junior staff.

The responses of the two groups on the need for training in relationship of the extension service with other organizations and agencies was significantly different at the .001 level. The senior staff ranked this item ninth while in the opinion of junior staff it was the twelfth item needed in the training of agents.

Both groups were unanimous in ranking the role and functions of extension workers as being the most important item needed in training of new agents. There were differences of opinion between the two groups

about the two items least needed. Junior staff gave the lowest ratings to the history of extension education in Nigeria and to relationship of extension service with other organizations and agencies. The senior staff rated administrative structure of Ministries of Natural Resources and history of extension education in Nigeria as the lowest two items in importance.

The ranges between the highest and lowest mean scores by junior and senior staff were .85 and .71 respectively. This suggested a very small spread in the training needs between specific items in the area of agricultural extension philosophy, organization, and administration.

The differences in the responses of the two groups suggested that the junior staff were more concerned in training that was of direct practical application to their work. The senior staff had a more philosophical view of the training needs of extension agents.

Responses of Agents to the Need for Training by Tenure

The responses of extension agents by years of tenure to the need for training in the history of extension education in Nigeria is shown in Table 12. There was a significant difference at the .025 level between responses of tenure groups.

The more years of experience held by the agent, the more important he rated the need for training in the history of extension education in Nigeria.

Nearly one-half of the agents with 10 or more years of experience felt it was "very much" needed, compared to less than four out of ten of those with 5-9 years of tenure and less than one-fourth of those with less than 5 years of tenure.

TABLE 12

OPINION OF AGENTS ON NEED FOR TRAINING IN THE HISTORY OF EXTENSION EDUCATION IN NIGERIA, BY TENURE

Years of Tenure	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
0-4	24.7	34.2	20.5	19.2	1.4	73
5-9	38.5	36.5	14.6	7.3	3.1	96
10 and over	46.8	34.2	12.6	6.3	0.0	111

X^2 = 19.52, Significant at .025 level.

Comparison of Responses of Agents by Agricultural Training

Data in Table 13 are relative to responses of agents by agricultural training compared according to their opinion about the need for training agents in the administrative structure of the Ministries of Natural Resources. The responses were significantly different at the .005 level.

TABLE 13

OPINION OF AGENTS ON THE NEED FOR TRAINING IN THE ADMINISTRATIVE STRUCTURE OF MINISTRIES OF NATURAL RESOURCES, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	48.9	27.8	16.1	5.0	2.2	180
AAS/Diploma	43.1	36.1	18.1	2.8	0.0	72
BS	5.0	40.0	55.0	0.0	0.0	20

X^2 = 27.24, Significant at .005 level.

Agricultural assistants and assistant agricultural superintendents indicated a much greater need for training in this item than did B.S. graduates. This was apparent from the fact that 55 percent of the B.S. graduates who responded indicated that the item was "somewhat" needed, compared to less than two out of ten agents in the agricultural assistant and assistant agricultural superintendent categories.

Data in Table 14, in the need for training in the functions of Extension and Research Liaison Section, were significantly different at the .025 level. B.S. graduates rated this item lower than those without degrees. Four out of ten felt it was only "somewhat" or "little" needed, compared to slightly more than one out of ten of the agricultural assistants and assistant agricultural superintendents.

TABLE 14

OPINION OF AGENTS ABOUT THE NEED FOR TRAINING IN FUNCTIONS OF ERLS AND THE ROLE OF SPECIALISTS, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	57.8	28.9	9.4	2.8	1.1	180
AAS/Diploma	58.3	26.4	13.9	1.4	0.0	72
BS	15.0	45.0	35.0	5.0	0.0	20

$X^2 = 19.59$, Significant at .025 level.

Table 15 shows the responses of agents, by agricultural background, in the need for training of extension staff in government procedure and conditions of service. The responses were significantly different at the .05 level.

TABLE 15

OPINION OF AGENTS ABOUT THE IMPORTANCE OF TRAINING IN GOVERNMENT PROCEDURE AND CONDITIONS OF SERVICE, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	59.6	25.8	10.1	3.4	1.1	178
AAS/Diploma	50.7	37.7	8.7	2.9	0.0	69
BS	15.8	57.9	21.1	5.3	0.0	19

X^2 = 16.66, Significant at .05 level.

Bachelor of Science graduates indicated a lesser need for training of agents in this item than was indicated by either agricultural assistants or assistant agricultural superintendents. About 60 percent of agricultural assistants indicated that it was "very much" needed, compared to one-half of the assistant agricultural superintendents and only 16 percent of B.S. graduates.

Data in Table 16 concern the need for training in the relationship of extension service with other organizations and agencies. The responses were significantly different at the .05 level.

Both assistant agricultural superintendents and B.S. graduates indicated a greater need for agents' training in this item than did the agricultural assistants. Six percent of the agricultural assistants who responded thought that the item was "little" needed. There were no ratings this low in the other two groups.

Except for the need for training in the relationship of the extension service with other organizations and agencies, the data would

TABLE 16

OPINION OF AGENTS ABOUT TRAINING NEEDS IN THE RELATIONSHIP OF EXTENSION WITH OTHER ORGANIZATIONS, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	24.6	38.0	30.2	6.1	1.1	179
AAS/Diploma	43.1	38.9	18.1	0.0	0.0	72
BS	30.0	50.0	20.0	0.0	0.0	20

X^2 = 16.40, Significant at .05 level.

suggest that agricultural assistants and assistant agricultural superintendents, both junior and senior, felt a greater need for training in the items which showed significant differences than did B.S. graduates. These items were:

1. Administrative structure of Ministries of Natural Resources
2. The functions of Extension and Research Liaison Section, and the role of extension specialists
3. Government procedure and conditions of service

SOCIOLOGICAL FACTORS

Responses of All Extension Staff

The responses of all extension staff to the need for training of agents in sociological areas are shown in Table 17. The highest mean recorded was 4.59 and the lowest was 3.08, indicating a spread of 1.51. This response shows a substantially high discrimination in these training topics.

TABLE 17

TRAINING NEEDS OF AGENTS IN SOCIOLOGICAL AREAS, IN THE OPINION OF EXTENSION PERSONNEL
N = 285

Specific Training Area	Weighted Mean	Rank Order
The role of information media in the adoption of new ideas	4.59	1
Adoption of new ideas and practices	4.57	2
Working with community leaders in decision making (social action process)	4.38	3
The role of professional leadership in the adoption of new ideas and practices	4.32	4
Social structure and cultural patterns in rural areas	4.25	5
Village organization	4.21	6
Identification of local leadership	4.15	7
Identification of innovators in a local community	4.09	8
The community adoption process	4.01	9
Individual adoption process	3.86	10
Social factors preventing change	3.75	11
Patterns of authority in rural areas	3.69	12.5
Interaction of social and technical change	3.69	12.5
Family structure and organization	3.56	14
Effect of changing social custom and values in lives of people	3.53	15
Religious influence on local customs	3.34	16
Distribution of Nigerian languages and dialects	3.08	17

Extension staff expressed a need for training in the following three items, arranged in order of preference:

1. The role of information media in the adoption of new ideas
2. Adoption of new ideas and practices
3. Working with community leaders in decision making (social action process)

The three items with the lowest rating, arranged in rank order were:

1. Effect of changing social customs and values in lives of people
2. Religious influence on local custom
3. Distribution of Nigerian languages and dialects

This analysis indicated that extension staff placed high emphasis for training in subjects relating to the adoption of new ideas and practices, particularly in the role of information media in influencing the adoption of new practices.

There was little interest in social customs, religious influence, and language barriers in extension. This tendency may reflect a general attitude in Nigeria against tribal and ethnic factors and a movement toward a new establishment that transcends ethnic and cultural barriers.

Junior and Senior Staff Responses Compared

The responses of junior and senior extension staff concerning training needed by agents in sociological areas are reported in Table 18.

TABLE 18

TRAINING NEEDS OF AGENTS IN SOCIOLOGICAL AREAS
BY JUNIOR AND SENIOR STAFF

Specific Training Area	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
The role of information media in the adoption of new ideas	4.61	1	4.55	2	0.73	283	ns
Adoption of new ideas and practices	4.53	2	4.66	1	-1.50	281	ns
Working with community leaders in decision making (social action process)	4.35	3	4.43	4	-0.88	283	ns
The role of professional leadership in the adoption of new ideas and practices	4.24	4	4.48	3	-2.38	282	.05
Social structure and cultural patterns in rural areas	4.21	5	4.36	7	-1.38	280	ns
Village organization	4.13	6	4.37	6	-2.28	280	.05
Identification of local leadership	4.08	7	4.29	8	-1.83	281	ns
Identification of innovators in a local community	3.93	8	4.40	5	-4.19	277	.001
The community adoption process	3.89	9	4.24	9	-3.15	277	.05
Individual adoption process	3.73	10	4.11	11	-2.93	281	.05
Patterns of authority in rural areas	3.55	11	3.97	13	-3.19	282	.05

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TABLE 18 (continued)

Specific Training Area	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
Interaction of social and technical change	3.54	12	4.01	12	-3.74	275	.001
Social factors preventing change	3.53	13	4.19	10	-4.31	274	.001
Family structure and organization	3.48	14	3.73	15	-2.08	280	.05
Effect of changing social customs and values in lives of people	3.33	15	3.93	14	-4.01	279	.001
Religious influence on local custom	3.19	16	3.64	16	-2.74	280	.05
Distribution of Nigerian languages and dialects	3.06	17	3.14	17	-0.46	279	ns

*Two-tailed test $P < .05$, $t \geq 1.96$

There were far more divergent views between the two groups in the sociological areas. Altogether, there were eleven significantly different responses between them.

The three items ranked highest by junior staff were:

1. The role of information media in the adoption of new ideas
2. Adoption of new ideas and practices
3. Working with community leaders in decision making (social action process)

This rank order was essentially the same as that for the total sample.

Senior staff ranked the following three items highest for the training of agents in sociological areas:

1. Adoption of new ideas and practices
2. The role of information media in the adoption of new ideas
3. The role of professional leadership in the adoption of new ideas and practices

There was a consensus of opinion between the two groups on the importance of training in the adoption process and the role of information media in this process. However, senior staff also felt a great need for training in the development of professional leadership.

Both groups had identical views about the two items which they considered of least importance in the training of agents. These were:

1. Religion's influence on custom
2. Distribution of Nigerian languages and dialects

This re-emphasized the relatively little interest in religions and ethnic differences as important aspects in the training of extension agents in the northern states of Nigeria.

The ranges of scores for junior and senior staff were 1.55 and 1.41 respectively. The spread in responses by junior staff indicated that they were somewhat more discriminating in topics of training related to sociological areas than were the senior staff.

There were statistically significant differences in the responses of the two groups in the following items:

1. The role of professional leadership in the adoption of new ideas and practices
2. Village organization
3. Identification of innovators in a local community
4. The community adoption process
5. Individual adoption process
6. Patterns of authority in rural areas
7. Interaction of social and technical change
8. Social factors preventing change
9. Family structure and organization
10. Effect of changing social custom and values in lives of people
11. Religious influence on local custom

In each of these items, senior staff rated the need for training of extension agents higher than did junior staff. However, the differences between the two groups were inconsequential in several cases. For instance, there was a significant difference at the .05 level in items such as village organization, and the community adoption process, even though both groups ranked them sixth and ninth respectively.

It would appear that the most important outcome of this data was the value attached to training in the adoption process and the importance of information media and professional leadership in facilitating adoption of new ideas and practices.

Responses of Agents to Need for Training by Tenure

The only item in which there was a significant difference between tenure groups in sociological areas was training in the role of professional leadership in the adoption of new ideas and practices. As shown in Table 19, there was a significant difference at the .05 level in the responses by tenure groups.

TABLE 19

OPINION OF AGENTS ABOUT TRAINING NEEDS IN THE ROLE OF PROFESSIONAL LEADERSHIP IN THE ADOPTION OF NEW IDEAS AND PRACTICES, BY TENURE

Years of Tenure	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
0-4	41.3	44.0	12.0	1.3	1.3	75
5-9	43.9	39.8	9.2	6.1	1.0	98
10 and over	60.4	29.7	9.9	0.0	0.0	111

$X^2 = 17.19$, Significant at .05 level.

The agents with 10 or more years of tenure indicated the highest need for training of agents in this item, while those with less than 5 years of tenure indicated the least need. It was obvious that all agents felt a strong need for training in this item, since 85 percent of the shorter tenure group felt it was "much" or "very much" needed.

Comparison of Responses of Agents by Agricultural Training

The need for training in the influence of religion on local custom is shown in Table 20. A significant difference at the .05 level was reported.

The data indicated that B.S. graduates felt a greater need for training of agents in this item, while the agricultural assistants showed almost negative interest. Nearly two-thirds of the B.S. graduates, compared to approximately two-fifths of the agricultural assistants felt it was "much" or "very much" needed. The assistant agricultural superintendents appeared divided on the need for training in this item.

TABLE 20

OPINION OF AGENTS ABOUT TRAINING NEEDS IN RELIGIOUS INFLUENCE ON LOCAL CUSTOM, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	16.3	27.0	25.8	14.6	16.3	178
AAS/Diploma	30.6	29.2	19.4	15.3	5.6	72
BS	40.0	25.0	25.0	10.0	0.0	20

$X^2 = 16.83$, Significant at .05 level.

Table 21 indicates the response of agents on the effect of changing social custom and values in lives of people, which was significant at the .005 level.

TABLE 21

OPINION OF AGENTS ABOUT THE IMPORTANCE OF TRAINING IN CHANGING SOCIAL CUSTOM AND VALUES IN PEOPLE, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	16.9	32.6	23.6	16.9	10.1	178
AAS/Diploma	36.6	31.0	22.5	8.5	1.4	71
BS	50.0	30.0	10.0	5.0	5.0	20

X^2 = 24.50, Significant at .005 level.

The data showed a progressive trend in the need for training in this item from B.S. graduates to agricultural assistants. Fifty percent of the B.S. graduates rated this item "very much" needed compared to about 37 percent by assistant agricultural superintendents and only 17 percent by agricultural assistants who also indicated, by an equal number, that it was "little" needed.

On the need for training in social factors preventing change, about 67 percent of the B.S. graduates said it was "very much" needed whereas only 49 percent of assistant agricultural superintendents and 25 percent of agricultural assistants responded in like manner, as shown in Table 22.

Nearly 10 percent of the agricultural assistants indicated that it was "not" needed at all, and 12.5 percent of them felt it was "little" needed. The responses were significantly different at the .005 level.

TABLE 22

OPINION OF AGENTS ON THE IMPORTANCE OF SOCIAL FACTORS PREVENTING CHANGE, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	25.0	38.1	14.8	12.5	9.7	176
AAS/Diploma	49.3	28.2	15.5	2.8	4.2	71
BS	66.7	27.8	5.6	0.0	0.0	18

$X^2 = 27.75$, Significant at .005 level.

Data in Table 23 show that there was more agreement between assistant agricultural superintendents and B.S. graduates than with agricultural assistants with respect to the training need relative to the interaction of social and technical change. The responses were significantly different at the .05 level.

TABLE 23

OPINION OF AGENTS ON THE IMPORTANCE OF INTERACTION OF SOCIAL AND TECHNICAL CHANGE, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	20.6	32.6	32.0	11.4	3.4	175
AAS/Diploma	32.4	43.7	21.0	2.8	0.0	71
BS	36.8	36.8	26.1	0.0	0.0	19

$X^2 = 17.16$, Significant at .05 level.

About 11 percent of the agricultural assistants said the item was "little" needed and 3 percent did not think it was applicable in the training of agents.

Table 24 indicates a decline from B.S. graduates to the agricultural assistants in the way the respondents perceived the need for training in individual adoption process. The differences between responses of agents were significant at the .05 level.

Sixty-eight percent of agricultural assistants and 77 percent of assistant agricultural superintendents felt that the item was "very much" or "much" needed whereas the corresponding figure for B.S. graduates was 85 percent.

TABLE 24

OPINION OF AGENTS ABOUT THE IMPORTANCE OF INDIVIDUAL ADOPTION PROCESS, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	24.6	43.0	19.0	9.5	3.9	179
AAS/Diploma	44.4	33.3	15.3	4.2	2.8	72
BS	55.0	30.0	15.0	0.0	0.0	20

$X^2 = 16.52$, Significant at .05 level.

Also, about 13 percent of the agricultural assistants and 7 percent of the assistant agricultural superintendents considered this subject either "little" or "not" needed, but none of the B.S. graduates rated it that low.

Data in Table 25 show a divergent opinion between the three groups of respondents on the need for training in identifying innovators in a local community. The data were significantly different at the .01 level.

TABLE 25

OPINION OF AGENTS ABOUT THE IMPORTANCE OF IDENTIFICATION OF INNOVATORS IN A LOCAL COMMUNITY, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	31.8	42.6	17.6	5.7	2.3	176
AAS/Diploma	46.5	43.7	8.5	1.4	0.0	71
BS	70.0	30.0	0.0	0.0	0.0	20

X^2 = 20.36, Significant at .01 level.

All B.S. graduates who responded to this question felt a great need for training in the subject. Next in high priority rating were the responses of assistant agricultural superintendents. Nearly 26 percent of agricultural assistants, compared to 10 percent of the assistant agricultural superintendents, gave a low rating to training in this subject.

The data on the training needs of potential agents in the area of sociology showed that there were statistically significant responses in six items, when opinions of agents were compared according to their agricultural training.

These items were as follows:

1. Religious influence on local custom
2. Effect of changing social customs and values in lives of people
3. Social factors preventing change
4. Interaction of social and technical change
5. Individual adoption process
6. Identification of innovators in a local community

The hypothesis of no significant difference between responses of agents by agricultural training was rejected for these listed subjects.

It was evident from the responses of agents that B.S. graduates felt a greater need for training of potential agents than did agricultural assistants and assistant agricultural superintendents. Among the three groups, the agricultural assistants indicated that there was lesser need for training in the six items.

The data might be interpreted to imply that B.S. graduates and assistant agricultural superintendents appeared to have a better perception of the importance of these sociological subjects than the agricultural assistants.

EDUCATIONAL PROCESS AND HUMAN DEVELOPMENT

Responses of All Extension Staff

The analysis of the responses of all staff in the area of educational process and human development is shown in Table 26. There were fourteen items in this area, with the mean scores ranging from 3.61

TABLE 26

TRAINING NEEDS OF AGENTS IN THE AREAS OF EDUCATION PROCESS AND HUMAN DEVELOPMENT, IN THE OPINION OF EXTENSION PERSONNEL
N = 285

Specific Training Area	Weighted Mean	Rank Order
Extension teaching methods	4.72	1
Principles of extension	4.71	2
Teaching aids in extension (A-V materials)	4.62	3
The teaching-learning process	4.40	4
Developing leadership abilities in people	4.34	5
Motivation, interest and perception	4.32	6
Relationship between extension agents	4.31	7
Changing the behavior of people through education	4.24	8
Problems in youth development	4.18	9
Group decision	4.15	10
Philosophy of adult education	4.06	11
Factors affecting the behavior of people	4.01	12
Principles and techniques of counselling	3.84	13
The development of individual patterns of behavior	3.61	14

to 4.72, a spread of 1.11 between the highest and lowest individual scores.

The three items considered to be of greatest training need, in rank order, were:

1. Extension teaching methods
2. Principles of extension
3. Teaching aids in extension (A-V materials)

Training in extension teaching methods and principles of extension appeared to be of major concern to agents based on very high mean scores of 4.72, 4.71, and 4.62 respectively.

Extension staff indicated the least training needed in the following two subjects:

1. Principles and techniques of counselling
2. The development of individual patterns of behavior

The low ranking of these two items do not detract from their importance because the mean scores were 3.84 and 3.61, indicating more than an average need for training in these subjects.

In general, agents expressed the greatest need for training in subjects which bear a relationship to extension principles and methodology. These areas appeared to them to have more value for potential agents.

Junior and Senior Staff Responses Compared

The senior staff rated four items significantly higher than the junior staff, as training needed by extension agents in the area of educational process and human development. This information is reported in Table 27.

TABLE 27

TRAINING NEEDS OF AGENTS IN THE AREAS OF EDUCATIONAL PROCESS AND HUMAN DEVELOPMENT, BY JUNIOR AND SENIOR STAFF

Specific Training Area	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
Extension teaching methods	4.74	1	4.69	1.5	0.78	282	ns
Principles of extension	4.73	2	4.69	1.5	0.57	281	ns
Teaching aids in extension (A-V materials)	4.61	3	4.63	3	-0.14	283	ns
The teaching learning process	4.35	4	4.50	4	-1.57	279	ns
Motivation, interest, and perception	4.29	5.5	4.38	7	-0.82	282	ns
Developing leadership abilities in people	4.29	5.5	4.43	5	-1.50	281	ns
Relationship between extension agents	4.28	7	4.35	8.5	-0.67	282	ns
Changing the behavior of people through education	4.15	8	4.42	6	-2.54	283	.05
Problems in youth development	4.11	9	4.31	10	-1.82	281	ns
Group decision	4.04	10	4.35	8.5	-2.91	281	.05
Philosophy of adult education	4.02	11	4.16	12	-1.24	278	ns
Factors affecting the behavior of people	3.88	12	4.27	11	-3.19	281	.05
Principles and techniques of counselling	3.82	13	3.88	14	-0.42	264	ns
The development of individual patterns of behavior	3.45	14	3.92	13	-3.76	281	.001

*Two-tailed test, $P < .05$, $t \geq 1.96$

The four items of training rated significantly higher by the senior staff were these:

1. Changing the behavior of people through education
2. Group decision
3. Factors affecting the behavior of people
4. The development of individual patterns of behavior

Both groups expressed similar opinions about the first four items of training. These were ranked in the following order:

1. Extension teaching methods
2. Principles of extension
3. Teaching aids in extension (A-V materials)
4. The teaching-learning process

Junior staff had higher mean scores for the first two items, while the senior staff ranked both equally. Both groups ranked principles and techniques of counselling and the development of individual patterns of behavior as the two items with the least need for training in this area.

There was much greater discrimination in the items by the junior staff than by senior officers. The ranges in mean scores for junior and senior staff were 1.29 and .77 respectively.

Responses of Agents to Need for Training by Tenure

The responses of three tenure groups to the need for training in the relationship between extension agents are shown in Table 28.

Although there was a significant difference at the .025 level between the responses of the tenure groups, it would appear that the differences were inconsequential. All three groups indicated a high need

for training in this area, although about 17 percent of the agricultural assistants, 12 percent of assistant agricultural superintendents, and 10 percent of the B.S. graduates, felt that training in this item was only "somewhat" needed. Nearly 3 percent of agents with 0-4 years tenure indicated that training in this topic was "not" needed.

TABLE 28

OPINION OF AGENTS ABOUT TRAINING NEEDS IN THE RELATIONSHIP BETWEEN EXTENSION AGENTS, BY TENURE

Years of Tenure	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
0-4	57.3	22.7	17.3	0.0	2.7	75
5-9	45.5	39.4	12.1	3.0	0.0	99
10 and over	45.5	43.6	10.0	0.9	0.0	110

X^2 = 17.88, Significant at .025 level.

Comparison of Responses of Agents by Agricultural Training

Responses to the need for training of agents in the development of individual patterns of behavior, compared by agricultural training, are shown in Table 29.

Both B.S. graduates and assistant agricultural superintendents felt that there was need for more training in this line than did the agricultural assistants. The data were significantly different at the .01 level.

There were rather low ratings for the "very much" needed category and a high rating for the "somewhat" needed group. Nearly 20 percent of the agricultural assistants indicated that the item was

TABLE 29

OPINION OF AGENTS ABOUT THE IMPORTANCE OF DEVELOPING INDIVIDUAL PATTERNS OF BEHAVIOR, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	14.0	40.2	26.3	14.5	5.0	179
AAS/Diploma	23.6	52.8	20.8	2.8	0.0	72
BS	25.0	55.0	20.0	0.0	0.0	20

X^2 = 20.32, Significant at .01 level.

either "little" or "not" needed. A substantial proportion of respondents, 20 to 26 percent, in each group rated it as "somewhat" needed. This indicated appreciably less enthusiasm for training in the topic than in other topics in the area of educational process and human development.

PROGRAM PLANNING

Responses of All Extension Staff

Data on responses of all extension staff in the area of program planning indicate that all items in this area were judged to be important in the training of agents, as shown in Table 30.

Mean scores ranged from a high of 4.61 to a low of 4.22, a spread of only .39, which shows that there was little discrimination between the items.

The importance of analyzing the agricultural situation in the locale stands out as the topic for which potential agents have the

TABLE 30

TRAINING NEEDS OF AGENTS IN THE AREA OF PROGRAM PLANNING, IN THE OPINION OF EXTENSION PERSONNEL
N = 285

Specific Training Area	Weighted Mean	Rank Order
Analysis of agricultural situation in village, district or division	4.61	1
How to involve local people in developing extension programs	4.55	2
How to determine goals and prepare plan of work	4.50	3
How to determine needs and determine priority	4.39	4
Evaluating extension programs	4.33	5
How to use extension specialists in planning local programs	4.30	6
How to develop long-term extension programs	4.28	7
How to write extension objectives	4.22	8

greatest need for training in program planning. Respondents apparently believed it was important for agents to learn how to analyze problems in the local area before attempting to find solutions.

The topic with the lowest rank had a mean score of 4.22. This meant that it was of considerable importance in the training of agents since it fell between "much" and "very much" needed categories.

Junior and Senior Staff Responses Compared

The opinions of junior and senior staff in the area of program planning, reported in Table 31, differed in several respects. There were significantly different responses between both groups in five topics of training:

1. Analysis of agricultural situation in village, district, or division
2. How to identify needs and determine priority
3. Evaluating extension programs
4. How to develop long-term extension programs
5. How to write extension objectives

The significant differences in the responses of the two groups were mainly because the senior staff rated training in these and other items in the area more highly than did the junior staff.

There was consensus in the ranking of the two topics in which training was felt to be most needed. They were ranked in the following order:

1. Analysis of agricultural situation in village, district, or division

TABLE 31

TRAINING NEEDS OF AGENTS IN THE AREA OF PROGRAM PLANNING, BY JUNIOR AND SENIOR STAFF

Specific Training Area	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
Analysis of agricultural situation in village, district, or division	4.55	1	4.72	1	-1.95	279	.05
How to involve local people in developing extension programs	4.50	2	4.65	2.5	-1.68	283	ns
How to determine goals and prepare plan of work	4.45	3	4.60	4	-1.68	280	ns
How to identify needs and determine priority	4.25	4	4.65	2.5	-3.81	281	.001
How to use extension specialists in planning local programs	4.23	5	4.34	8	-1.82	281	ns
Evaluating extension programs	4.21	6	4.55	5	-3.37	281	.001
How to develop long-term extension programs	4.17	7	4.50	6	-3.19	283	.01
How to write extension objectives	4.10	8	4.45	7	-3.14	281	.01

*Two-tailed test $P < .05$, $t \geq 1.96$

2. How to involve local people in developing extension programs

The senior staff, in addition, ranked the topic of how to identify needs and determine goals as a second priority need. The importance attached to these topics might reflect a desire for a more thorough analysis of the local situation and the need for involvement of clientele in identifying their needs, and for participation in the decision in priority of action.

Another difference of opinion between the junior and senior staff was in the item which they rated lowest for training of potential agents. Junior staff rated how to write extension objectives as being of least importance. On the other hand, the senior staff ranked how to use extension specialists in planning local programs as least needed in training.

The responses of senior staff indicated that they did not consider training in the role of extension specialists as being particularly needed in assisting agents in developing programs at the local level.

The mean scores showed that both groups regarded all the topics as being important in the training of agents. The distribution of the mean scores for the junior staff ranged from 4.55 to 4.10, a spread of .38. The range of senior staff scores was from a mean of 4.72 to 4.34, representing a spread of .45. This would indicate that both groups did not differentiate very much between the training items. It seemed that regardless of position, both groups felt a considerable need for training agents in program planning.

Responses of Agents to Need for Training by Tenure

None of the three tenure groups differed significantly from either of the others in their responses to training topics under program planning. Therefore, the hypothesis that there was no significant difference between the opinions of agents in program planning by tenure groups was supported.

Comparison of Responses of Agents by Agricultural Training

The responses of extension staff on the need for training in how to identify needs and determine priority is shown in Table 32. The opinions of agents compared by agricultural training was statistically significant at the .05 level.

TABLE 32

OPINION OF AGENTS ABOUT THE IMPORTANCE OF HOW TO IDENTIFY NEEDS AND DETERMINE PRIORITY, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	48.6	34.6	12.3	3.9	0.6	179
AAS/Diploma	72.2	22.2	5.6	0.0	0.0	72
BS	70.0	25.0	5.0	0.0	0.0	20

$X^2 = 15.56$, Significant at .05 level.

Assistant agricultural superintendents and B.S. graduates rated this topic higher than did the agricultural assistants. Nearly 17 percent of the agricultural assistants did not express much need for this

type of training, while only about 5 percent of the other groups held such an opinion.

Table 33 reveals that respondents expressed contrasting views about the need for training in how to determine goals and prepare plan of work.

Most of the favorable support for this topic came from assistant agricultural superintendents, most of whom indicated "very much" need for training. The agricultural assistants also rated the item quite high.

Among the B.S. graduates who responded to this question, 20 percent of them said it was "somewhat" needed, indicating a rather lukewarm attitude. The responses were significantly different at the .025 level.

TABLE 33

OPINION OF AGENTS ON THE IMPORTANCE OF HOW TO DETERMINE GOALS AND PREPARE PLAN OF WORK, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	57.9	35.4	3.9	1.7	1.1	178
AAS/Diploma	70.8	27.8	1.4	0.0	0.0	72
BS	55.0	25.0	20.0	0.0	0.0	20

X^2 = 17.93, Significant at .025 level.

There was generally a strong indication of need for training in the two topics which were significantly different. The topics were:

1. How to identify needs and determine priority

2. How to determine goals and prepare plan of work

It would appear that although the responses were significant all three groups of agents were concerned about the desirability for providing potential agents with some training in these topics.

COMMUNICATIONS IN EXTENSION

Responses of All Extension Staff

The responses of all extension staff to the training needs in the area of communications in extension are shown in Table 34.

The importance of this subject was reflected in the mean scores, which ranged from 4.60 to 3.94. This indicated a difference of .66, suggesting a relatively small difference between the mean scores for the various items.

The two items which ranked highest in need were:

1. How to plan and conduct agricultural shows

2. How to plan and conduct meetings and campaigns

The lowest score was recorded in the effective use of radio in extension. It would appear that extension agents had the greatest need for training relative to improving personal contacts with farmers through agricultural shows, meetings, and campaigns. The data revealed no particular desire for training of staff in the use of mass information media, such as the radio. This suggested that agents may not have been involved in developing radio programs for farmers.

TABLE 34

TRAINING NEEDS OF AGENTS IN COMMUNICATIONS, IN THE OPINION OF EXTENSION PERSONNEL
N = 285

Specific Training Area	Weighted Mean	Rank Order
How to plan and conduct agricultural shows	4.60	1
How to plan and conduct meetings and campaigns	4.59	2
Methods and processes of communications	4.56	3
How to conduct demonstrations and field days	4.53	4
How to conduct farm and home visits	4.38	5
The use of exhibits in extension	4.26	6
How to write technical reports and newsletters	4.18	7
How to use photography in extension	4.00	8
Effective use of radio in extension	3.94	9

Junior and Senior Staff Responses Compared

Data in Table 35 indicate that responses of junior and senior staff in the area of communications differed significantly in three items. In two of these, the differences were significant at the .05 level, whereas in the third, there was a significant difference at the .001 level. The three items were:

1. Methods and processes of communication
2. The use of exhibits in extension
3. How to write technical reports and newsletters

In all three items the senior staff wanted more communications training for extension workers than did the junior staff. The data in other items also indicate that the senior staff expressed higher need for training than the junior staff.

The ranges of the mean scores by junior and senior staff were .67 and .65 respectively, showing only marginal differentiation between the mean scores of the two groups for the various items.

There was disagreement between the junior and senior staff as to topics of greatest training need. The junior staff gave highest ranking to three topics:

1. How to plan and conduct agricultural shows
2. How to plan and conduct meetings and campaigns

Two topics were ranked equally in the third position by junior staff. These were how to conduct demonstrations and field days, and methods and processes of communications.

The three items ranked, by senior staff, as needed most in training by extension workers, were as follows:

TABLE 35

TRAINING NEEDS OF AGENTS IN COMMUNICATIONS,
BY JUNIOR AND SENIOR STAFF

Specific Training Area	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
How to plan and conduct agricultural shows	4.57	1	4.66	3	-0.95	282	ns
How to plan and conduct meetings and campaigns	4.54	2	4.69	1	-1.70	283	ns
How to conduct demonstrations and field days	4.51	3.5	4.58	4	-0.84	282	ns
Methods and processes of communication	4.51	3.5	4.67	2	-2.04	272	.05
How to conduct farm and home visits	4.32	5	4.47	5	-1.52	281	ns
The use of exhibits in extension	4.19	6	4.41	6	-2.24	281	.05
How to write technical reports and newsletters	4.07	7	4.40	7	-3.21	280	.001
How to use photography in extension	3.95	8	4.08	8	-1.20	282	ns
Effective use of radio in extension	3.90	9	4.01	9	-0.95	282	ns

*Two-tailed test $P < .05$, $t \geq 1.96$

1. How to plan and conduct meetings and campaigns
2. Methods and processes of communication
3. How to plan and conduct agricultural shows

Although both groups indicated a similar notion of training, the senior staff appeared to feel a need for incorporating more conceptual ideas into the training program.

There was agreement by staff of junior and senior status on the two items with the lowest need for training. These were:

1. How to use photography in extension
2. Effective use of radio in extension

The relatively high mean score in most items in the area would suggest that much training was needed in communications by agents in the northern states of Nigeria.

Responses of Agents to Need for Training by Tenure

The response of extension agents by tenure to the extent that training in photography was needed in extension (Table 36), was significantly different at the .05 level.

The agents with less than 5 years of tenure indicated the greatest need for training in this subject. Those with 5-9 years of tenure expressed fairly strong support, while the group with 10 or more years of tenure indicated appreciably less need for training in photography.

TABLE 36

OPINION OF AGENTS ABOUT TRAINING IN THE USE OF PHOTOGRAPHY IN EXTENSION, BY TENURE

Years of Tenure	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
0-4	39.2	39.2	12.2	9.5	0.0	74
5-9	31.3	43.4	23.2	2.0	0.0	99
10 and over	29.7	35.1	31.5	2.7	0.9	111

$X^2 = 17.41$, Significant at .05 level.

Comparison of Responses of Agents by Agricultural Training

Extension staff did not express significantly different opinions about training needed in communications as a consequence of their educational backgrounds.

The hypothesis that there was no difference in the opinions of agents on the need for training in communications based on their agricultural training was supported.

RESEARCH AND EVALUATION

Responses of All Extension Staff

The responses of all extension staff to the need for training of agents in research and evaluation is shown in Table 37.

There were only six items in this area. The mean scores ranged from 4.11 to 4.62. The difference between the high and low mean scores was .51, indicating little discrimination between the items. The result would indicate that the extension staff thought all items were important in the training of agents.

TABLE 37

TRAINING NEEDS OF AGENTS IN RESEARCH AND EVALUATION, IN THE OPINION OF EXTENSION PERSONNEL
N = 285

Specific Training Area	Weighted Mean	Rank Order
How to apply research findings in solving farmers' problems	4.62	1
The role of research in extension education	4.46	2
How to effectively use the results of evaluation in extension	4.33	3
How to evaluate extension programs	4.22	4
How to conduct surveys	4.21	5
How to use the pilot project in extension	4.11	6

The item with the highest mean score was how to apply research findings in solving farmers' problems, and the lowest score was how to use the pilot project in extension. This reflected an emphasis on application of research findings in extension, rather than the more exploratory area of using pilot projects.

Junior and Senior Staff Responses Compared

There were two areas in Table 38 where the opinions of junior and senior staff on the training needs of potential agents differed significantly. They were on the topics of how to evaluate extension programs, and how to use the pilot project in extension. In the former item, there was a significant difference at the .001 level, whereas the latter was significant at the .05 level. In both items, the senior

TABLE 38

TRAINING NEEDS OF AGENTS IN RESEARCH AND EVALUATION, BY JUNIOR AND SENIOR STAFF

Specific Training Area	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
How to apply research findings in solving farmers' problems	4.60	1	4.65	1	-0.57	281	ns
The role of research in extension education	4.47	2	4.45	2.5	0.21	281	ns
How to effectively use the results of evaluation in extension	4.27	3	4.45	2.5	-1.95	281	ns
How to conduct surveys	4.15	4	4.32	5	-1.66	281	ns
How to evaluate extension programs	4.13	5	4.41	4	-3.21	281	.001
How to use the pilot project in extension	4.02	6	4.28	6	-2.38	280	.05

*Two-tailed test $P < .05$, $t \geq 1.96$

staff indicated a greater need for training of staff than did the junior staff.

The greatest need for training was indicated by both groups in:

1. How to apply research findings in solving farmers' problems
2. The role of research in extension education
3. How to effectively use the results of evaluation in extension

Relatively less need for training was indicated by the two groups in the area of pilot projects.

The mean scores for all items were high for both groups. The ranges in the mean for the junior and senior staff were .58 and .37 respectively, which suggested that the junior staff were slightly more discriminative in their ratings of the subjects.

Responses of Agents to Need for Training by Tenure

There were no significant differences in the responses of agents by tenure groups to the needs for training in research and evaluation.

Therefore, the hypothesis that the opinions of different tenure groups on the training needs of extension agents in research and evaluation were essentially similar, was supported.

Comparison of Responses of Agents by Agricultural Training

Data in Table 39 compare responses of respondents by training, on the importance of providing new agents with training in the role of research in extension education. The data were significantly different at the .01 level.

TABLE 39

OPINION OF AGENTS ON THE IMPORTANCE OF THE ROLE OF RESEARCH IN EXTENSION EDUCATION, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	57.2	33.9	5.6	3.3	0.0	180
AAS/Diploma	66.2	28.2	5.6	0.0	0.0	71
BS	40.0	30.0	30.0	0.0	0.0	20

X^2 = 20.50, Significant at .01 level.

Assistant agricultural superintendents indicated the highest need for training in this subject. They were closely followed by agricultural assistants. It would appear that B.S. graduates felt much less need for training in this subject. As much as 30 percent of the graduates who responded indicated that it was only "somewhat" needed.

Data in Table 40 show responses on the need for providing training in pilot projects. The responses were significantly different at the .05 level.

There was indication in this topic that assistant agricultural superintendents placed the greatest emphasis on training among the three groups studied. Nearly 92 percent of assistant agricultural superintendents compared to about 72 percent of agricultural assistants and 65 percent of B.S. graduates felt that training in this topic was "much" or "very much" needed. Agricultural assistants expressed higher training need in pilot projects than B.S. graduates, over a third of whom felt it was only of "somewhat" or "little" importance.

This obviously implied that senior staff wanted a stronger program in agricultural economics.

There were similarities in the opinions of junior and senior staff in the topics in which staff needed the most training. Both wanted considerable training in crop production and vegetable growing, but instead of soil fertility, which was third choice by junior staff, the senior staff selected farm management.

The difference between the three lowest ranked items was very slight. Junior staff indicated the least need for training of extension staff in rabbit production, soil physics, and apiculture. The senior staff ranked geography, rabbit production, and apiculture as the subjects least needed in training.

The findings suggested a high priority training need in crops and vegetable production, less need in rabbit production, while apiculture was unanimously selected as being relatively low in priority need for training.

The ranges in the mean scores for junior and senior staff were 1.85 and 1.72 respectively, indicating appreciably high discrimination between the various topics by both groups.

Responses of Agents to Need for Training by Tenure

There was no significant difference in responses of agents by tenure in all topics in the area of technical agriculture. Therefore, the hypothesis that there was no difference in the opinion of agents by tenure groups in the need for staff training in technical agriculture was supported.

TABLE 41 (continued)

Specific Training Area	Weighted Mean	Rank Order
Dryland farming	4.16	29
Plant breeding	4.13	30.5
Cooperative systems	4.13	30.5
Land-tenure system	4.11	32.5
Safety education	4.11	32.5
Crop physiology	4.05	34
Pasture management	4.03	35
Crop ecology	4.00	36
Zoology	3.98	37.5
Applied entomology	3.98	37.5
Weed science	3.96	39
Levelling	3.95	40.5
Food processing	3.95	40.5
Subsistence farming	3.94	42
Chemistry	3.93	43
Farm credit	3.89	44
Mathematics	3.88	45
Dairy science	3.79	46.5
Landscape gardening	3.79	46.5
Microbiology	3.78	48
Geography	3.51	49
Rabbit production	3.36	50
Soil physics	3.35	51
Apiculture	3.10	52

The five subjects with the lowest ratings were:

1. Microbiology
2. Geography
3. Rabbit production
4. Soil physics
5. Apiculture

The respondents felt that potential extension agents had less need for training in some basic subjects and in the relatively undeveloped programs, such as rabbit production and bee keeping. There was no way to determine if the low rating in the latter items was due to a lack of farmer interest, or because they have relatively low economic value. The low ratings may be related to geographical variations and differences in the needs of clientele at different locations.

Junior and Senior Staff Responses Compared

Data in Table 42 show the responses of junior and senior extension staff in the area of technical knowledge in agriculture.

The junior extension staff indicated a more significant training need by extension workers in two subjects: soil classification and plant breeding. The responses were significant at the .02 and .05 levels respectively.

The senior staff wanted significantly more training in the following items:

1. Farm management
2. Farm labor
3. Farm accounting
4. Farm credit

TABLE 42

TRAINING NEEDS OF AGENTS IN TECHNICAL KNOWLEDGE IN AGRICULTURE, BY JUNIOR AND SENIOR STAFF

Specific Training Area	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
Crop production	4.91	1	4.90	1	0.30	278	ns
Vegetable growing	4.78	2	4.79	2.5	-0.24	279	ns
Soil fertility	4.72	3	4.70	5	0.31	282	ns
Soil conservation	4.70	4	4.74	4	-0.53	280	ns
Tree crops	4.69	5	4.58	7	1.36	282	ns
Farm management	4.62	6.5	4.79	2.5	-2.29	282	.05
Botany	4.62	6.5	4.54	9	0.90	281	ns
Water conservation	4.57	8	4.56	8	0.13	281	ns
Soil management	4.52	9.5	4.60	6	-0.89	280	ns
Pesticide usage	4.52	9.5	4.40	16	1.44	281	ns
Animal husbandry	4.50	11.5	4.47	11	0.25	278	ns
Tools and implements	4.50	11.5	4.39	17	1.07	279	ns
Food storage	4.47	13.5	4.53	10	-0.62	282	ns
Ploughs and ridgers	4.47	13.5	4.29	25	1.87	278	ns
Human nutrition	4.46	15	4.43	13	0.23	282	ns
Field experimentation	4.43	16.5	4.32	21.5	0.99	276	ns
Tractors	4.43	16.5	4.24	27.5	1.93	280	ns
Spraying machinery	4.42	18	4.38	18.5	0.51	282	ns
Soil classification	4.37	19	4.14	31	2.36	278	.02
Plant pathology	4.34	20	4.32	21.5	0.15	274	ns
Irrigation agronomy	4.33	21	4.41	15	-0.74	283	ns
Crop marketing	4.31	22	4.45	12	-1.43	278	ns
Poultry science	4.27	23	4.31	23.5	-0.36	280	ns
Food preservation	4.26	24	4.27	26	-0.11	280	ns
Soil chemistry	4.23	25	4.13	32	0.98	280	ns
Plant breeding	4.21	26.5	3.97	42.5	2.00	277	.05

TABLE 42 (continued)

Specific Training Area	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
Surveying	4.21	26.5	4.36	20	-1.49	283	ns
Farm labor	4.16	28	4.42	14	-2.36	281	.05
Cooperative systems	4.11	29	4.19	30	-0.72	282	ns
Dryland farming	4.08	30.5	4.31	23.5	-1.83	276	ns
Farm accounting	4.08	30.5	4.38	18.5	-2.95	279	.01
Safety education	4.05	32	4.22	29	-1.42	280	ns
Land tenure systems	4.04	33.5	4.24	27.5	-1.67	275	ns
Pasture management	4.04	33.5	3.99	39	0.47	280	ns
Zoology	4.03	35	3.89	45	1.18	277	ns
Crop physiology	4.02	36	4.11	33	-0.78	276	ns
Crop ecology	3.99	37	4.02	37.5	-0.24	272	ns
Food processing	3.98	38	3.90	44	0.60	274	ns
Applied entomology	3.96	39	4.03	36	-0.63	279	ns
Weed science	3.94	40	4.02	37.5	-0.72	279	ns
Chemistry	3.91	41.5	3.98	40.5	-0.58	277	ns
Subsistence farming	3.91	41.5	3.98	40.5	-0.53	277	ns
Levelling	3.89	43	4.06	35	-1.38	283	ns
Microbiology	3.86	44	3.61	48	1.89	276	ns
Landscape gardening	3.83	45	3.71	47	1.00	279	ns
Mathematics	3.82	46	3.97	42.5	-1.26	278	ns
Dairy science	3.80	47	3.77	46	0.23	278	ns
Farm credit	3.79	48	4.07	34	-2.31	276	.05
Geography	3.60	49	3.34	50.5	1.91	280	ns
Rabbit production	3.37	50	3.34	50.5	0.23	282	ns
Soil physics	3.34	51	3.38	49	-0.34	275	ns
Apiculture	3.06	52	3.18	52	-0.91	271	ns

*Two-tailed test $P < .05$, $t \geq 1.96$

Comparison of Responses of Agents by Agricultural Training

Responses of agents on the importance of providing new staff with training in vegetable growing, compared by educational background, are shown in Table 43. The opinions of the three groups were significantly different at the .05 level.

Although the data might suggest that assistant agricultural superintendents and agricultural assistants indicated the greatest need for training in this subject, it was obvious that B.S. graduates also considered it highly desirable. However, 10 percent of the B.S. graduates felt that training in vegetable growing was only "somewhat" needed, compared to less than one percent of agricultural assistants who held a similar opinion. None of the assistant agricultural superintendents who responded rated training in this subject so low.

Even though there was a significant response in this subject, no trends were established. All the three groups indicated an appreciable need for training in vegetable growing.

TABLE 43

OPINION OF AGENTS ABOUT THE IMPORTANCE OF VEGETABLE GROWING, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	78.0	21.5	0.6	0.0	0.0	177
AAS/Diploma	83.3	16.7	0.0	0.0	0.0	72
BS	75.0	15.0	10.0	0.0	0.0	20

$X^2 = 16.52$, Significant at .05 level.

Table 44 shows the opinion of respondents on need for training in water conservation. The data were significantly different at the .05 level.

TABLE 44

OPINION OF AGENTS ON THE IMPORTANCE OF WATER CONSERVATION, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	63.9	30.0	3.9	2.2	0.0	180
AAS/Diploma	71.8	22.5	4.2	1.4	0.0	71
BS	60.0	25.0	10.0	0.0	5.0	20

X^2 = 16.33, Significant at .05 level.

The finding might be interpreted as showing that the agricultural assistant superintendents felt a greater need for training in water conservation than the other two groups. However, since all three groups indicated very much need for training in this subject, the statistical significance may be inconsequential.

In the subject of food preservation, there was a significant difference in the responses of agents at the .05 level (Table 45).

Both assistant agricultural superintendents and agricultural assistants rated this item more highly than the B.S. graduates. Forty percent of the graduates indicated that food preservation was "somewhat" needed, implying that it was less important in the training of agents. The subject was similarly rated by about 12 percent of the agricultural

TABLE 45

OPINION OF AGENTS ABOUT THE IMPORTANCE OF FOOD PRESERVATION, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	44.4	40.6	11.7	1.7	1.7	180
AAS/Diploma	52.1	38.0	7.0	1.4	1.4	71
BS	45.0	15.0	40.0	0.0	0.0	20

X^2 = 18.27, Significant at .025 level.

assistants and only 7 percent of the assistant agricultural superintendents.

Responses on the importance of training in farm credit varied quite considerably, as Table 46 indicates. The data for the three groups were significantly different at the .05 level.

TABLE 46

OPINION OF AGENTS ON THE IMPORTANCE OF FARM CREDIT, BY AGRICULTURAL TRAINING

Agricultural Training	Need for Training in Percent					Number of Agents
	Very Much	Much	Somewhat	Little	Not	
AA	24.0	41.7	22.3	9.1	2.9	175
AAS/Diploma	38.9	36.0	19.4	5.6	0.0	72
BS	55.0	20.0	25.0	0.0	0.0	20

X^2 = 15.83, Significant at .05 level.

B.S. graduates and assistant agricultural superintendents placed a higher value on training in farm credit than did the agricultural assistants. Nearly 75 percent of B.S. and assistant agricultural superintendent graduates, compared to about 66 percent of agricultural assistants rated this topic as "much" or "very much" needed.

Both B.S. and assistant agricultural superintendent graduates rated training in farm credit low by 25 percent, compared to 36 percent by agricultural assistants.

Summary

No observable pattern emerged from these data in terms of responses by different groups of agents on various aspects of the training needs of potential extension workers.

The hypothesis of no significant difference in the opinions of different categories of agents was supported for a greater majority of the topics analyzed in this study. Those items in which significant differences were found should be scrutinized to determine if the differences brought out signify some fundamental needs for changes in the curriculum of study of the agricultural assistants' course.

Chapter VII

PRIMARY RESPONSIBILITIES OF EXTENSION AGENTS AND PRINCIPAL PROBLEMS OF EXTENSION IN THE NORTHERN STATES OF NIGERIA

The purpose of this chapter was to identify some of the main duties of extension agents in the northern states of Nigeria, and to determine from a series of questions, the most serious problems which the agents encountered while performing their duties. This information, it was hoped, would provide some indications of how the problems and issues were related to the training function and the role training could assume to minimize such problems in the future.

Respondents in the study were asked to rate a list of items pertaining to extension duties and problems on scales which were later assigned weighted values. Mean scores were computed and rank orders determined for the entire sample and for groups established for the purpose of making comparisons.

The mean scores were compared by status of agents using the "Student's" t-test, and by states through a comparison of the mean scores, and rank orders for items in each area.

The Chi-square statistic was used to compare responses by tenure and educational background. In both instances, scores reported were those which indicated statistical significance between groups.

PRIMARY RESPONSIBILITIES OF EXTENSION AGENTS

Opinion of All Extension Staff

The responses of all agents on the important duties which they perform is shown in Table 47. The data revealed that the five most important functions which agents performed were as follows:

1. Advisory service to farmers in agricultural production
2. Supervision of agricultural instructors
3. Village council meetings
4. Crop demonstration programs
5. Supply of seeds and plants to farmers

This response implied that advisory service to farmers on production increasing practices was recognized by all agents as their most important function. In traditional agriculture, the primary role of extension agents is that of helping farmers to acquire the skills and knowledge required for rapid agricultural transformation.

Supervision of agricultural instructors was ranked second in importance which indicated that agents spend considerable time supervising village level workers. One implication of this may be that the training institutions should devote more effort in developing the supervisory competence of agents.

The items which were ranked low by agents were as follows:

1. Farm settlement schemes
2. Supervising tractor hiring units
3. Farm credit and cooperatives

TABLE 47

IMPORTANCE OF DUTIES OF AGENTS, IN THE OPINION OF EXTENSION PERSONNEL
N = 285

Duties of Extension Workers	Weighted Mean	Rank Order
Advisory service to farmers in agricultural production	4.74	1
Supervision of agricultural instructors	4.71	2
Village council meetings	4.61	3
Crop demonstration programs	4.56	4
Supply of seeds and plants to farmers	4.52	5
Young farmers' programs	4.45	6
Seed multiplication programs	4.44	7.5
Fertilizer sale and distribution to farmers	4.44	7.5
Extension Demonstration Unit programs	4.38	9
Writing reports and newsletters	4.36	10
Pesticide supplies to farmers	4.24	11
Regulating functions, such as enforcing cotton close season, etc.	4.20	12
Soil conservation projects	4.14	13
Collecting research data and agricultural information	4.11	14
Special crop production programs	4.10	15
Institute's research experiments	4.04	16
Assisting farmers with marketing of produce	4.02	17
Rural or community development project	3.86	18
Farm settlement schemes	3.84	19
Supervising tractor hiring units	3.80	20
Farm credit and cooperatives	3.79	21

The low ratings of these topics may be because they were not the direct concern of agricultural assistants, although they offered some assistance in their execution.

Junior and Senior Staff Responses Compared

The responses of junior and senior staff on the duties of extension agents are shown in Table 48. The respondents had almost unanimous agreement about the five most important functions of extension agents. The junior staff gave equal ranks, as first priority item, to advisory service to farmers on agricultural production, and supervision of agricultural instructors. The other three items in rank order were: village council meetings, crop demonstration programs, and supply of seeds and plants to farmers.

The five items rated by senior staff in rank order were:

1. Advisory service to farmers on agricultural production
2. Supervision of agricultural instructors
3. Crop demonstration programs
4. Village council meetings
5. Supply of seeds and plants to farmers

Apart from the reverse order of the third and fourth items, both groups basically agreed on the importance of these items. As indicated earlier by all staff, advisory service to farmers was regarded by both groups as being one of their most important functions.

Both groups left no doubts as to the importance of the supervision of agricultural instructors. This suggests a need for the training institutions to emphasize supervision in the instructional program for

TABLE 48

COMPARISON OF OPINIONS OF JUNIOR AND SENIOR STAFF ON DUTIES OF EXTENSION AGENTS

Duties of Extension Workers	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
Advisory service to farmers on agricultural production	4.71	1.5	4.79	1	-1.29	279	ns
Supervision of agricultural instructors	4.71	1.5	4.71	2	0.06	279	ns
Village council meetings	4.63	3	4.57	4	0.84	280	ns
Crop demonstration programs	4.54	4	4.60	3	-0.70	280	ns
Supply of seeds and plants to farmers	4.52	5	4.53	5	-0.20	282	ns
Young farmers programs	4.49	6	4.36	9	1.38	282	ns
Fertilizer sale and distribution to farmers	4.43	7	4.44	7	-0.03	283	ns
Seed multiplication programs	4.40	8	4.51	6	-1.11	279	ns
Extension Demonstration Unit program	4.38	9.5	4.38	8	0.05	281	ns
Writing reports and newsletters	4.38	9.5	4.34	10	0.38	254	ns
Pesticide supplies to farmers	4.24	11	4.23	12	0.10	281	ns
Regulatory functions, such as enforcing cotton close season, etc.	4.23	12	4.14	15	0.82	279	ns

TABLE 48 (continued)

Duties of Extension Workers	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
Institutes' research experiments	4.09	13	3.96	17	1.00	280	ns
Special crop production programs	4.08	14.5	4.15	14	-0.69	277	ns
Collecting research data and agricultural information (statistics)	4.08	14.5	4.17	13	-0.74	279	ns
Soil conservation projects	4.07	16	4.28	11	-1.70	281	ns
Marketing of produce	4.00	17	4.06	16	-0.51	283	ns
Rural or community development project	3.83	18	3.94	18.5	-0.97	283	ns
Supervising tractor hiring units	3.80	19.5	3.81	21	-0.13	280	ns
Farm settlement schemes	3.80	19.5	3.94	18.5	-1.11	280	ns
Farmers credit and cooperatives	3.73	21	3.92	20	-1.41	279	ns

*Two-tailed test $P < .05$, $t \geq 1.96$

agricultural assistants. The finding also supports the generally held opinion that the brunt of extension activities with farmers was borne by the agricultural instructors who were somewhat ill prepared for this assignment.

The items which both groups considered to be the least important part of their work were:

1. Rural or community development projects
2. Supervising tractor hiring units
3. Farm settlement schemes
4. Farmers' credit and cooperatives

Since both groups rated farmers' credit and cooperatives last, there might be a need for a re-definition of what role extension agents should be expected to play in this area. Junior and senior staff rated regulatory functions as twelfth and fifteenth items respectively. The implications are that this assignment was of moderate importance.

The data indicated no statistical significance between the responses of the two groups in any of the items listed.

Duties of Agents Compared by States

Data in Table 49 show the rank order of the duties of extension agents by states.

Respondents from Benue-Plateau, and North-West states ranked the following three items as being the most important duties of agents in their states:

1. Advisory service to farmers on agricultural production
2. Supervision of agricultural instructors
3. Village council meetings

TABLE 49

COMPARISON OF RESPONSES OF EXTENSION STAFF ON THE MAIN DUTIES OF AGENTS, BY STATES

Duties of Extension Workers	Benue-Plateau N = 61		Kano N = 20		Kwara N = 36		N. Central N = 33		N. East N = 86		N. West N = 49	
	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank
Advisory service to farmers on agricultural production	4.87	1	4.67	3	4.71	3	4.67	4	4.64	1	4.84	1
Supervision of agricultural instructors	4.79	2	4.90	1	4.72	2	4.82	1	4.52	3	4.78	2
Village council meetings	4.72	3	4.60	6.5	4.60	6	4.69	2.5	4.46	4	4.69	3
Young farmers programs	4.61	4	4.60	6.5	4.31	9	4.49	12.5	4.35	7	4.43	9
Extension Demonstration Unit programs	4.55	5	4.50	8.5	4.19	10.5	4.33	14	4.34	8	4.35	10
Crop demonstration program	4.54	6	4.65	4.5	4.66	4	4.53	9	4.58	2	4.47	6.5
Supply of seeds and plants to farmers	4.53	7	4.50	8.5	4.61	5	4.69	2.5	4.42	5	4.53	4.5
Seed multiplication program	4.38	8	4.65	4.5	4.34	7	4.59	5	4.39	6	4.47	6.5
Writing reports and newsletters	4.34	9	4.44	11	4.33	8	4.57	6	4.28	11	4.39	8
Assisting farmers with marketing of produce	4.28	10	4.05	16	4.14	13.5	3.97	19	3.73	18	4.14	14
Special crop production programs	4.23	11	4.21	13	4.17	12	4.06	16	3.92	16	4.17	13

TABLE 49 (continued)

Duties of Extension Workers	Benue-Plateau N = 61		Kano N = 20		Kwara N = 36		N. Central N = 33		N. East N = 86		N. West N = 49	
	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank
Pesticide supplies to farmers	4.18	12	4.45	10	4.14	13.5	4.52	10.5	4.24	12	4.10	15.5
Regulatory functions such as enforcing cotton close season etc.	4.17	13	4.20	14	3.86	19.5	4.31	15	4.32	10	4.20	11
Fertilizer sale and distribution to farmers	4.15	14	4.75	2	4.79	1	4.55	8	4.33	9	4.53	4.5
Collecting research data and agricultural information (statistics)	4.10	15	4.15	15	3.97	16	4.49	12.5	4.05	15	4.04	17
Farmers' credit and cooperatives	4.05	16	3.55	20	3.89	18	3.79	21	3.66	20	3.71	21
Soil conservation projects	3.98	17	4.30	12	4.03	15	4.52	10.5	4.21	13	3.98	18
Farm settlement schemes	3.92	18	3.70	19	4.19	10.5	4.00	17.5	3.65	21	3.79	20
Rural or community development projects	3.87	19	3.75	18	3.94	17	3.82	20	3.88	17	3.84	19
Supervising tractor hiring units	3.75	20	3.20	21	3.86	19.5	4.00	17.5	3.70	19	4.10	15.5
Institute's research experiments	3.74	21	4.00	17	3.81	21	4.56	7	4.13	14	4.19	12

Kano state agents ranked the three most important duties they performed in the following order:

1. Supervision of agricultural instructors
2. Fertilizer sale and distribution to farmers
3. Advisory service to farmers on agricultural production

The views of Kwara state agents were more closely related to those held by Kano state. They ranked the following three items in order of importance:

1. Fertilizer sale and distribution to farmers
2. Supervision of agricultural instructors
3. Advisory service to farmers on agricultural production

North-Central state agents rated the three most important duties performed by extension agents as:

1. Supervision of agricultural instructors
2. Village council meetings
3. Supply of seeds and plants to farmers

North-East state indicated a different order in importance of duties of extension agents. These were:

1. Advisory service to farmers on agricultural production
2. Crop demonstration programs
3. Supervision of agricultural instructors

It was evident from these responses that the most important duties of agents were concerned with supervision of agricultural instructors and advisory service to farmers in crop production practices. Other major assignment of agents include the following:

1. Village council meetings
2. Fertilizer sale and distribution
3. Crop demonstration programs
4. Supply of seeds and plants to farmers

There was lack of agreement about the duties which were thought to be of least importance in the work of agents. The responses from all six states spotlighted five items which may not be regarded as being a particularly important part of the work of agents. These were:

1. Institute's research experiments
2. Farm settlement schemes
3. Rural or community development projects
4. Supervising tractor hiring units
5. Farmers' credit and cooperatives

There appeared to be no doubt that the duties identified in this study represented major assignments of extension agents in the northern states. Most of the items were highly rated by agents in all six states. The lowest mean score by any state was 3.20, indicating a category of "some importance."

Duties of Agents Compared by Tenure

There were significant differences in the responses of agents by tenure in two items:

1. Pesticide supplies to farmers
2. Collecting research data and agricultural information (statistics)

Table 50 shows the responses of agents by tenure on the importance of pesticide supplies to farmers.

TABLE 50

OPINION OF AGENTS ABOUT THE IMPORTANCE OF PESTICIDE SUPPLIES, BY TENURE

Years of Tenure	Degree of Importance in Percent					Number of Agents
	Very Important	Quite	Some	Little	Not Important	
0-4	50.7	39.7	5.5	2.7	1.4	73
5-9	55.6	27.3	14.1	1.0	2.0	99
10 and over	33.3	48.6	12.6	2.7	2.7	111

X^2 = 16.73, Significant at .05 level.

Ninety percent of the agents with less than 5 years of tenure, compared to 83 percent with 5-9 years of tenure and 80 percent with 10 or more years of tenure, felt that providing pesticides to farmers was an important part of the work of extension workers.

About 10 percent of agents with less than 5 years of tenure did not feel it was important, compared to 17 percent with 5-9 years of tenure and 18 percent with 10 or more years of tenure. These differences were significant at the .05 level. The findings would imply that agents with less tenure tended to think that the responsibility for pesticide supplies was a more important assignment of agents than did those with longer tenure.

Data in Table 51 show that 83 percent of agents with 5-9 years of tenure indicated that collecting research data and agricultural information was an important duty of agents, compared to slightly over 70 percent of agents in the other tenure groups who held a similar opinion.

TABLE 51

OPINION OF AGENTS ABOUT THE IMPORTANCE OF COLLECTING RESEARCH DATA AND AGRICULTURAL INFORMATION, BY TENURE

Years of Tenure	Degree of Importance in Percent					Number of Agents
	Very Important	Quite	Some	Little	Not Important	
0-4	45.9	24.3	28.4	0.0	1.4	74
5-9	46.4	37.1	6.2	7.2	3.1	97
10 and over	40.0	34.5	17.3	5.5	2.7	110

$X^2 = 21.13$, Significant at .01 level.

Agents with 5-9 years of tenure considered the collection of research data and agricultural information a somewhat more important duty of agents than did those in shorter and longer tenure groups. The data revealed that 17 percent of the agents with 5-9 years of tenure, compared to 30 percent with less than 5 years of tenure and 26 percent with 10 or more years of tenure felt that the item was of low importance. The data were significant at the .01 level.

Duties of Agents Compared by Agricultural Training

Table 52 shows the opinion of agents by agricultural training on the importance of the institute's research experiments. Eighty-seven percent of agricultural assistants compared to 72 percent of assistant agricultural superintendents, and 75 percent of B.S. graduates, thought this responsibility was an important duty of agents.

Approximately 21 percent of agricultural assistants, 28 percent of assistant agricultural superintendents, and 25 percent of B.S.

TABLE 52

OPINION OF AGENTS ABOUT THE IMPORTANCE OF RESEARCH EXPERIMENTS, BY AGRICULTURAL TRAINING

Agricultural Training	Degree of Importance in Percent					Number of Agents
	Very Important	Quite	Some	Little	Not Important	
AA	45.3	33.5	11.2	6.1	3.9	179
AAS/Diploma	35.2	36.3	23.9	2.8	1.4	71
BS	15.0	60.0	15.0	10.0	0.0	20

X^2 = 17.28, Significant at .05 level.

graduates who responded to this question did not regard the assignment as a major duty of agents. These responses were statistically significant at the .05 level.

A possible explanation for this difference may be due to the fact that agricultural assistants were directly responsible for supervising research experiments and therefore had a better conception of its importance in relation to their other assignments.

EXTENSION PROBLEMS IN THE NORTHERN STATES OF NIGERIA

Opinion of All Extension Staff

The opinion of extension staff on important problems affecting continued progress of extension is indicated in Table 53. The five most serious problems identified by agents, in priority order, were:

1. Poor transportation facilities
2. Lack of suitable markets and favorable prices for farm produce

TABLE 53

OPINION OF EXTENSION PERSONNEL ON PROBLEMS AFFECTING EXTENSION ACTIVITIES
N = 285

Extension Problems	Weighted Mean	Rank Order
Poor transportation facilities for extension staff	3.71	1
Lack of suitable markets and favorable prices for farm produce	3.32	2
Lack of cooperation of local people in program implementation	3.24	3
Lack of incentives for staff	3.17	4
Inadequate technical knowledge in agriculture	3.13	5
Inadequate extension staff	3.12	6
Lack of farmer finance	3.11	7
Reluctance of farmers to accept new practices	3.07	8
Local people not involved in program planning	3.02	9
Non-involvement of extension agents in program planning	2.95	10
Lack of proper extension programs	2.93	11
Illiteracy of farmers	2.90	12
Programs not related to the needs of community	2.88	13
Frequent transfer of staff	2.87	14
Lack of practical field experience	2.86	15
Lack of directives from headquarters	2.72	16.5
Poor results of package demonstrations	2.72	16.5
Heavy supervisory functions	2.53	18
Assignment of non-extension activities	2.52	19
Too many package demonstrations to supervise	2.38	20
Responsibility for research experiments	2.35	21
Performing regulatory functions, such as enforcing cotton close season, etc.	2.34	22
Youth work activities	2.19	23

3. Lack of cooperation of local people

4. Lack of incentives for staff

5. Inadequate technical knowledge in agriculture

Poor transportation facilities was identified as the most important single factor which hindered the success of agents in their work. This item was rated considerably higher than all other items, emphasizing the seriousness of the problem.

The five problems identified by agents as causing relatively minor difficulties were:

1. Assignment of non-extension activities

2. Too many package demonstrations to supervise

3. Responsibility for research experiments

4. Performing regulatory functions, such as enforcing cotton close season, etc.

5. Youth work activities

Extension agents did not regard these problems as creating any serious handicaps to their work. Youth work activities provided the least problem. An explanation of this may be that agents devoted very little time to youth work activities. Although agents still performed some regulatory functions, they did not pose any serious limitations to their effectiveness with farmers.

The difference of 1.52 between the highest and lowest mean scores represented a wide spread and considerable discrimination between the various problems identified in the study.

Junior and Senior Staff Responses Compared

Data in Table 54 illustrate the responses of junior and senior staff on a number of extension problems.

The three most important problems identified by junior staff were:

1. Poor transportation facilities
2. Inadequate staff
3. Lack of markets and favorable price

Senior staff selected poor transportation facilities and inadequate technical knowledge in agriculture as the most important problems, these two problems had the same weighted mean scores, followed by lack of suitable markets and favorable prices for farmers' crops.

While both groups were agreed on the seriousness of poor transportation as a priority problem, junior staff held a different opinion about inadequate technical knowledge in agriculture, which they ranked eleventh in order of importance.

The three items which both groups indicated as creating relatively little problem to the progress of extension were:

1. Performing regulatory functions, such as enforcing cotton close season, etc.
2. Too many package demonstrations to supervise
3. Youth work activities

There were seven problems in which the responses of junior and senior staff were significantly different. These were:

1. Lack of cooperation from local people
2. Lack of incentives for staff

TABLE 54

COMPARISON OF OPINIONS OF JUNIOR AND SENIOR STAFF ON PROBLEMS OF EXTENSION

Extension Problems	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
Poor transportation facilities for extension staff	3.73	1	3.68	1.5	0.65	280	ns
Inadequate extension staff	3.27	2	3.41	5	-1.25	280	ns
Lack of suitable markets and favorable prices for farm produce	3.25	3	3.46	3	-1.83	280	ns
Lack of cooperation of local people in program implementation	3.15	4	3.43	4	-2.24	279	.05
Reluctance of farmers to accept new practices	3.07	5	3.07	12	0.01	280	ns
Lack of incentives for staff	3.05	6.5	3.40	6	-3.29	275	.001
Lack of farmer finance	3.05	6.5	3.23	8	-1.48	280	ns
Illiteracy of farmers	2.96	8	2.79	16	1.24	280	ns
Local people not involved in program planning	2.94	9.5	3.18	9.5	-1.84	282	ns
Non-involvement of extension agents in program planning	2.94	9.5	2.99	13.5	-0.28	279	ns
Inadequate technical knowledge in agriculture	2.84	11	3.68	1.5	-5.91	278	.001
Frequent transfer of staff	2.81	12	2.99	13.5	-1.26	280	ns

TABLE 54 (continued)

Extension Problems	Junior Staff N = 189		Senior Staff N = 96		t*	df	Level of Signif.
	Weighted Mean	Rank	Weighted Mean	Rank			
Lack of proper extension programs	2.79	13	3.18	9.5	-3.09	279	.01
Lack of directives from headquarters	2.73	14.5	2.68	17	0.40	280	ns
Programs not related to needs of local community	2.73	14.5	3.16	11	-2.99	279	.01
Poor results of package demonstrations	2.62	16	2.92	15	-2.17	281	.05
Lack of practical field experience	2.60	17	3.36	7	-5.33	280	.001
Heavy supervisory functions	2.46	18.5	2.67	18	-1.60	269	ns
Assignment of non-extension activities	2.46	18.5	2.65	19	-1.30	275	ns
Responsibility for research experiments	2.41	20.5	2.23	21	1.38	276	ns
Performing regulatory functions, such as enforcing cotton close season, etc.	2.41	20.5	2.21	22	1.42	279	ns
Too many package demonstrations to supervise	2.32	22	2.51	20	-1.44	282	ns
Youth work activities	2.23	23	2.10	23	1.07	272	ns

*Two-tailed test $P < .05$, $t \geq 1.96$

3. Inadequate technical knowledge in agriculture
4. Lack of proper extension programs
5. Programs not related to needs of local community
6. Poor results of package demonstrations
7. Lack of practical field experience

Senior staff indicated that these problems had a more serious effect on extension programs than did the junior staff. The response on the seriousness of lack of field practical experience was significantly different at the .001 level. Senior staff ranked this as the seventh most serious problem whereas it was ranked seventeenth by the junior staff.

The spread in mean scores between responses of junior and senior staff were 1.50 and 1.58 respectively, indicating considerable discrimination by both groups in scoring the various items.

Although responses on some items were not statistically significant, they provide interesting comparisons. For instance, junior staff ranked fifth the reluctance of farmers to accept new practices, while it was ranked twelfth by the senior staff. Illiteracy of farmers was ranked eighth by junior staff and sixteenth by senior staff. Lack of directives from headquarters was ranked 14.5 by junior staff compared to seventeenth by senior staff. The importance attached to these problems by each group seem to indicate how the problems directly affected the respondents.

Responses on Extension Problems Compared by States

The analysis of the responses of agents by states on extension problems is shown in Table 55.

TABLE 55

COMPARISON OF OPINIONS OF JUNIOR AND SENIOR STAFF ON EXTENSION PROBLEMS BY STATES

Extension Problems	Benue-Plateau N = 61		Kano N = 20		Kwara N = 36		N. Central N = 33		N. East N = 86		N. West N = 49	
	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank
Poor transportation facilities for extension staff	3.75	1	3.63	2	3.83	1	3.75	1	3.78	1	3.47	2
Lack of suitable markets and favorable prices for farm produce	3.67	2	3.35	6	3.19	4	3.09	7	3.19	3	3.35	3
Lack of cooperation of local people in program implementation	3.53	3	3.60	3	3.17	5	3.03	11	3.11	4.5	3.18	4
Lack of incentives for staff	3.32	4	3.56	4	3.31	2	3.31	2	2.99	7	2.96	9
Local people not involved in program planning	3.30	5	3.00	13	2.75	14	3.09	7	2.98	8	2.92	10
Inadequate extension staff	3.25	6.5	3.70	1	2.94	10	3.09	7	3.41	2	3.49	1
Reluctance of farmers to accept new practices	3.25	6.5	3.45	5	3.06	7.5	2.88	16	2.93	9	3.10	5

TABLE 55 (continued)

Extension Problems	Benue-Plateau N = 61		Kano N = 20		Kwara N = 36		N. Central N = 33		N. East N = 86		N. West N = 49	
	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank
Lack of proper extension programs	3.24	8	2.95	14.5	2.86	12	3.00	13	2.81	11.5	2.73	13
Inadequate technical knowledge in agriculture	3.23	9	3.11	9	3.14	6	3.22	3	3.11	4.5	2.98	8
Non-involvement of extension agents in program planning	3.18	10	3.05	10.5	2.91	11	3.09	7	2.89	10	2.67	15
Lack of farmer finance	3.17	11	3.25	7	3.25	3	3.00	13	3.04	6	3.08	6.5
Programs not related to the needs of local community	3.14	12	2.85	17	2.81	13	3.12	4	2.71	15	2.75	12
Lack of practical field experience	3.07	13	2.80	18	3.06	7.5	3.00	13	2.66	17	2.72	14
Frequent transfer of staff	2.98	14	3.04	12	2.69	15	3.06	10	2.77	13	2.86	11
Illiteracy of farmers	2.80	15.5	2.95	14.5	2.97	9	2.94	15	2.81	11.5	3.08	6.5
Lack of directives from headquarters	2.80	15.5	3.05	10.5	2.44	18	3.09	7	2.68	16	2.49	19

TABLE 55 (continued)

Extension Problems	Benue-Plateau N = 61		Kano N = 20		Kwara N = 36		N. Central N = 33		N. East N = 86		N. West N = 49	
	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank	Weighted Mean	Rank
Assignment of non-extension activities	2.73	17	2.33	21	2.46	17	2.52	19	2.43	20.5	2.53	18
Poor results of package demonstration	2.70	18	3.15	8	2.67	16	2.67	17	2.74	14	2.58	17
Too many package demonstrations to supervise	2.67	19	2.50	19	2.08	21	2.36	22	2.43	20.5	2.14	22
Performing regulatory functions, such as enforcing cotton close season, etc.	2.53	20	2.42	20	2.17	20	2.27	23	2.44	19	2.08	23
Heavy supervisory functions	2.51	21	2.94	16	2.31	19	2.58	18	2.48	18	2.63	16
Responsibility for research experiments	2.33	22	2.26	22	2.03	22	2.45	20	2.42	22	2.46	21
Youth work activities	2.32	23	2.06	23	1.78	23	2.38	21	2.06	23	2.48	20

The three problems selected by agents in Benue-Plateau state as being most serious to them were:

1. Poor transportation facilities for extension staff
2. Lack of suitable markets and favorable price for farm produce
3. Lack of cooperation of local people in program implementation

Kano state agents ranked the three most serious extension problems in their state as:

1. Inadequate extension staff
2. Poor transportation facilities for extension staff
3. Lack of cooperation of local people in program implementation

Kwara state agents indicated the three most serious extension problems as follows:

1. Poor transportation facilities for extension staff
2. Lack of incentives for staff
3. Lack of farmer finance

Although there were differences in the order of importance of the problems identified by agents in the six northern states, the three most serious problems were remarkably similar. Differences in resources and facilities notwithstanding, the states shared some common problems. The most obvious of these were:

1. Poor transportation facilities for extension staff
2. Inadequate extension staff

3. Lack of suitable markets and favorable prices for farm produce
4. Lack of cooperation of local people in program implementation
5. Lack of incentives for staff
6. Inadequate technical knowledge in agriculture/lack of farmer finance

The data indicate that poor transportation for extension staff and inadequate extension agents were critical problems for several states. Interestingly, inadequate technical knowledge in agriculture and lack of practical field experience were not considered as crucial problems by most states.

Two-thirds of the states indicated that the least important extension problems were the responsibility for research experiments, and youth work activities. The other two states, North-Central and North-West identified two problems which were of least importance to the agents as supervising package demonstrations, and performing regulatory functions.

Responses on Extension Problems Compared by Tenure

There were statistically significant responses in the opinion of agents by tenure in the following extension problems:

1. Inadequate technical knowledge in agriculture
2. Lack of practical field experience
3. Lack of proper extension program
4. Non-involvement of local people in program planning
5. Responsibility for supervising research experiments

Data in Table 56 show the opinion of extension staff by tenure on the seriousness of inadequate technical knowledge in agriculture in limiting the success of agents.

TABLE 56

OPINION OF AGENTS BY TENURE ABOUT THE SERIOUSNESS OF INADEQUATE TECHNICAL KNOWLEDGE IN AGRICULTURE AS AN EXTENSION PROBLEM

Years of Tenure	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat	Not Serious	
0-4	48.6	23.6	2.8	25.0	72
5-9	55.6	13.1	10.1	21.2	99
10 and over	67.9	11.9	5.5	14.7	109

$X^2 = 13.60$, Significant at .05 level.

Respondents with longer tenure tended to view the lack of adequate technical knowledge in agriculture as a more serious problem for extension workers. Agents with 5-9 years of tenure felt it was less of a problem.

Almost four-fifths of agents with 10 or more years of tenure, compared to about seven out of ten of those with 5-9 years of tenure or less than 5 years tenure, indicated that this was a serious extension problem.

Only one out of ten agents with 10 or more years of tenure compared to three out of ten with less than 5 years of tenure responded that it was not a serious problem. These findings were significant at the .05 level.

Responses on the seriousness of lack of practical field experience as an extension problem are shown in Table 57. The findings revealed that 75 percent of agents with 10 or more years of tenure compared to 60 percent with 5-9 years of tenure, and 65 percent with less than 5 years of tenure responded that this was a serious extension problem.

TABLE 57

OPINION OF AGENTS BY TENURE, ON THE SERIOUSNESS OF LACK OF FIELD EXPERIENCE AS AN EXTENSION PROBLEM

Years of Tenure	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat	Not Serious	
0-4	29.7	35.1	16.2	18.9	74
5-9	39.8	20.4	10.2	29.6	98
10 and over	49.1	25.5	8.2	17.3	110

X^2 = 14.32, Significant at .05 level.

It was also found that nearly 26 percent of agents with 10 or more years of tenure compared to 40 percent with 5-9 years of tenure, and 35 percent with less than 5 years of tenure did not feel that lack of practical field experience by agents was a serious extension problem.

Agents with longer tenure, 10 years and over, tended to feel this was a more serious problem than did those with less tenure. Three-fourths of the longer tenure groups considered lack of field experience a serious problem, compared to approximately three-fifths of those with less experience. The responses were significantly different at the .05 level.

Table 58 shows responses concerning lack of proper extension programs as a serious extension problem.

Seventy-nine percent of the agents with 10 or more years of tenure; 66 percent with 5-9 years of tenure, and 71 percent with less than 5 years of tenure responded that the lack of programs was a serious problem in extension.

Only about 21 percent of agents with 10 or more years of tenure compared to 34 percent with 5-9 years tenure and about 29 percent with less than 5 years tenure indicated that it was not a serious problem.

TABLE 58

OPINION OF AGENTS BY TENURE ON SERIOUSNESS OF EFFECT OF LACK OF PROPER EXTENSION PROGRAMS AS AN EXTENSION PROBLEM

Years of Tenure	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat	Not Serious	
0-4	30.1	41.1	16.4	12.3	73
5-9	38.1	27.8	20.6	13.4	97
10 and over	30.6	48.6	7.2	13.5	111

X^2 = 13.81, Significant at .05 level.

The responses were significantly different at the .05 level. It might be inferred from the data that agents with longer tenure considered the lack of proper extension programs to be a more serious extension problem than those with less tenure.

Data in Table 59 show the responses of agents on the effect on the extension service of lack of involvement of local people in program planning.

A higher percentage (77) of agents with 10 or more years of tenure indicated that this was a serious extension problem. Only 65 percent of agents with 5-9 years of tenure, and about 69 percent with less than 5 years of tenure held similar opinions.

The data also showed that 23 percent of agents with 10 or more years of tenure compared to 35 percent with less than 5 years of tenure felt that the lack of involvement of local people in program planning was not a serious extension problem. These responses were significant at the .05 level.

TABLE 59

OPINION OF AGENTS BY TENURE OF SERIOUSNESS OF LACK OF INVOLVEMENT OF LOCAL PEOPLE IN PROGRAM PLANNING AS AN EXTENSION PROBLEM

Years of Tenure	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat	Not Serious	
0-4	48.6	20.3	21.6	9.5	74
5-9	35.4	29.3	26.3	9.1	99
10 and over	45.0	31.5	9.9	13.5	111

X^2 = 13.25, Significant at .05 level.

The data indicate that agents with longer tenure experienced more serious difficulties in extension activities than those with shorter tenure, as a result of lack of involvement of local people in extension programming.

Table 60 shows the responses of agents on the seriousness of supervision of research experiments as an extension problem.

The data indicate that 49 percent of agents with less than 5 years of tenure, 37 percent with 5-9 years of tenure, and 52 percent with 10 or more years of tenure responded that supervision of research experiments was a serious problem in extension.

TABLE 60

OPINION OF AGENTS BY TENURE ON THE IMPLICATION OF SUPERVISION OF RESEARCH EXPERIMENTS AS AN EXTENSION PROBLEM

Years of Tenure	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat	Not Serious	
0-4	22.5	26.8	25.4	25.4	71
5-9	13.3	23.5	37.8	25.5	98
10 and over	15.6	36.7	16.5	31.2	109

X^2 = 15.23, Significant at .05 level.

However, 51 percent of agents with less than 5 years of tenure, 63 percent with 5-9 years of tenure, and 48 percent with 10 or more years of tenure indicated that it was not a serious problem. The responses were significant at the .05 level.

A possible explanation of this data might be that agents with 5-9 years of tenure, and those with less than 5 years tenure held the view that supervision of research experiments did not retard the work of agents. A slightly higher percentage of agents with 10 or more years of tenure indicated that this responsibility created limitations to the operations of extension workers.

Responses on Extension Problems Compared by Agricultural Training

There were significantly different responses in the opinions of agents, by agricultural training, in the following extension problems:

1. Inadequate technical knowledge in agriculture
2. Lack of practical field experience
3. Lack of proper extension programs
4. Non-involvement of local people in program planning
5. Reluctance of farmers to accept new practices
6. Responsibility for supervising research experiments
7. Frequent transfer of staff
8. Lack of incentives for staff
9. Non-involvement of extension agents in program planning

Opinion of agents on the importance of inadequate technical knowledge in agriculture as a problem in extension is shown in Table 61.

TABLE 61

OPINION OF AGENTS ON THE SERIOUSNESS OF LACK OF ADEQUATE TECHNICAL KNOWLEDGE IN AGRICULTURE ON EXTENSION WORK BY AGRICULTURAL TRAINING

Agricultural Training	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat Serious	Not Serious	
AA	48.6	14.7	8.5	28.2	177
AAS/Diploma	83.1	11.3	1.4	4.2	71
BS	60.0	30.0	10.0	0.0	20

X^2 = 37.17, Significant at .005 level.

A high percentage of assistant agricultural superintendents (94) and B.S. graduates (90) compared to 63 percent of agricultural assistants indicated that this was a serious extension problem. Only 6 percent of assistant agricultural superintendents, and 10 percent of B.S. graduates compared to nearly 37 percent of agricultural assistants responded that it was not a serious problem. The responses were significantly different at the .005 level.

The data clearly indicate that the agricultural assistants regarded inadequate technical knowledge in agriculture as a less serious problem, whereas both the assistant agricultural superintendents and B.S. graduates saw this factor as causing a serious limitation in the effectiveness of extension workers.

Table 62 shows the responses of agents on the significance of lack of practical field experience as an extension problem.

Eighty-seven percent of assistant agricultural superintendents and 80 percent of B.S. graduates compared to only 58 percent of

TABLE 62

OPINION OF AGENTS ON THE SERIOUSNESS OF LACK OF FIELD EXPERIENCE ON EXTENSION WORK, BY AGRICULTURAL TRAINING

Agricultural Training	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat Serious	Not Serious	
AA	32.2	25.6	10.6	31.7	180
AAS/Diploma	59.2	28.2	9.9	2.8	71
BS	45.0	35.0	20.0	0.0	20

$X^2 = 35.70$, Significant at .005 level.

agricultural assistants indicated that the lack of practical field experience was a very serious problem in extension.

Approximately one out of six assistant agricultural superintendents and one-fifth of the B.S. graduates compared to two-fifths of agricultural assistants indicated that it was not a serious problem.

Both the B.S. graduates and assistant agricultural superintendents felt very strongly about the seriousness of the problem of lack of field experience. It was not entirely surprising that the agricultural assistants should think lightly of this problem since they were directly affected. The responses were significantly different at the .005 level.

Data in Table 63 show the opinion of agents on the effect of lack of proper programs on extension work.

Approximately nine out of ten B.S. graduates and assistant agricultural superintendents felt that this was a serious problem,

TABLE 63

OPINION OF AGENTS ON THE SERIOUSNESS OF LACK OF PROPER EXTENSION PROGRAMS ON EXTENSION WORK, BY AGRICULTURAL TRAINING

Agricultural Training	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat Serious	Not Serious	
AA	30.9	32.6	19.1	17.4	178
AAS/Diploma	36.1	51.4	6.9	5.6	72
BS	30.0	60.0	0.0	5.4	20

$X^2 = 21.14$, Significant at .005 level.

compared to slightly more than three-fifths of the agricultural assistants who held a similar view.

Thirty-seven percent of the agricultural assistants did not regard lack of proper programs as a serious extension problem. The responses were significant at the .005 level.

Both the B.S. and assistant agricultural superintendent graduates indicated strong concern about lack of proper programs. It may be profitable for extension administrators to look into this problem more critically so as to insure full participation of this cadre of staff in programming.

Data in Table 64 indicate responses of agents in the lack of involvement of local clientele in program planning.

There was a positive indication by assistant agricultural superintendents that they considered this a very serious extension problem. Eighty-two percent of them, compared to 67 percent of

TABLE 64

OPINION OF AGENTS ABOUT THE SERIOUSNESS OF LACK OF INVOLVEMENT OF LOCAL PEOPLE IN PROGRAM PLANNING IN EXTENSION WORK, BY AGRICULTURAL TRAINING

Agricultural Training	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat Serious	Not Serious	
AA	39.4	27.8	21.1	11.7	180
AAS/Diploma	52.8	29.2	8.3	9.7	72
BS	35.0	15.0	40.0	10.0	20

$X^2 = 13.17$, Significant at .05 level.

agricultural assistants and 50 percent of B.S. graduates, responded that lack of involvement of local people in program planning was a major problem limiting the effectiveness of extension programs.

Slightly less than two-thirds of the assistant agricultural superintendents and one-third of the agricultural assistants held a contrary view compared to one-half of the B.S. graduates. Both the assistant agricultural superintendents and agricultural assistants were more concerned about involving local people in program planning than did the university graduates. These responses were significantly different at the .05 level.

The opinions of agents on reluctance of farmers to accept new practices are shown in Table 65.

Both agricultural assistants and assistant agricultural superintendents appeared to have similar views about the seriousness of this problem.

TABLE 65

OPINION OF AGENTS ABOUT THE SERIOUSNESS OF THE RELUCTANCE OF FARMERS TO ACCEPT NEW PRACTICES ON EXTENSION WORK, BY AGRICULTURAL TRAINING

Agricultural Training	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat Serious	Not Serious	
AA	43.0	28.5	20.7	7.8	179
AAS/Diploma	32.4	38.0	29.6	0.0	71
BS	55.0	25.0	20.0	0.0	20

$X^2 = 13.10$, Significant at .05 level.

Slightly over 70 percent of assistant agricultural superintendents and of agricultural assistants indicated that the reluctance of farmers to accept new practices was a serious extension problem, while about 29 percent of the agricultural assistants and 30 percent of the assistant agricultural superintendents said it was not.

A higher percentage of B.S. graduates (80) felt that the reluctance of farmers to accept new practices was a serious problem in extension, compared to only 20 percent who said it was "somewhat" serious. These responses were significant at the .05 level.

The opinion of agents on the importance of supervising research experiments as an extension problem is reported in Table 66.

TABLE 66

OPINION OF AGENTS ON THE SERIOUSNESS OF SUPERVISING RESEARCH EXPERIMENTS ON EXTENSION WORK, BY AGRICULTURAL TRAINING

Agricultural Training	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat Serious	Not Serious	
AA	20.8	26.4	22.5	30.3	178
AAS/Diploma	7.1	35.7	31.4	25.7	70
BS	0.0	31.6	42.1	26.3	19

$X^2 = 14.62$, Significant at .025 level.

Forty-seven percent of agricultural assistants, about 46 percent of assistant agricultural superintendents, and 32 percent of B.S. graduates responded that supervising research experiments was a serious extension problem. However, 53 percent of the agricultural assistants,

57 percent of the assistant agricultural superintendents, and 68 percent of the B.S. graduates indicated that it was a less serious problem in extension.

Although these responses were significantly different at the .025 level, the data indicate that none of the three groups of respondents considered supervising research experiments as an important extension problem.

The opinion of agents on the effect on extension activities of frequent staff transfer is shown in Table 67. Although the responses were significant at the .025 level, the data revealed no major trends which would suggest divergent opinions between the three groups of agents. About 65 percent of each group indicated that it was a serious problem of extension.

Only 12 percent of agricultural assistants compared to 27 percent of assistant agricultural superintendents, and 25 percent of B.S.

TABLE 67

OPINION OF AGENTS ON THE SERIOUSNESS OF FREQUENT TRANSFER OF STAFF ON EXTENSION WORK, BY AGRICULTURAL TRAINING

Agricultural Training	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat Serious	Not Serious	
AA	38.0	26.8	12.3	22.9	179
AAS/Diploma	39.4	26.8	26.8	7.0	71
BS	35.0	30.0	25.0	10.0	20

$X^2 = 15.14$, Significant at .025 level.

graduates felt that frequent transfer of staff was only a "somewhat" serious problem.

There was appreciable contrast in the responses to the category of "not" serious. Twenty-three percent of the agricultural assistants compared to only 7 percent of the assistant agricultural superintendents and 10 percent of the B.S. graduates responded accordingly. There appeared to be some doubt amongst all groups of agents about the significance of this problem.

Table 68 shows the opinion of agents on the seriousness of lack of staff incentives as an extension problem. Most of the responses ranged from "very" serious to "somewhat" serious. Only 7 percent of the agricultural assistants indicated that it was not a serious problem.

Nearly 77 percent of the agricultural assistants, 90 percent of the assistant agricultural superintendents, and 95 percent of the B.S. graduates all indicated that lack of incentives was a serious extension problem. The responses were statistically significant at the .025 level.

TABLE 68

OPINION OF AGENTS ON THE SERIOUSNESS OF LACK OF INCENTIVES FOR STAFF ON EXTENSION WORK, BY AGRICULTURAL TRAINING

Agricultural Training	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat Serious	Not Serious	
AA	38.3	38.3	16.0	7.4	175
AAS/Diploma	54.3	35.7	10.0	0.0	70
BS	35.0	60.0	5.0	0.0	20

$X^2 = 14.94$, Significant at .025 level.

Interpretation of the data would suggest that lack of staff incentives was considered as a very serious problem by all categories of staff. Although agricultural assistants placed slightly less emphasis on this problem than did other groups of agents, it would be useful for Ministry officials to explore avenues for providing more incentives for extension workers who work mainly in rural conditions with limited amenities.

Data in Table 69 indicate the responses of agents by agricultural training on the effect of non-involvement of extension agents in program planning.

The data indicate that both agricultural assistants and assistant agricultural superintendents shared similar opinions about the problem. About 68 percent of agricultural assistants, and of assistant agricultural superintendents indicated that it was a serious extension problem.

TABLE 69

OPINION OF AGENTS ON THE SERIOUSNESS OF NON-INVOLVEMENT OF EXTENSION AGENTS IN PROGRAM PLANNING ON EXTENSION WORK, BY AGRICULTURAL TRAINING

Agricultural Training	Seriousness of Problem in Percent				Number of Agents
	Very Serious	Serious	Somewhat Serious	Not Serious	
AA	40.4	27.5	17.4	14.6	178
AAS/Diploma	43.3	25.4	16.9	14.1	70
BS	5.0	50.0	30.0	10.0	19

X^2 = 18.37, Significant at .01 level.

About one-half of the B.S. graduates felt that non-involvement of agents in program planning was a "serious" problem compared to two out of five who placed it in the category of "somewhat" or "not" serious. These responses were significantly different at the .01 level.

It would appear that the agricultural assistants and assistant agricultural superintendents considered non-involvement of agents in program planning as a slightly more serious extension problem than did the B.S. graduates. The findings indicate that all groups of agents indicated a need for greater involvement in program planning

Summary

This chapter was mainly concerned with identifying the primary responsibilities of extension agents and in analyzing their opinions on a variety of problems confronting the extension service in the northern states of Nigeria.

There was strong evidence that agents were principally responsible for advising farmers on crop production. However, supervising agricultural instructors who were more directly concerned with advising farmers was considered a major function of agricultural assistants. This study has identified a number of functions of agents and the degree of importance attached to them.

Some important reasons were advanced for possible failures in extension activities. The most outstanding problems were poor transportation facilities for easy mobility of agents and inadequate staff to support extension programming. These two problems were considered by most respondents as posing serious limitations to extension programs.

The senior staff in particular felt that inadequate technical knowledge in agriculture was also causing serious problems.

Opinions differed between tenure groups and agents with different agricultural background on some of the assignments and problems identified in this study. These differences have been categorized in appropriate sections of the chapter. In general, the differences emphasize the depth of understanding by some categories of agents of the responsibilities and problems affecting certain programs. The information elucidated should provide extension administrators with useful criteria for re-evaluating the programs concerned.

Chapter VIII

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to ascertain the training needs for potential extension agents in the northern states of Nigeria. This could facilitate the development of an appropriate program of training to provide agents with the knowledge, skills, and attitudes that would make them more competent and proficient in their jobs. A secondary purpose was to identify the primary responsibilities of agents, and the principal problems of extension in the northern states of Nigeria. The following specific objectives were developed.

1. To determine to what extent junior and senior extension agents consider the program of training at the Schools of Agriculture appropriate to the work of extension personnel.
2. To determine the level of satisfaction with the program of training, and what changes, if any, should be introduced to improve it.
3. To determine what priority should be given to the various areas of training identified in the study.
4. To determine what differences exist in the training needs of extension agents in each of the six northern states of Nigeria.
5. To identify the primary functions of extension agents in the northern states of Nigeria in order to make it possible

to develop a training program which would prepare the agents adequately for their future work.

6. To identify the principal problems of extension in the northern states, and indicate how they relate to the training of agents.

The training topics analyzed in this study were grouped into seven general areas of competency based partly on the existing curriculum of study for agricultural assistants at the Schools of Agriculture and on the findings from a similar study conducted in Western Nigeria. The seven general areas were:

1. Agricultural extension philosophy, organization, and administration
2. Sociological factors
3. Educational process and human development
4. Program planning
5. Communications in extension
6. The use of research methods and evaluation in extension programs
7. Technical knowledge in agriculture

After developing a theoretical framework on the basic concept of need, and reviewing related literature and studies on training needs of extension agents, a research questionnaire was developed for collecting the data. Each questionnaire contained 179 items. There were 126 items which dealt specifically with the seven general areas of training. The remainder of the questionnaire was concerned with the duties of agents and extension problems.

In each of the general areas, agents were asked to respond in terms of degree of training needed. Terms such as "very much," "much," "somewhat," "little," or "not" needed were used. On duties of agents, terms used were "very," "quite," "some," "little," or "no" importance. Extension problems were described as "very serious," "serious," "somewhat serious," or "not serious." A four or five point scale was used, and an equal distance was assumed between each point on a scale. Scores of five, four, three, two, and one were assigned to the scales. A value of zero was used to denote missing information or no response.

The data for this study were collected from 189 junior and 96 senior extension staff drawn from the six northern states of Nigeria. The questionnaires were mailed to Nigeria and extension specialists from the Ahmadu Bello University, Zaria, assisted in administering them. Data were collected from agents at a series of in-service training meetings held between July and October, 1972.

Analysis of the data involved calculating weighted mean scores for all items in the questionnaire. The number of agents responding to each category on the scale was multiplied by the assigned value. The product was divided by the total number of respondents to the topic. The result was the weighted mean score for the particular item. Agents who did not respond in a particular situation were treated as missing information and were not included in the computation. Data were precoded on IBM cards and all the analyses were done by the Kansas State University Computer Center.

Opinions of agents concerning the importance of training needs and other related extension questions were compared by status, tenure,

and agricultural background. The "Student's" t-test statistic was used to compare responses between junior and senior staff in all the items. The Chi-square test of significance was used to compare responses by tenure, and background. The responses of agents in the seven general areas of training and other extension matters were also compared by states.

For all tests of significance analyzed in this study, the five percent probability level was established.

OPINIONS OF AGENTS ON THE TRAINING NEEDS IN THE SEVEN GENERAL AREAS

Responses of Agents by Status

The three areas in which junior and senior extension staff indicated need for the greatest amount of training were technical knowledge in agriculture; agricultural extension philosophy, organization, and administration; and communications. Junior staff indicated highest priority in technical knowledge in agriculture, but senior staff selected agricultural extension philosophy, organization, and administration as having the greatest need for training.

Both groups indicated the least amount of training need in sociological factors.

There was no significant difference in the responses of junior and senior extension staff in the seven general areas of training, all of which were rated very high. This would indicate that the seven general areas were considered important for the training of all agents.

Responses of Agents by Tenure

The only subject in which there was a difference of opinion between tenure groups was educational process and human development. Agents with longer tenure indicated greater need for training in this subject than those with shorter tenure.

Responses of Agents by Agricultural Training

Opinions differed significantly in three areas when responses of agents were compared according to their agricultural background. The areas were:

1. Educational process and human development
2. Program planning
3. Research and evaluation

In all three subjects, assistant agricultural superintendents, followed by agricultural assistants, indicated a greater need for training of agents than did B.S. graduates. All groups, however, felt that these three areas were important in the training of new agents.

Responses of Agents by States

When comparing opinions of extension staff members about training needs in the seven general areas of training by states, it was found that the greatest amount of training was indicated in technical knowledge in agriculture; agricultural extension philosophy, organization, and administration; and communications, in that order. These were followed by program planning; research, and evaluation; and educational process and human development. Sociological factors rated lower than the other areas in most states.

OPINIONS OF AGENTS ON TRAINING NEEDS IN SPECIFIC AREAS

The opinions of extension personnel on the training needs of potential agents as compared by status, tenure, and agricultural background are summarized for each of the seven areas of training. This summary provides a general overview of responses of agents on all the items included in each general area.

Agricultural Extension Philosophy, Organization, and Administration

The topics identified by a consensus of agents as representing the most important training needs of new agents were:

1. The role and functions of extension workers
2. Organization of extension in Nigeria
3. Philosophy and objectives of the extension service

Senior staff indicated a greater need for training of staff than did the junior staff in philosophy of the extension service, administration of local extension programs, and relationship of extension service with other organizations and agencies. This accounted for the significant findings in these items. Junior staff indicated the least need for training in the relationship of the extension service with other organizations and agencies. The lowest rated item by senior staff was the history of extension education in Nigeria.

When the responses were compared by tenure groups, there was a significantly different response in the history of extension education in Nigeria. Agents with longer tenure favored more training of staff in this topic than those with shorter tenure.

Significantly different responses were recorded in four items when the opinions of agents were compared by training. The items were these:

1. Administrative structure of Ministries of Natural Resources
2. The functions of the Extension and Research Liaison Section, and the role of specialists
3. Government procedure and conditions of service
4. The relationship of the extension service with other organizations and agencies

In the first three items listed above, agricultural assistants and assistant agricultural superintendents indicated a greater need for training of staff than did B.S. graduates. However, the situation was different in the fourth item. Bachelor of Science graduates and the assistant agricultural superintendents indicated considerably more training of agents than did agricultural assistants.

Sociological Factors

Responses of junior and senior staff were quite similar in their choice of the first two items which they considered most important in the training of new agents. These were the adoption of new ideas and practices, and the role of information media in this process. In addition, two other areas were selected as being very important for the training of agents. They included working with community leaders in decision making (social action process), and the role of professional leadership in the adoption of new ideas and practices.

The items which least appealed to both groups were religious influence on local custom, and the distribution of Nigerian languages and dialects.

Opinions of junior and senior staff differed significantly in eleven items in this area. In all cases, the senior staff indicated a greater need for training than did junior staff.

The only item which showed a significant difference when the responses were compared by tenure was the role of professional leadership in the adoption of new ideas and practices. Agents with longer tenure again indicated a greater need for training in this item than did those with shorter tenure.

When opinions of agents were compared by training, there were significant differences in their responses to six items:

1. Religious influence on local custom
2. Effect of changing social custom and values in lives of people
3. Social factors preventing change
4. Interaction of social and technical change
5. Individual adoption process
6. Identification of innovators in a local community

It was evident that B.S. graduates indicated more appreciation for training new agents in these items than did the assistant agricultural superintendents and agricultural assistants.

Educational Process and Human Development

The topics identified by extension staff as constituting the most important training needs of agents were:

1. Extension teaching methods
2. Principles of extension
3. Teaching aids
4. Teaching learning process

There were significantly different responses between junior and senior staff in four items:

1. Changing the behavior of people through education
2. Group decision
3. Factors affecting the behavior of people
4. The development of individual patterns of behavior

In these items, senior staff indicated need for more training of agents than did the junior staff.

Although responses by tenure on the need for training in the relationship between extension agents were significantly different, no interpretable trends were observed. All agents, irrespective of tenure, rated this item high.

When responses of agents were compared according to their agricultural background, there was a significant difference shown in the need for training agents in the development of individual patterns of behavior. Bachelor of Science graduates and assistant agricultural superintendents indicated a greater need for training in the topic than did the agricultural assistants.

Program Planning

There was a consensus of opinion of extension staff that the greatest need for training of agents was in the analysis of the

agricultural situation in the village, district, or division, followed by how to involve local people in developing extension programs.

Opinions of junior and senior staff differed significantly on the need for providing agents with training in the following items:

1. Analysis of the agricultural situation in the village, district, or division
2. How to identify needs and determine priority
3. Evaluating extension programs
4. How to develop long-term extension programs
5. How to write extension objectives

The senior staff rated training in these items much higher than did their junior counterparts. Junior staff indicated the least training need in how to write extension objectives, whereas senior staff felt the least need for training in how to use extension specialists in planning local programs.

There was no significant difference between the responses of agents by tenure on the training needs in program planning.

Responses between agents were significantly different in two topics when compared by agricultural training. These were how to identify needs and determine priority, and how to determine goals and prepare plan of work.

Assistant agricultural superintendents and B.S. graduates rated training in how to identify needs and priority higher than did the agricultural assistants. However, when the responses on how to determine goals and prepare a plan of work were compared, it was found that B.S. graduates rated the item lower than did the other two groups.

All staff rated training in program planning very high, which suggested a need to place more emphasis in this subject in the training of new agents.

Communications in Extension

All groups of agents indicated the greatest need for training of agents in how to plan and conduct agricultural shows, and how to plan and conduct meetings and campaigns.

Senior staff indicated a significantly greater training need of agents than did junior staff in the following items:

1. Methods and processes of communication
2. The use of exhibits in extension
3. How to write technical reports and newsletters

Both groups showed the least training need in how to use photography and radio in extension.

Comparing responses of agents by tenure, it was found that those with less tenure indicated a greater need for training in how to use photography in extension than did agents with longer tenure.

There was no significant difference between training needs of agents in the area of communications when opinions of extension staff were compared by agricultural training.

Research and Evaluation

The topics identified by extension staff in research and evaluation as being most important for training new agents were:

1. How to apply research findings in solving farmers' problems

2. The role of research in extension education
3. How to effectively use the results of evaluation in extension

There was a significant difference in the responses of junior and senior staff in how to evaluate extension programs, and how to use pilot projects in extension. Both groups indicated the least need for training of staff in how to use pilot projects.

Agents of different tenure groups did not express significantly different opinions on training needs in this area.

When responses of agents were compared according to their agricultural background, opinions differed significantly in two items: the role of research in extension education, and how to use pilot projects in extension. The data showed that assistant agricultural superintendents, followed by agricultural assistants, indicated a greater training need for agents in these items than did B.S. graduates.

Technical Knowledge in Agriculture

Responses of extension staff highlighted a number of subjects which were of major importance in the training of agents. It was found that they felt a great need to emphasize the training provided in some subjects, which included the following:

1. Crop production
2. Vegetable growing
3. Soil fertility
4. Farm management

Senior staff indicated significantly more training need for agents than did the junior staff in the following subjects:

1. Farm management
2. Farm labor
3. Farm accounting
4. Farm credit

Both groups indicated the least training need in:

1. Geography
2. Rabbit production
3. Soil physics
4. Apiculture

There was no significant difference in the responses of agents by tenure to training needs in technical agriculture. Opinions of agents however differed significantly in four subjects when their responses were compared on the basis of their agricultural background. The four subjects were:

1. Vegetable growing
2. Water conservation
3. Food preservation
4. Farm credit

In the first three subjects, assistant agricultural superintendents, followed by agricultural assistants, indicated a greater need for training of staff than did the B.S. graduates. However, the comparison in farm credit showed that B.S. graduates, followed by assistant agricultural superintendents, indicated a higher training need than did the agricultural assistants.

PRIMARY RESPONSIBILITIES OF AGENTS

The most important responsibilities of agents identified in this study, almost in equal importance, were advisory service to farmers on production practices, and supervision of agricultural instructors. These were followed by crop demonstration programs, village council meetings, and the supply of seeds and plants to farmers.

The items which were generally not regarded as important duties of agents included:

1. Rural or community development projects
2. Supervising tractor hiring units
3. Farm settlement schemes
4. Farmers' credit and cooperatives

When responses of agents were compared by states, fertilizer sale and distribution was included among the most important duties performed by agents. Also, the topic about the Institute's research experiments was listed as one of the less important duties.

In rating the importance of two responsibilities, opinions of agents differed significantly when compared by tenure. These were pesticide supplies to farmers, and collecting research data and agricultural information.

Agents with less than 5 years of tenure attached greater importance to pesticide supplies to farmers than did those with longer tenure. On the responsibility for collecting research data and agricultural information, it was agents with 5-9 years of tenure who regarded this more highly as an important duty which they performed.

When opinions of agents on major duties were compared by agricultural training, there was a significant difference only in the responsibility for supervising the Institute's research experiments. Agricultural assistants placed greater importance on this duty than did other agents.

EXTENSION PROBLEMS

The critical problems which emerged from this study as seriously confronting the extension services in the northern states of Nigeria were poor transportation facilities and inadequate extension staff.

There was a conflict of opinion between junior and senior staff as to the significance of lack of technical knowledge in agriculture. While the senior staff regarded this as a major priority problem, junior staff rated it quite low in importance.

Other problems identified by both groups as seriously limiting extension progress include the following:

1. Lack of suitable markets and favorable prices for farmers' produce
2. Lack of cooperation of local people in program implementation
3. Lack of incentives for staff
4. Reluctance of farmers to accept new practices
5. Lack of farmer finance

Senior staff indicated that seven of the problems listed in this study were significantly more serious than did their junior counterparts. The problems were:

1. Lack of cooperation of local people in program implementation
2. Lack of incentives for staff
3. Inadequate technical knowledge in agriculture
4. Lack of proper extension programs
5. Programs not related to needs of local community
6. Poor results of package demonstrations
7. Lack of practical field experience

The problems which were considered by both groups as having a less retarding influence on extension programs were performing regulatory functions, supervising package demonstrations, and youth work activities.

It was found that the six northern states had common extension problems which were almost identical to those identified by junior and senior staff.

There were significantly different responses when opinions of agents were compared by tenure in five out of the twenty-three problems listed in this study. These were:

1. Inadequate technical knowledge in agriculture
2. Lack of practical field experience
3. Lack of proper extension programs
4. Non-involvement of local people in program planning
5. Responsibility for supervising research experiments

In each of these items, agents with longer tenure considered it a more serious extension problem than did those with shorter tenure.

When opinions of agents on the seriousness of extension problems were compared by training, there were significantly different responses in the following nine areas:

1. Inadequate technical knowledge in agriculture
2. Lack of practical field experience
3. Lack of proper extension programs
4. Non-involvement of local people in program planning
5. Reluctance of farmers to accept new practices
6. Responsibility for supervising research experiments
7. Frequent transfer of staff
8. Lack of incentives for staff
9. Non-involvement of agents in program planning

No generalization could be made from the responses in these items. However, it would appear that there was more agreement between assistant agricultural superintendents and agricultural assistants in their views about the seriousness of a number of these problems.

CONCLUSIONS

A number of conclusions could be drawn from the results of this study:

1. Extension agents in the northern states of Nigeria overwhelmingly endorsed the training offered at the Schools of Agriculture as being relevant to the needs of potential agents. This was evident from the high ratings given to a majority of the training items.

2. Extension agents in the northern states required training in the seven areas of study considered. These areas in priority order were:

(1) technical knowledge in agriculture, (2) agricultural extension philosophy, organization, and administration, (3) communications in extension, (4) program planning, (5) research and evaluation, (6) educational process and human development, and (7) sociological factors.

3. The most important areas in which agents needed intensive training were technical knowledge in agriculture; agricultural extension philosophy, organization, and administration; and communications.

4. Although there was general satisfaction with the program of training of agents, some changes appeared necessary in specific topics which received relatively low ratings.

5. There were significant differences in some items of training when opinions of extension staff were compared by status, tenure, and agricultural background.

6. This study revealed no philosophical differences concerning the training needs of extension workers in the six northern states of Nigeria.

7. Significant differences were found in some items when the responsibilities of extension agents and important extension problems were compared by status, tenure, and agricultural backgrounds of respondents.

8. The primary function of agricultural assistants in the northern states appeared to be that of disseminating results of production-increasing research findings to farmers. The study, however, revealed that agents at this level devoted considerable time and effort in supervising agricultural instructors.

9. Provision of production inputs such as fertilizers, seeds, plant materials, etc., to farmers was regarded as a very important function of agents.

10. The most critical problems confronting the extension services were lack of adequate transportation facilities and inadequate staff to support extension programs. There was also some feeling that lack of technical competence among agents was a limiting factor in extension.

11. The findings of this study should be useful to the training institutions and the Ministries of Natural Resources in improving their respective programs.

RECOMMENDATIONS

The following general recommendations are based on the results of this study:

1. Production agriculture is the main emphasis of the extension organization in the northern states. Therefore, it would be desirable to undertake a constant evaluation of the curriculum in technical agriculture in order to insure that the best possible training is provided to extension agents.

2. All groups of agents, irrespective of status, need intensive training in extension education which should be recognized as an adult education discipline. It is essential that undergraduates in the Faculty of Agriculture at Ahmadu Bello University be given more practically oriented extension training, since most of them assume

administrative positions in the extension services of the various states after graduation.

3. This study indicates that the importance of rural sociology has not been fully recognized by some groups of agents. The impact of cultural institutions and social values could be a major limiting factor to successful extension programming. Therefore, the training offered in this area should be considerably improved to provide agents with a better perception of the significance of rural sociology in working with farmers.

4. Extension personnel indicated a great desire for providing agents with better training in vegetable growing. The interest generated by this subject would suggest a need for improving the existing programs in vegetable production at the schools and in the state extension services.

5. The study revealed that there were deficiencies in the training offered in farm management and related areas in agricultural economics. Efforts should be made to strengthen the training provided in these areas.

6. It has been observed that extension agents function more actively in implementing programs initiated at state headquarters and passed down through the administrative hierarchy to village level workers. This study showed that agents wanted more involvement by both themselves and their clientele in program development. It is hoped that greater efforts would be made to accomplish this.

7. Agents indicated relatively little interest in courses which placed undue emphasis in purely academic disciplines. It is

essential to provide a good training program in basic science, but, as much as possible, such courses should be oriented towards their application to related agricultural disciplines.

8. Practical field experience is an important component of the training of extension agents. This training could be improved by introducing a supervised experience program in which agents in field training are supervised by instructors from the agricultural schools. Such an approach would be of dual benefit to both the agents and their instructors.

9. In-service training programs for agents should be expanded to include other areas such as personnel management principles and leadership concepts, in addition to the technical subject matter.

10. Time may be ripe to initiate special workshops for extension administrators and supervisors in specialized areas such as supervision, program development, and communications. Such a program would foster a better exchange of ideas between extension officers in the six states and provide opportunities for feedback to the training institutions.

11. Training institutions should consider the possibility of introducing a follow-up program to enable instructors to make a direct appraisal of the performance of their graduates in the field. This could greatly enhance the quality of the training provided at the agricultural schools.

12. The extension services in the northern states are plagued by manifold problems. Although the training institutions could make major contributions to the progress of extension work, it should

also be recognized that a lot could be achieved by improving the administrative machinery of extension in the states and by providing better facilities and working conditions for extension staff.

IMPLICATIONS FOR FURTHER STUDY

This study has covered a broad area of the training needs of extension agents in the northern states of Nigeria. The conclusions and recommendations made were based on findings from a survey of opinions of experienced agents from all the six states.

The study has not considered the training institutions--their operations, facilities, level of performance, future projections, and the policies governing their operations. These are questions which should be answered in further studies.

An attempt was made to categorize the functions of agents and to identify the major problems limiting extension progress. No effort was made to determine the root cause of these problems; neither was there an attempt to find solutions. These were beyond the scope of this study. It would be worthwhile to undertake further studies to answer these questions.

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TRAINING NEEDS OF EXTENSION WORKERS
IN THE NORTHERN STATES OF NIGERIA

The purpose of this study is to obtain information from experienced agents about the main areas of training needed by potential Extension workers in the six northern states. The study will also attempt to identify major duties of Extension workers, and factors which hinder their effectiveness in the field.

The information from this study will be used as a basis and guide for developing the training program for newly recruited agricultural assistants, such that their training in the Schools of Agriculture will have more relevance to the work they later perform in the State Extension Services. You are being asked to cooperate in this study by giving a very honest opinion on the different aspects of training.

On the front page of the questionnaire is a list of bibliographical data which you are kindly requested to complete. This information will only be used for classifying the responses received. Your response to the questionnaire will not in any way be used for evaluation.

I Bibliographical Data

1. Name_____ Village/District_____

2. Division_____ State_____

3. Present Position_____

4. Highest Educational Qualification_____

_____

5. Date employed in the Ministry of Agriculture_____

_____

6. School of Agriculture Attended: _____Samaru _____Kabba

7. Date completed Agricultural Assistant Course_____

_____

8. Positions held since completing course:

Position	Dates

9. Other previous Employment:

Employment	Dates

I The following list of topics include areas of study which may be included in the agricultural assistant course at the Schools of Agriculture.

Please examine these topics carefully and indicate to what extent you feel training should be provided in each area.

AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
A. Agricultural Extension Philosophy, Organization and Administration					
1. History of Extension education in Nigeria					
2. Philosophy and objectives of the Extension Service					
3. Organization of Extension in Nigeria					
4. Administrative structure of Ministries of Natural Resources					
5. Organization of Agricultural Research in Nigeria					
6. Administration of local Extension programs					
7. The functions of Divisional Officers and Extension Area Supervisors					
8. The role and functions of Extension workers					
9. The functions of Extension Demonstration Units (EDU)					

AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
10. The functions of Extension and Research Liaison Section (ERLS) and the role of Extension Specialists					
11. Government Procedure and Conditions of Service					
12. Relationship of Extension Service with other organizations and agencies					
13. Other (please specify)					
B. Sociological Factors 1. Social structure and cultural patterns in rural areas					
2. Family structure and organization					
3. Village organization					
4. Distribution of Nigerian languages and dialects					
5. Religious influence on local custom					
6. Effect of changing social customs and values in lives of people					
7. Social factors preventing change					

AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
8. Working with community leaders in decision making (Social action process					
9. Interaction of social and technical change					
10. Patterns of authority in rural areas					
11. Identification of local leadership					
12. Adoption of new ideas and practices					
13. Individual adoption process					
14. The community adoption process					
15. Identification of innovators in a local community					
16. The role of information media in the adoption of new ideas					
17. The role of professional leadership in the adoption of new ideas and practices					
18. Other (please specify)					

AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
C. Educational Process and Human Development					
1. The teaching-learning process					
2. Philosophy of adult education					
3. Principles of Extension					
4. Extension teaching methods					
5. Teaching aids in Extension (A-V materials)					
6. Changing the behavior of people through education					
7. The development of individual patterns of behavior					
8. Factors affecting the behavior of people					
9. Motivation, interest and perception					
10. Principles and techniques of counseling					
11. Developing leadership abilities in people					
12. Problems in youth development					
13. Group decision					

AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
14. Relationship between Extension agents					
15. Other (please specify)					
D. Program Planning 1. Analysis of agricultural situation in village, district or division					
2. How to identify needs and determine priority					
3. How to develop long-term Extension programs					
4. How to write Extension objectives					
5. How to determine goals and prepare plan of work					
6. How to involve local people in developing Extension programs					
7. How to use Extension specialists in planning local programs					
8. Evaluating Extension programs					
9. Other (please specify)					

AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
E. Communication					
1. Methods and processes of communication					
2. How to write technical reports and newsletters					
3. Effective use of radio in Extension					
4. The use of exhibits in Extension					
5. How to use photography in Extension					
6. How to conduct farm and home visits					
7. How to plan and conduct meetings and campaigns					
8. How to conduct demonstra-tions and field days					
9. How to plan and conduct agricultural shows					
10. Other (please specify)					
F. Research and Evaluation					
1. The role of research in Extension education					
2. How to conduct surveys					
3. How to apply research findings in solving farmers' problems					

AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
4. How to use the pilot project in Extension work					
5. How to evaluate Extension programs					
6. How to effectively use the results of evaluation in Extension					
7. Other (please specify)					

II Below is a list of agricultural subjects which may be offered in the agricultural assistant course at the School of Agriculture.

Please indicate the amount of training you feel an Extension agent needs in each subject.

TECHNICAL KNOWLEDGE IN AGRICULTURE	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
A. Basic Science					
Mathematics					
Chemistry					
Botany					
Zoology					
Microbiology					
Geography					

TECHNICAL KNOWLEDGE IN AGRICULTURE	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
B. Agronomy					
Crop production					
Crop ecology					
Crop physiology					
Plant breeding					
Soil chemistry					
Soil classification					
Soil fertility					
Soil physics					
Soil classification					
Soil management					
Dryland farming					
Irrigation agronomy					
Weed science					
Field experimentation					
C. Crop Protection					
Plant pathology					
Applied entomology					
Pesticide usage					
Spraying machinery					
Safety education					

TECHNICAL KNOWLEDGE IN AGRICULTURE	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
D. Horticulture					
Vegetable growing					
Tree crops					
Landscape gardening					
E. Conservation					
Soil conservation					
Water conservation					
F. Animal Science					
Animal husbandry					
Dairy science					
Poultry science					
Rabbits					
Apiculture					
Pasture management					
G. Food Technology					
Food processing					
Food storage					
Food preservation					
Human nutrition					

TECHNICAL KNOWLEDGE IN AGRICULTURE	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
H. Agricultural Economics					
Land-tenure system					
Subsistence farming					
Farm labor					
Farm management					
Farm accounting					
Crop marketing					
Farm credit					
Cooperative systems					
I. Farm Mechanization					
Tools and Implements					
Tractors					
Ploughs and Ridges					
Surveying					
Levelling					
J. Other (please specify)					

III Below is a summary list of subject categories about which you have already expressed your opinion as to their need for Extension agents' training in northern Nigeria.

In terms of importance in planning a training program for newly recruited Extension workers, please indicate (1) the degree of importance which you feel should be given each subject area, and (2) rank the subject categories from 1 to 7.

SUBJECT CATEGORY	Rank Order	DEGREE OF IMPORTANCE				
		Very Imp.	Quite Imp.	Some Imp.	Little Imp.	No Importance
1. Agricultural Extension Philosophy, Organization and Administration						
2. Sociological Factors						
3. Educational Process and Human Development						
4. Program Planning						
5. Communications in Extension						
6. The use of research methods and evaluation in Extension programs						
7. Technical knowledge in agriculture						

IV The following list includes some of the major duties which Extension agents perform. Please check the list carefully and indicate how important you feel each duty is to your assignment.

Note: This list is by no means complete, and it will be appreciated if you will specify other duties which you generally perform that are not included here.

DUTIES OF EXTENSION WORKERS	IMPORTANCE OF DUTY				
	Very Imp.	Quite Imp.	Some Imp.	Little Imp.	No Importance
1. Advisory service to farmers on agricultural production					
2. Special crop production programs					
3. Institute's research experiments					
4. Crop demonstration programs					
5. Supervising tractor hiring units					
6. Seed multiplication programs					
7. Fertilizer sale and distribution to farmers					
8. Pesticide supplies to farmers					
9. Supply of seeds and plants to farmers					
10. Assisting farmers with marketing of produce					
11. Farmers credit and cooperatives					
12. Village council meetings					

DUTIES OF EXTENSION WORKERS	IMPORTANCE OF DUTY				
	Very Imp.	Quite Imp.	Some Imp.	Little Imp.	No Importance
13. Young farmers' programs					
14. Extension Demonstration Unit program					
15. Farm settlement schemes					
16. Soil conservation projects					
17. Rural or community development project					
18. Collecting research data and agricultural information (statistics)					
19. Writing reports and newsletters					
20. Supervision of Agricultural Instructors					
21. Regulatory functions, such as enforcing cotton close season, etc.					
22. Others (please specify)					

V Below is a list of some factors which may hinder your performance on the job. Please rate each item as to how it limits your work.

EXTENSION FACTORS	SERIOUSNESS OF PROBLEM			
	Very Serious	Serious	Somewhat Serious	Not Serious
1. Inadequate technical knowledge in agriculture				
2. Lack of practical field experience				
3. Lack of proper Extension programs				
4. Lack of directive from headquarters				
5. Programs not related to the needs of local community				
6. Local people not involved in program planning				
7. Lack of cooperation of local people in program implementation				
8. Illiteracy of farmers				
9. Reluctance of farmers to accept new practices				
10. Lack of farmer finances				
11. Lack of suitable markets and favorable prices for farm produce				
12. Too many package demonstrations to supervise				
13. Poor results of package demonstrations				
14. Inadequate Extension staff				

EXTENSION FACTORS	SERIOUSNESS OF PROBLEM			
	Very Serious	Serious	Somewhat Serious	Not Serious
15. Responsibility for research experiments				
16. Youth work activities				
17. Heavy supervisory functions				
18. Poor transportation facilities for Extension staff				
19. Frequent transfer of staff				
20. Lack of incentives for staff				
21. Assignment of non-extension activities				
22. Non-involvement of Extension agents in program planning				
23. Performing regulatory functions, such as enforcing cotton close season, etc.				
24. Other (please specify)				

TRAINING NEEDS OF EXTENSION WORKERS
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On the front page of the questionnaire is a list of bibliographical data which you are kindly requested to complete. This information will only be used for classifying the responses received. Your response to the questionnaire will not in any way be used for evaluation.

I Bibliographical Data

1. Name_____ Division_____

2. State_____

3. Present Position_____ Rank_____

4. Highest Educational Qualification_____

5. Agricultural Training: AAS course_____ B. Sc. degree_____

   M. Sc. degree_____ Other (specify)_____

6. Total number of years you have worked for the Ministry of Agriculture:

   (1) Less than 6 months_____

   (2) 7 months - 1 year_____

   (3) 13 months - 2 years_____

   (4) 25 months - 3 years_____

   (5) 37 months - 4 years_____

   (6) 49 months - 5 years_____

   (7) More than 5 years_____

7. Positions held in the Ministry of Agriculture

Position	Dates

8. What is your primary responsibility in the Ministry?

_____

_____

_____

I The following list of topics include areas of study which may be included in the agricultural assistant course at the Schools of Agriculture.

Please examine these topics carefully and indicate to what extent you feel training should be provided in each area.

AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
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AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
10. The functions of Extension and Research Liaison Section (ERLS) and the role of Extension Specialists					
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17. The role of professional leadership in the adoption of new ideas and practices					
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AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
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AREAS OF STUDY	NEED FOR TRAINING				
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2. How to identify needs and determine priority					
3. How to develop long-term Extension programs					
4. How to write Extension objectives					
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6. How to involve local people in developing Extension programs					
7. How to use Extension specialists in planning local programs					
8. Evaluating Extension programs					
9. Other (please specify)					

AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
E. Communication 1. Methods and processes of communication					
2. How to write technical reports and newsletters					
3. Effective use of radio in Extension					
4. The use of exhibits in Extension					
5. How to use photography in Extension					
6. How to conduct farm and home visits					
7. How to plan and conduct meetings and campaigns					
8. How to conduct demonstrations and field days					
9. How to plan and conduct agricultural shows					
10. Other (please specify)					
F. Research and Evaluation 1. The role of research in Extension education					
2. How to conduct surveys					
3. How to apply research findings in solving farmers' problems					

AREAS OF STUDY	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
4. How to use the pilot project in Extension work					
5. How to evaluate Extension programs					
6. How to effectively use the results of evaluation in Extension					
7. Other (please specify)					

II Below is a list of agricultural subjects which may be offered in the agricultural assistant course at the School of Agriculture.

Please indicate the amount of training you feel an Extension agent needs in each subject.

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	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
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Mathematics					
Chemistry					
Botany					
Zoology					
Microbiology					
Geography					

TECHNICAL KNOWLEDGE IN AGRICULTURE	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
B. Agronomy					
Crop production					
Crop ecology					
Crop physiology					
Plant breeding					
Soil chemistry					
Soil classification					
Soil fertility					
Soil physics					
Soil classification					
Soil management					
Dryland farming					
Irrigation agronomy					
Weed science					
Field experimentation					
C. Crop Protection					
Plant pathology					
Applied entomology					
Pesticide usage					
Spraying machinery					
Safety education					

TECHNICAL KNOWLEDGE IN AGRICULTURE	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
D. Horticulture					
Vegetable growing					
Tree crops					
Landscape gardening					
E. Conservation					
Soil conservation					
Water conservation					
F. Animal Science					
Animal husbandry					
Dairy science					
Poultry science					
Rabbits					
Apiculture					
Pasture management					
G. Food Technology					
Food processing					
Food storage					
Food preservation					
Human nutrition					

TECHNICAL KNOWLEDGE IN AGRICULTURE	NEED FOR TRAINING				
	Very Much Needed	Much Needed	Some-what Needed	Little Needed	Not Needed
H. Agricultural Economics					
Land-tenure system					
Subsistence farming					
Farm labor					
Farm management					
Farm accounting					
Crop marketing					
Farm credit					
Cooperative systems					
I. Farm Mechanization					
Tools and Implements					
Tractors					
Ploughs and Ridges					
Surveying					
Levelling					
J. Other (please specify)					

III Below is a summary list of subject categories about which you have already expressed your opinion as to their need for Extension agents' training in northern Nigeria.

In terms of importance in planning a training program for newly recruited Extension workers, please indicate (1) the degree of importance which you feel should be given each subject area, and (2) rank the subject categories from 1 to 7.

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4. Program Planning						
5. Communications in Extension						
6. The use of research methods and evaluation in Extension programs						
7. Technical knowledge in agriculture						

IV The following list includes some of the major duties which Extension agents perform. Please check the list carefully and indicate how important you feel each duty is to an agent's assignment.

Note: This list is by no means complete, and it will be appreciated if you will specify other duties which are generally performed by agents that are not included here.

DUTIES OF EXTENSION WORKERS	IMPORTANCE OF DUTY				
	Very Imp.	Quite Imp.	Some Imp.	Little Imp.	No Importance
1. Advisory service to farmers on agricultural production					
2. Special crop production programs					
3. Institute's research experiments					
4. Crop demonstration programs					
5. Supervising tractor hiring units					
6. Seed multiplication programs					
7. Fertilizer sale and distribution to farmers					
8. Pesticide supplies to farmers					
9. Supply of seeds and plants to farmers					
10. Assisting farmers with marketing of produce					
11. Farmers credit and cooperatives					
12. Village council meetings					

DUTIES OF EXTENSION WORKERS	IMPORTANCE OF DUTY				
	Very Imp.	Quite Imp.	Some Imp.	Little Imp.	No Importance
13. Young farmers' programs					
14. Extension Demonstration Unit program					
15. Farm settlement schemes					
16. Soil conservation projects					
17. Rural or community development project					
18. Collecting research data and agricultural information (statistics)					
19. Writing reports and newsletters					
20. Supervision of Agricultural Instructors					
21. Regulatory functions, such as enforcing cotton close season, etc.					
22. Others (please specify)					

V Below is a list of some factors which may hinder an agent's performance on the job. Please rate each item as to how it limits the work of Extension agents.

EXTENSION FACTORS	SERIOUSNESS OF PROBLEM			
	Very Serious	Serious	Somewhat Serious	Not Serious
1. Inadequate technical knowledge in agriculture				
2. Lack of practical field experience				
3. Lack of proper Extension programs				
4. Lack of directive from headquarters				
5. Programs not related to the needs of local community				
6. Local people not involved in program planning				
7. Lack of cooperation of local people in program implementation				
8. Illiteracy of farmers				
9. Reluctance of farmers to accept new practices				
10. Lack of farmer finances				
11. Lack of suitable markets and favorable prices for farm produce				
12. Too many package demonstrations to supervise				
13. Poor results of package demonstrations				
14. Inadequate Extension staff				

EXTENSION FACTORS	SERIOUSNESS OF PROBLEM			
	Very Serious	Serious	Somewhat Serious	Not Serious
15. Responsibility for research experiments				
16. Youth work activities				
17. Heavy supervisory functions				
18. Poor transportation facilities for Extension staff				
19. Frequent transfer of staff				
20. Lack of incentives for staff				
21. Assignment of non-extension activities				
22. Non-involvement of Extension agents in program planning				
23. Performing regulatory functions, such as enforcing cotton close season, etc.				
24. Other (please specify)				

COMPARATIVE ANALYSIS OF THE TRAINING NEEDS OF POTENTIAL AGRICULTURAL EXTENSION WORKERS, AND PRINCIPAL PROBLEMS OF EXTENSION IN THE NORTHERN STATES OF NIGERIA

by

OCHAPA CHIKO ONAZI

B. Sc., University of London, 1964
M. Sc., University of London, 1967

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the

requirements for the degree

DOCTOR OF PHILOSOPHY

College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1973

1. Extension agents in the northern states of Nigeria overwhelmingly endorsed the training offered at the Schools of Agriculture as being relevant to the needs of potential agents. This was evident from the high ratings given to a majority of the training items.

2. Extension agents in the northern states required training in the seven areas of study considered. These areas in priority order were: (1) technical knowledge in agriculture, (2) agricultural extension philosophy, organization, and administration, (3) communications, (4) program planning, (5) research and evaluation, (6) educational process and human development, and (7) sociological factors.

3. The most important areas in which agents needed intensive training were technical knowledge in agriculture; agricultural extension philosophy, organization, and administration; and communications.

4. Although there was general satisfaction with the program of training of agents, some changes appeared necessary in specific topics which received relatively low ratings.

5. There were significant differences in some items of training when opinions of extension staff were compared by status, tenure, and agricultural background.

6. This study revealed no philosophical differences concerning the training needs of extension workers in the six northern states of Nigeria.

7. Significant differences were found in some items when the responsibilities of agents and important extension problems were compared by status, tenure, and agricultural backgrounds of respondents.

8. The primary function of agricultural assistants in the northern states appeared to be that of dissemination of results of production-increasing research findings to farmers. The study, however, revealed that agents at this level devoted considerable time and effort in supervising agricultural instructors.

9. Provision of production inputs such as fertilizers, seeds and plant materials, etc., to farmers was regarded as a very important function of agents.

10. The most critical problems confronting the extension services were lack of adequate transportation facilities and inadequate staff to support extension programs. There was also some feeling that lack of technical competence among agents was a limiting factor in extension.

11. The findings of this study should be useful to the training institutions and the Ministries of Natural Resources in improving their respective programs.