AN EVALUATION OF THE CURRICULUM OF THE AGRICULTURAL TRAINING CENTERS OF NORTHERN STATES OF NIGERIA

by

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CHAPTER I

INTRODUCTION

Nigeria is one of the five English speaking countries in West Africa which was ruled by Britain in her colonial days. Now Nigeria is a federation of 19 states. A strong central government coordinates the plans and programmes of the states and provides a greater part of the funds for development. Each of the states is divided into local government areas. The local government area is the basic unit of administration, and of rural development.

Nigeria lies between 4^{o} and 14^{o} latitude stretching from the Atlantic Ocean to the Southern fringes of the Sahel. Nigeria has two well marked seasons, wet season (April-October) and dry season (November-March). The wet season usually starts later and finishes earlier in the Northern parts of the country where this research was done. The climate is tropical with humidity and rainfall generally decreasing from south to north. Generally, the mean annual rainfall in Nigeria varies from 10 inches in the extreme north to over 100 inches in the south. Relatively the temperature is warm, getting to about $90^{o}F$ between November and February of the coast. Further north where the temperature is drier, temperatures range from $50^{o}F$ to as high as $110^{o}F$ on some occasions as reported by the Federal Ministry o Information 1979.

Ecologically, Nigeria consists of several agricultural zones ranging from the largely cereal and livestock zones of the north and to the largely tree and root crops economy of the South. With this diversity, Nigeria is capable of producing a wide variety of crops, livestock, fishing, and industrial products. Nigeria is blessed with rich natural resources in the rural sector. The rural economy centers principally around farming, animal husbandry, poultry, fishing, food processing and cottage industry type of agricultural activities.

Variations in climatic conditions from south to north dictate a specialization in farming practices and in the type of crops that can be grown. The major food crops are yams, cassava, maize, guinea corn, millet, rice, compea and sweet potatoes. The major cash crops include cotton, ground-nuts, cocoa, coffee, oilpalms, kola nuts, and benniseed.

Nigeria with a population of 80.63 million people has an area of 98.3 million hectares and is located in the tropical belt. Out of the total of 74.0 million hectares which are classified as cultivatable land with 34.0 million hectares under cultivation, the rest being in medium and long term fallow as is indicated by the Federal Ministry of Agriculture and Water Resources.in 1979. About 10% of the land is in the forest reserves while 14.7 per cent is made up of permanent pastures, building areas and uncultivated wastes.

According to the reports by the Federal Ministry of Economic Development, the prime place of agriculture in the economy of Nigeria has never been in doubt. Between 1960 and 1967, agricultural exports accounted

for 67% of Nigeria's total export. And from political independence in 1960 to the outbreak of the civil war in 1967, the Mean Annual contribution of agricultural output to the Nigerian economy was 1,629.8 million (U.S. $2,542.5).

The economy of Nigeria has thrived on agriculture for several decades. In 1960, the Asbby Commission on Higher Education in Nigeria reported that three out of every four Nigerians work on the land, that Seventeen shilling out of every pound earned from Nigeria's exports come from agricultural products, and that Investment in agricultural improvement and agricultural education could double Nigeria's wealth.

As recently as 1967, about 55 percent of Nigeria's Gross Domestic Product (GDP) was derived from the agricultural sector. At present about 75 percent of the country's population is in agriculture and allied industries. Despite the boom in the petroleum industry, agriculture still accounts for over 40 percent of the Gross Domestic Product (GDP), the largest contribution by any single factor, apart from petroleum.

The economy of Nigeria has grown in recent years at the rate of 10 percent with Growth Domestic Product ((GDP) of $27.2 billion in 1976. Increases in income have been due to tremendous exports because of the rapidly expanding petroleum industry which has made the country the fifth leading oil producing nation of the world. (Glenn, 1969) In the past agricultural exports have been the propelling force for the country's economic development but it appears that this is being completely replaced by the petroleum industry. This is a big challenge to all Nigerian agriculturists since petroleum will be easily exhausted.

Nigeria has potentials for making dynamic contributions to her economic development from the agricultural sector since significant improvement in rural welfare depend upon the modernization of agriculture through technological change. Statistics give the country's rural population as 73 percent of the total population out of which 44 percent contribute to the rural labor force drawn from the age groups of 15-55 years. Frankly speaking the agricultural sector is the primary source of employement in Nigeria, particularly the Northern States of Nigeria. (Annual report of the Department of Agriculture, 1979).

In Nigeria, particularly in the Northern States, rural areas have lagged behind the urban areas in development resulting in increasing disparity between the standard of living in the urban and rural sectors and in the mass rural-urban migration of the population. The rural sector accommodates a very large portion of the population and these people are engaged in farming and other related occupations. Many of these small peasants in the Northern States produce cash crops such as cotton, ground nut, cocoa, oilpalm, and benniseed which provide a source of income not only for the individual farmers who grow them, but also for the government through taxes. Taxes on agricultural exports had provided a large part of the money with which some essential facilities such as schools, universities, hospitals, transport especially roads, communication systems, and other amenities of a modern community have been financed. But the benefits accruing to the rural sector of the population from the various development efforts have been minimal.

The government has many ways to redistribute revenues accruing from the agricultural sector such as direct investment in large scale plantations such as cocoa, oilpalm, ground nut and food crops through various production companies and farm settlement schemes. But many of these projects have not yielded satisfactory results. Another revenue redistribution approach provides for highly subsidized infrastructures for the people of the rural areas to stimulate growth and development. Such infrastructures include facilities that provide for irrigation, public water, transportation, fertilizer storage, and electricity. The more recent strategy aimed at achieving agrarian reform and rural transformation include the provision of farm inputs, extension services, credit, roads, and water supplies in a packaged program called integrated rural development (F.M.A.A.W.R.).

In November, 1980 the Nigerian Minister of Agriculture stated the objectives of Policy and Strategy as follows:

1. To provide adequate, reliable, safe and stable food supplies for the country's rapidly rising population at prices average people can afford.

2. To become self-reliant in basic food requirements and thereby minimize the potential threats to national sovereignty from excessive dependence on others for basic food needs as soon as possible.

3. To raise and stabilize the nutritional standards of all Nigerians with particular stress on increasing the share of animal protein in total protein.

4. To ensure stability in food commodity and input markets and thereby avoid economic, social, and, possibly, political disasters.

5. To ensure fair and reasonable levels and distribution of incomes among food producers.

The minister also identified the following problems to be the major problems facing the agricultural sector:

1. Population drift from rural to urban areas, leaving an aging farm labor force
2. Disruption caused by the civil war and drought
3. Inadequate and ineffective extension, inadequate supply, and erratic availability of farm support services
4. Inadequate infrastructure
5. Inadequate public expenditure on agriculture.

The minister then commissioned a combined team of Nigerian and World Bank experts to examine in depth the food situation in Nigeria and to identify broad programs and strategies that would lead to an early achievement of self sufficiency.

Despite comprehensive development programs aimed at achieving a higher degree of self sufficiency in food production, Nigeria's agricultural output - once the backbone of that country's economy - is falling increasingly short of consumption needs. According to Avidor (1981), the resulting food deficit is, in turn, forcing Nigeria to sharply increase

its imprts of agricultural products, especially food and feedgrains from the United States. It was reported that the United States, currently dominates Nigeria's wheat and corn import markets and together with Thailand, is a major supplier of long grain parboiled rice.

But still, the future of Nigeria's agriculture is bright because President Shagari's administration has placed a high priotity on the improvement of the country' agriculture. He has committed some $82 billion to agricultural development in his proposed 1982 budget and his "Green Revelution" plan is expected to serve as the centerpiece for Nigeria's agriculture development between 1982-85, with $8 billion earmarked for investment in the program over the next 4 years. (Engstrand and Muniec 1981)

It is not only the Federal government that is trying to improve agriculture in the Nation. Individual states of the Federation have their own development projects. There are 12 states in Northern Nigeria. Each of these states have at least one or more Agricultural Training Centers (A.T.C.) The first Agricultural Training Center was established in 1946 at Yandev in Benue State and it was to train staff of Northern Nigeria.

Agricultural Training Centers are operated by the Ministry of Agriculture which provide post primary technical training for junior level employees. The employees are assigned to one of the several functions of the ministries of agriculture in the Northern States (e.g. Agricultural extension, animal science, home economics, experiment station, farm centers, and other similar areas). The Agricultural Training Centers were established

for two types of needs in the Northern States of Nigeria.

1. To provide junior level manpower to staff public sector agricultural development programs of ministries of agriculture.
2. To provide young people with training for the pursuit of farming as a career.

The organization of agricultural education varies widely from one state to another. But one good thing is that the overall objectives and purposes of the programs are very similar although the authorities responsible for administration, planning and finance vary greatly in their approach to these programs. For example in Benue and Kwara states most of the students recruited into these institutions have secondary qualifications of at least secondary V. Whatever is the case a training center should have the ability to train any section of the community it serves as required by the extension or training officers. This study is intended to find out whether the Agricultural Training Centers in the Northern States play an important role in the development of skills and working attitudes among the graduates by evaluating the opinions of their supervisors.

Nigeria, in common with other countries of the world, has placed great emphasis upon education. This emphasis has been in large part the culmination of the widespread expectation that through education will come rapid and generalized development. (Butler 1969) From inception of agriculture education, there has been a realization that the content of educational programs must be based upon the agricultural needs of the people. Dougan (1975) in his philosophy of agriculture education,

aptly expressed the importance of identifying agriculture needs when he said:

> Agriculture education programs relate to the productivity of people in terms of competencies in agricultural oocupations, attitudes towards occupations and willingness to produce efficiently.

It is better for agricultural eductors to remember that they do not only teach agriculture, but also teach people, and it is the people who are taught about agriculture, therefore they should know what the graduates are doing on the field. Evaluation of the performances of these graduates will enable the administrators and educators to know whether they are fulfilling the objectives of the program or not. Pearson (1969) stated

> An irrelevant education breeds discontent and frustration in countries at all economic levels.

He feels that under these circumstances an educational system becomes an instigator of maladjustment and structural unemployment rather than essential source of growth and development.

Background to the Problem

An Agricultural Training Center is an institution operated by the Ministries of Agriculture and Natural Resources in the Northern States of Nigeria. The center provides agricultural and related subject-area courses for the lowest levels of agricultural staff. These staff are the backbone of agricultural extension services in Nigeria.

For many years considerable efforts have been made in the third world countries to increase the effectiveness of agriculture. The researcher feels that no significant changes will be obtained in extension work without considering the training of these workers. They need the best training to enable them to execute their duties effectively.

Curriculum is the sum of the learning activities and experiences that a student has under the auspices or direction of the school (Finch and Crunkilton, 1979). Therefore curriculum constitutes a key element in the educational process that is extremely broad in scope and touches virtually everyone who is involved with teaching and learning. The two year curriculum for Agricultural Training Centers was prepared in this context.

Agricultural Training Centers in the Northern States of Nigeria are vocational as well as technical schools because they prepare boys and girls for careers in agriculture since there are no basic schools in agriculture. Even though vocational and technical education is included within the overall framework of education, the vocational and technical curriculum has certain characteristics that distinguish it from the rest of the educational milieu. These characteristics represent a curricular focus that may be associated with curriculum building, maintenance, and immediate and long-term outcomes.

A major concern of these institutions has been to provide a means for each student to attain desirable curricular outcomes. Therefore, the ultimate success of a vocational and technical cirriculum is not measured merely through student educational achievement but through the

results of that achievement (the results that take the form of performance in the work world). Therefore the researcher feels that efforts should be aimed at training agricultural field workers in the Northern States of Nigeria who should not only be qualified in the technical skills but should be able to communicate effectively with the farmers. The researcher feels that there is need to evaluate the existing curriculum which has been used for over 10 years.

There is justification for the existing curriculum because unlike its academic counterparts, the Agricultural Training Center curriculum is based upon identified needs of the Northern States. These needs are not merely general feelings but to provide competent junior staff for government ministries, local companies, and farm industries. Out-of-school success standards are very important, the determination of success is not limited to what transpires in a school setting. Former vocational and technical students or Agricultural Training Centers students should demonstrate their success in the world of the work.

The farmers of the Northern States of Nigeria strongly need junior staff members to help them promote the new methods of agriculture. While it is certainly recognized that any educational endeavor should relate in some way to the community, Agricultural Training Center programs are charged with the responsibility of maintaining strong ties with a variety of agriculture business and industry-related areas. There are farmers councils located in all the villages surrounding each school in about a 20 miles radius, where students will do their agricultural extension practicals. But 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 rural life a new outlook and dignity. Therefore the researcher feels that the evaluation of this curriculum will enable the Northern States to know where we are in our training of the junior staff.

In an opening address to the Second Annual Schools Conference, Dr. Andu stressed the value of the training in schools of agriculture in Nigeria that:

> Nigeria will continue to rely on these "middle echelon" personnel to bear the blunt 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 field of agriculture and veterinary medicine to meet the needs of development.

The above address clearly demonstrates the importance of non-degree agricultural training institutions in the Northern States and Nigeria in general. The study of job performances of the graduates who completed their courses of study at the various Agricultural Training Centers is a nice way to determine the effectiveness of agricultural training centers' programs.

Statement of Problem

With the fast changing conditions of living in the Northern States of Nigeria, the uniqueness associated with the present Agricultural Training Center curriculum raises critical questions. What is the basic direction that curriculum development in vocational and technical education of this

nature should take? What is causing the drop in the standard of agriculture at the rural level in the Northern States.

The researcher feels that to answer these questions, there is need for an evaluation of the relevance of the courses offered at the Agricultural Training Centers in the Northern States of Nigeria. The aim of these centers is to provide broad basic training in which basic specialized training and retraining can be given. In modern technological societies, skill requirements change rapidly and continuous adaption and upgrading of skills are needed (Angusibo, 1973).

Therefore the central purpose of this study is to determine the relevance of the courses being offered at the Agricultural Training Centers in the Northern States of Nigeria as to the jobs that the graduates would be required to perform after their graduation. Objectives of the study are:

1. To determine the area of course specialization that are considered the most useful at the Agricultural Training Centers by supervisors of graduates.

2. To determine the subjects considered by the supervisors of graduates as the most valuable for the course.

3. To determine the types of jobs that supervisors of graduates considered relevant to the courses taken at the Agricultural Training Centers.

4. To determine the correlation between the values of the courses

based on years of job experience of the supervisors of the graduates.

Significance of the Study

This study will provide important information to agricultural educators involved with the training of agricultural extension staff at agricultural training centers and schools of agriculture in the Northern States of Nigeria. It is hoped that the results of this study will help teachers of agricultural training centers, administrators and policy makers of ministries of agriculture and natural resources to make useful decisions concerning the most effective methods of turning out agricultural instructors who are the village level extension workers. It is also hoped that this study will be helpful in designing vocational agriculture programs throughout the Northern States of Nigeria.

A constant review of the curriculum in a training institution is essential to ensure that the training provided will satisfy on-the-job requirements of the graduates (trainees) as long as is needed by the agricultural industry in the country.

Limitations

This study is limited to those staff members of ministries of agriculture and natural resources in the Northern States of Nigeria who are studying in the fields of agriculture and home economics at both Kansas State and Fort Hays State Universities. The findings will be limited to

the responses of approximately 100 supervisors of the graduates of agricultural training centers in the Northern States on Nigeria. The study will also be limited by the use of questionnaires as the survey instruments.

Assumptions

The researcher based this study on several assumptions: ;

1. That agriculture is important in the Northern States of Nigeria and it will continue to be so.
2. That demands will be made upon agricultural training centers to provide graduates with basic agricultural skills.
3. That guidelines set forth by the Northern States Government for training of agricultural field overseers are similar, and the functioning of individual states in autonomous.
4. That agriculture in the Northern States is similar to that of other States in the federation, and basic guidelines are similar in agricultural education.
5. That it is better for a program to be evaulated at least periodically.

Statement of Hypotheses

The following four null hypotheses will be examined

1. There are no significant differences in the responses of the supervisors of graduates by years of job experiences as to the

importance of courses or subjects offered in the Agricultural Training Centers in the Northern States of Nigeria.

2. There are no significant differences in the responses of the supervisors of graduates who had agricultural extension, livestock (animal science), or home economics assignments as to the importance of courses or subjects offered in the Agricultural Training Centers in the Northern States of Nigeria.

3. There are no significant differences in the responses of the supervisors of graduates by degree status (graduate or undergraduate) as to the importance of courses or subjects offered in the Agricultural Training Centers in the Northern States of Nigeria.

4. There are no significant differences in the responses of the supervisors of graduates who had completed their training at Samaru, Kabba, Jos, and Kaduna as to the importance of courses or subjects offered in the Agricultural Training Centers in the Northern States of Nigeria.

Operational Definitions

Certain terms or words were used in this study which had particular meanings and may or may not have been the meaning in common usage.

Agricultural Assistant - Staff member who should have completed a high school or agricultural training center and a two year diploma course at one of the colleges of agriculture.

Agricultural Field Overseers - Are low level field staff employed and trained by the government or agro-allied businesses. They work in the villages with the farmers. They are also called agricultural instructors in some Northern States of Nigeria.

Agricultural Officer - (A.O.) Is usually a university graduate. An A. O. may ascent through senior, principal and chief Agricultural Officer positions. They are senior supervisors than the (A.S.).

Agricultural Superintendent - Usually holds a post-secondary higher diploma achieved after four years of non-degree agricultural and technical training in a university or ministry college of agriculture.

Agricultural Training Centers - (A.T.C.) These are schools where agricultural field overseers are trained. They offer basic courses for beginners in agriculture in Nigeria.

Course - Organized subject matter in which instructions are offered within a given period of time.

FFA - Future Farmers of America. The National organization for boys and girls studying vocational agriculture in public secondary schools under the provision of the National Education Act of U.S.A.

Junior Staff Position - For the purpose of this study, junior staff were identified as Agricultural Assistants (A.A.) and Field Overseers (F.O.).

Ministry of Agriculture - Is an arm of a State or Federal government in Nigeria usually headed by a commissioner or minister, which is responsible for the agricultural development on a State or Federal level. This ministry is usually subdivided into various administrative sections such as the agricultural services, training section, land development, agricultural mechanization, crop production, fruit trees, vegetable production, home economics, irrigation, and clerical services.

Senior Staff Positions - For the purpose of this study, senior staff were identified as Agricultural Officers (A.O.) and Agricultural Superintendents (A.S.).

Subjects - Materials taught under a course.

Supervisors - Both senior staff and junior staff positions.

CHAPTER II

REVIEW OF RELATED LITERATURE

In developing the study to determine the relevance of the courses being offered at Agricultural Training Centers in Northern States of Nigeria as to the jobs that the graduates would be required to perform upon graduation, the researcher reviewed literature in Farrel library, the library of Co-operation Extension Service at Kansas State University, and the library in the International Agriculture Program Office. It was found that there was no direct research information on this study in Nigeria. Agricultural education below degree level started when the National Department of Agriculture was established by the British Colonial Administration in 1921 at Moor Plantation, Ibadan, Southern Nigeria. The department had as a 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 (Oyenuga, 1967).

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 man-power 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 department. 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 (Onazi, 1973). These schools of Agriculture later gave birth to the Agricultural Training Centers formerly called Farm Training Centers.

Onazi (1973) studied the primary responsibilities of extension agents and analyzed their opinion on a variety of problems confronting the extension service in the Northern States of Nigeria and found that agents were principally responsible for advising farmers and that the supervision of Agricultural Instructors (Field Overseers) was considered a major function of agricultural assistants. He emphasized that the extension workers in the Northern States of Nigeria endorsed the training offered at the schools of Agriculture as being relevant to the needs of potential agents. Then there is need for someone to find out whether this is also applicable to the Agricultural Training Centers since graduates of School of Agriculture are the supervisors of graduates of Agricultural Training Centers.

Research by Thompson (1975) investigated the planning of in-service training of teachers in response to educational needs of Nigeria, and found that this was yet to be based upon comprehensive and accurate knowledge of the present state of in-service training structure and thorough reassessment of the nature of the needs and national priorities.

Ohuche (1975) conducted a study on the academic achievements of Nigerian undergraduates in American Universities as a function of previous

educational experience and found that previous educational experiences, as measured by the grades in the Nigerian School Certificate Examinations which the undergraduates took before proceeding to American Universities for further studies could not be used satisfactorily to predict the academic achievement of such students as measured by their cumulative grade point average.

Okoye (1971) carried out a study on agricultural education in Nigeria and found that agricultural educators were failing to provide adequate support to the importance of giving professional training to agricultural teachers in Vocational Agriculture Schools. He recommended that for a national forward moving agricultural economy, vocational agriculture education should be redefined to comprise departments of agriculture in reality and name, which will be out on the growing edge of agricultural education, otherwise the field will stagnate.

A scholarly paper on Plant Science curricula presented by Taylor (1974) to a World Conference on strategies for Agricultural Education in Developing Countries was interesting. He emphasized the effectiveness of graduating students of agriculture on their jobs. He then recommeneded that educators must be on the guard against an unconscious neglect of agriculture production practices, a situation in which the students become knowledgeable but remains unsure of his ability to apply the knowledge.

Matthew (1951) conducted a comprehensive study of an appropriate method for determining training needs of county extension agents. He developed a questionnaire containing 67 items relating to areas of knowledge, skills and attitudes. He contended that the criteria he used were

satisfactory for measuring the training needs of county agents. His study indicated that the county agents attached greater importance to training in the social sciences than in any other field, which he classified into education principles and methods, sociology, economics, public policy, and extension methods.

A scholarly paper by Trouillot (1970) on agricultural education in developing countries at the FAO/UNESCO/ILO conference on Agricultural education in Copenhagen was also interesting. His study indicated that Agricultural Education systems should provide in-service training for technicians, and periods of training for agricultural producers. Training courses may be organized on the farm, at research stations, or in villages, and as far as it respects the agricultural calendar. The curricula should include a survey to assess the effectiveness of the courses.

A study by Miller (1976) titles "Operational training: and intermediate solution for developing countries" reviewed one of the most challenging problems facing developing countries namely that of producing enough food for their populations. Miller concluded that when a nation lacked appropriate technology, it must be imported, it must be learned, and applied at the same time. Since the training of high-level specialist demands time, alternative solutions to reach the production goals must be used in the short run.

In his article entitled "Assessment of your potential for international employment" McCreight (1979) pointed out that in 1976, twenty major multilateral, private and bilateral organizations provided 6.37 billion dollars of financial, technical assistance, or training in agriculture for 144 developing nations. According to him, indications were

that assistance will continually increase to assist the more than 100 Less Developed Countries (LDC). He also pointed out that the Less Developed Countries contained 75 percent of the world population and are identified as countries with a per capita Gross National Product of less than $450 (World Bank Report for 1976, based on 1974 data). He stressed that less technical assistance should be given and instead agricultural education should resume a key responsibility for training extensionists and teachers of agriculture for roles in international programs. In the book, Wortman et al., (1978) it was noted that the world food situation is alarming but increased food production is only a part of the solution. It was further noted that all nations - wealthy or poor, agrarian or industrialized - must work effectively to increase agricultural production, decrease population growth rates, and promote widespread improvements of incomes in developing countries.

The researcher feels that we can not increase our agricultural production without giving effective agricultural training to the most junior extension workers in the Agricultural Training Centers of the Northern States of Nigeria.

A national study in the U.S.A. made in 1978 of 382 teachers of vocational agriculture/agribusiness produced several findings which provide insight into how teachers feels about supervised occupational experience (SOE). Slightly over 30 percent indicated that to obtain training stations and place students in training programs did not apply to them. Further, 31.4 percent indicated that to supervise students did not apply to them, while 29 percent indicated that developing training plans did not apply to them (More 1978).

Another study was conducted in 1979 of 212 randomly selected teachers of Vocational Agriculture/Agribusiness in the Southern Region of the United States (Hylton 1979). The findings are very similar to the national-level 1978 study except that a slightly higher percentage of teachers did not feel that SOE activities applied to them. It was found that 31.9 percent of the teachers felt that to obtain training stations did not apply. One third (33.3 percent) of the teachers indicated that to supervise training stations did not apply to them. According to the study, SOE is not felt to be important by many individuals at the local level in the United States.

In his article of a heritage and philosophy for training skilled agricultural workers Drawbaugh (1981) quoted the thoughts and words of George Washington, the father of the United States nearly 200 years ago as follows:

> "I know of no pursuit in which more real and important services can be rendered to any country than by improving its agriculture."

According to Drawbaugh, agriculture always was and still is recognized as being vital to the economy and the well being of the nation, and is viewed as an ideal way of life for the American people.

In the follow-up study by Juergensen (1966) of 145 former Vocational Agriculture students in Northern California high schools, it was discovered that 129 former students said that they would take Vocational Agriculture, if they were to start high school again.

Mends, (1971) proposed a curriculum for Agricultural Extension Training in Agricultural colleges in Ghana and recommended that comprehensive studies were needed to find out the specific areas of competencies relevant to work,which the students would be expected to perform.

Hemp (1961) studied former vocational agriculture students in the state of Illinois during 1957-58, he found that, of the 246 who participated, 170 stated that Vocational Agriculture had been helpful to them in the performance of their present jobs. Animal husbandry, soils, crops, and farm mechanics were the phases of instruction listed as most helpful by 42 percent of those engaged in non-related agriculture businesses.

In a study in Arizona, Bail (1965) found that course content and class schedules should be planned to meet the needs of all students including college-bound students interested in agriculture, he also indicated that introductory courses should include basic principles of science related to agriculture, and should be an integral part of the program of instruction and should be available to any student enrolled in agriculture. He also found that FFA activities should be related to agriculture and should be an integral part of the program of instruction, and should be available to any student enrolled in agriculture.

With this related research and these general conclusions as a background, this study attempted to determine the relevance of courses offered at Agricultural Training Centers in the Northern States of Nigeria as to the jobs that students would perform upon graduation. The attainment of skills, attitudes and knowledge necessary for occupational employment was equated with the student needs for educational programs.

The competencies which were identified should be attainable, measureable, and required for employement. The identification of competencies enabled the students to continue a self evaluation process as he progressed in his employment, Harzman (1977).

CHAPTER III

METHODS AND PROCEDURES

This study was designed to determine the degree of relevance of the agricultural courses and the subjects offered in Agricultural Training Centers in the Northern States of Nigeria to the different types of jobs that the students performed upon graduation. The researcher also desired to determine the opinions of the supervisors of graduates, as to the relevance or importance of the courses and the subjects. The study was designed to determine the influence of the number of years of job experience, the different types of jobs performed, the degree status, and the college attended. The results of this study would be useful to determine in-service training needs of agricultural field workers, administrators, and policy makers.

This study began with a review of the literature and discussions with supervisors of the graduates of Agricultural Training Centers in the Northern States of Nigeria who were studying at both Kansas State and Fort Hays State Universities. It was concluded that the primary objectives of this study could be obtained from the opinions of the supervisors of these graduates.

Development of the Instrument

To determine the specific areas to be included in the instrument the

researcher first surveyed the students at Kansas State University and Fort Hays University who were agricultural and home economics staff members from the Northern States of Nigeria.

A survey instrument was developed which contained fourteen major courses offered in the Agricultural Training Centers in the Northern States of Nigeria. The appropriate subjects were developed through the conclusions of the researcher by his experiences as the former principal of one of the institutions. The syllabi used at the Agricultural Training Centers were developed by Ahmadu Bello University personnel. One hundred seventeen subjects were developed from the fourteen courses offered by these institutions.

The questionnaire was then developed with the help of my advisor and Kansas State University members with experience in Agricultural Training Centers in Nigeria. The instrument included a list of bibliographical data which the respondents were expected to complete and items A - N. The bibliographical data were concerned with personal information of the respondents such as college attended, years of job experience, the types of jobs performed, and the student status at the universities.

The items A to N were concerned with the courses offered, as given below:

Item	Course	No. of Subjects
A	Agricultural extension	10
B	Agronomy/Crop Production	10
C	Horticulture	11
D	Livestock (Animal Science)	8
E	Farm Management	9

Item	Course	No. of Subjects
F	Agricultural Mechanization	10
G	Soil and Soil Conservation	7
H	Agricultural Mathematics/Surveying	9
I	Meteorology and Geography	7
J	Home Economics	8
K	Health and Sanitation	10
L	English Language	8
M	Basic Science	5
N	Government Procedure	5

The questionnaire contained basic questions pertaining to the importance of the subjects taught in the Agricultural Training Centers. This questionnaire was constructed with a five-point Likert type scale which allowed respondents to show the degree of relevance of each of the 177 subjects by the numbers one through five which were defined as 1 = not needed; 2 = little need; 3 = somewhat needed; 4 = much needed; and 5 = very much needed.

Population

The population for the study was selected from the Nigerian students from Kansas State and Fort Hays State Universities who worked as supervisors of the graduates of the Agricultural Training Centers in the Northern States of Nigeria. One hundred students with an agricultural background were randomly chosen as the population for this study. Each State in the Northern States of Ngeria was represented in the population.

Statistical Treatment, Comparison, and Analysis

For tabulations, comparisons, and analysis of findings, the population was divided into the following categories:

a. Years of job experience - 1-6 years, and 7 years or more,
b. Types of jobs performed - agricultural extension, livestock (animal science). and home economics,
c. Respondent status - graduate and undergraduate status at Kansas State and Fort Hays State Universities.
d. College attended by the supervisors - Samaru, Kabba, Jos and Kaduna.

The Analysis of Variance Statistical method was used to test the four null hypotheses of this study. The Scheffe Test was used at the point of evaluating the significance of the F-ratio. Two of the three methods commonly used to test the homogeneity of assumption according to Keppel (1973) were used to test the homogeneity of variance in this study. The Cochran test was used to test the homogeneity of variance by dividing the largest within-groups variances. The Bartlett test was used to accommocate unequal sample sizes (Winner 1971 page 205-210). The results were shown as reported in Chapter IV of this study.

CHAPTER IV

REPORT OF THE FINDINGS

This study was designed to determine the relevances of the courses and course subjects being offered at the Agricultural Training Centers in the Northern States of Nigeria for the jobs that the students would be required to perform after their graduation.

The respondents in this study were supervisors of the graduates of the Northern States of Nigeria who were studying at both Kansas State and Fort Hays State Universities. One hundred and two questionnaires were sent out to the respondents, and 100 questionnaires were returned as reported in Table 1.

Table 1. Number and Percentage of Questionnaires mailed and returned

	Number
Questionnaires mailed	102
Questionnaires returned	100
Percentage returned	98.03

The results from the questionnaire were run through the computer using the analysis of variance of responses and the results were tabulated as given in Tables II to XX. Weighted Mean scores were calculated on a five-point Likert scale with five, "very much needed"; four "much needed"; three "some what needed"; two "little need"; and one, "not needed".

Personal Information of the Respondents

The personal information in Table II considered years of job experience, the types of jobs performed, the student status, and the college attended by the respondents.

The number of years on the job by supervisors of the graduates was considered useful information for the statistical treatment of the data in this study. The number of years were categorized: 1-6 years, and 7 years or more. The 1-6 year group numbered 49 (49%), and 7 years or more had 51(51%). More than half the respondents worked for more than 7 years.

Another useful information for the statistical analysis was the types of jobs performed by the respondents when they were supervising the graduates of Agricultural Training Centers. Over half of the respondents worked directly as agricultural extension supervisors. The analysis indicated 64 (64%) did agriculture extension work 26 (26%) did livestock work,and 10 (10%) did home economics work as given in Table II.

Most of the respondents attended colleges of agriculture owned by Ahmadu Bello University which had one of the best programs for agriculture and veterinary medicine. Fifty one (51%) attended the College of Agriculture at Samaru, 18(18%) attended the College of Agriculture at Kabba, 21 (21%) attended the College of Animal Science at Kaduna, and 10 (10%) attended the College of Soil Conservation at Jos. Samaru, Kabba, and Kaduna were administered by Ahmad Bello University with its headquarters at Samaru-Zaria. These colleges were unique because they all trained agricultural extension workers. Eighty fi (85%) of the respondents were undergraduates, and 15 (15%) of the respondents were graduates.

Table II. Personal Information of the Respondents

Information Item	N	%
1. Colleges of Agriculture attended by the supervisors		
a. Samaru - Zaria, Kaduna State	51	51
b. Kabba, Kwara State	18	18
c. Jos, Plateau State	10	10
d. Mando - Kaduna, Kaduna State	21	21
	100	100
2. Years of Jobs Experience		
a. 1-6 years	49	49
b. 7 or over	51	51
	100	100
3. Types of Jobs Performed by Supervisors		
a. Agricultrual Extension	64	64
b. Livestock (Animal Science)	26	26
c. Home Economics	10	10
	100	100

Analysis of the Comparison of the Responses of Supervisors of Graduates on the Importance of Agricultural Courses Based on Years of Job Experience

Data in Table III revealed that there were no significant differences, in the responses between groups. No course had an F-probability less than .104. This indicated that supervisors of graduates who had 1-6 years, and those with 7 years or over of job experience rated each of the 14 courses as important to vocational agriculture curriculum in Agricultural Training Centers in the Northern States of Nigeria.

Analysis of the Comparison of the Responses of Supervisors of Graduates on the Importance of the Agriculture Courses Based on the Types of Jobs Performed

There were 14 courses and 117 subjects that were included in the study. In Table IV an analysis of the degree of importance is shown for each of the 14 courses based on the types of jobs performed by the supervisors of graduates. The 14 agricultural courses formed the total vocational agriculture curriculum in the Agricultural Training Centers of the Northern States of Nigeria. The entire curriculum included (a) Agricultural Extension, (b) Agronomy/Crop Production, (c) Horticulture, (d) Livestock, (Animal Science), (e) Farm Management, (f) Agricultural Mechanization, (g) Soil and Soil Conservation, (h) Agricultural Mathematics/Surveying, (i) Meteorology and Geography, (j) Home Economics, (k) Health and Sanitation, (l) English Language, (m) Basic Science.

Data in Table IV lists the total mean scores for each of the agricultural courses, analysis of variance showing the degree of freedom

Table III. Analysis of the Comparison of the Responses of Supervisors of Graduates on the Importance of the Agriculture Courses by Years of Job Experience

Agricultural Courses	No. of Subjects	Years of Job Experience: 1-6 yrs N = 49 Mean	7 years or More N = 51 Mean	Total Mean	Aver. Mean of Subject	df Between/ within	F-ratio	F-probability
Agricultural Extension	10	43.61	43.88	43.75	4.38	1/98	0.105	0.7466
Agronomy/Crop Production	10	44.27	44.33	44.30	4.43	1/98	0.009	0.9248
Horticulture	11	47.45	47.47	47.46	4.31	1/98	0.001	0.9787
Livestock (Animal Science)	8	34.14	33.18	33.65	4.21	1/98	0.966	0.3280
Farm Management	9	39.63	39.49	39.56	4.40	1/98	0.028	0.8683
Agricultural Mechanization	10	42,45	40.35	41.38	4.14	1/98	0.132	0.7167
Soil and Soil Conservation	7	31.45	31.220	31.32	4.47	1/98	0.132	0.7167
Agricultural Maths/ Surveying	9	37.37	37.04	37.20	4.13	1/98	0.084	0.7727
Meteorology and Geography	7	30.31	29.71	30.00	4.29	1/98	0.449	0.5043
Home Economics	8	35.61	35.47	35.54	4.44	1/98	0.026	0.8728
Health and Sanitation	10	45.21	43.41	44.20	4.42	1/98	2.693	0.1040
English Language	8	30.76	41.43	31.10	3.89	1/98	0.257	0.6136
Basic Sciences	5	21.49	21.29	21.39	4.28	1/98	0.069	0.7931
Government Procedure	5	21 69	21.49	21.59	4.32	1/98	0.089	0.7656

between and within mean squares, F-ratios, and F-probability. The mean scores are classified according to the importance as follows: 5 very much needed; 4 much needed; 3 somewhat needed; 2 little need, and 1 not needed. Looking at Table IV, 13 out of the 14 courses were rated above a mean score of four by the supervisors of graduates. The total mean scores ranged from 47.46 to 21.39 for the agricultural courses, and the average mean scores for the subjects range from 4.40 to 3.89. The hypothesis: "There is no significant difference in the responses of the supervisors of graduates who had agricultural extension, livestock (animal science) or home economics assignments as to the importance of courses or subjects offered in the Agricultural Training Centers of the Northern States of Nigeria," was retained except for agricultural Mathematics/Surveying which indicated significant difference at the 0.05 level of significance. The Mathematics/Surveying course had an F-ratio of 3.809, and F-probability of 0.0256.

Information in Table V reported the mean scores of the subgroups indicating that there were no significant differences within the groups by degree status. For example the undergraduates rated agricultural extesnion as 43.72 total mean score while the graduates rated the same agricultural extension course as 43.93 with an average mean score per subject of 4.38. The F-ratio was 0.032 and the F-probability was 0.8588. English Language was rated the lowest with the total mean score of 31.10 and the total average mean score of 3.89 per subject. Considering the Likert scale of 5 very much needed; 4 much needed; 3 somewhat needed; 2 little need; and 1 not needed, the mean of 3.89 for the English Language course was the lowest rated subject.

Table IV. Analysis of the Comparison of the Responses of Supervisors of Graduates on the Importance of the Agriculture Courses Based on the Types of Jobs Performed

Agricultural Courses	No. of Subjects	Types of Jobs Performed: Agric. Extension N - 64 Mean	Livestock (Animal Science) N - 26 Mean	Home Economics Mean	Total Mean	Aver. Mean/ Subject	df Between/ within	F-ratio	F-probability
Agricultural Extension	10	43.86	42.96	45.10	43.75	4.38	2/97	1.041	0.3571
Agronomy/Crop Production	10	44.39	44.19	44.00	44.30	4.43	2/97	0.051	0.9503
Horticulture	11	47.61	46.65	48.60	47.46	4.31	2/97	0.481	0.6197
Livestock (Animal Science)	8	32.78	35.50	34.40	33.65	4.21	2/97	3.084	0.0503
Farm Management	9	39.52	39.85	39.10	39.56	4.40	2/97	0.123	0.8840
Agricultural Mechanization	10	41.06	42.31	41.00	41.38	4.14	2/97	0.406	0.6676
Soil and Soil Conservation	7	31.39	31.69	29.90	31.32	4.47	2/97	1.00	0.3718
Agricultural Maths/ Surveying	9	37.94	37.08	32.80	37.20	4.13	2/97	3.809	0.0256*
Meteorology and Geography	7	29.63	31.65	28.10	30.00	4.29	2/97	3.040	0.0524
Home Economics	9	35.61	35.19	36.00	35.54	4.44	2/97	0.140	0.8695
Health and Sanitation	10	44.13	43.50	46.50	44.20	4.42	2/97	1.071	0.3468
English Language	8	31.47	30.65	29.90	31.10	3.89	2/97	0.315	0.7302
Basic Sciences	5	21.05	22.12	21.70	21.39	4.28	2/97	0.812	0.4468
Government Procedure	5	21.86	20.42	22.90	21.59	4.32	2/97	2.610	0.0787

*Significant at the .05 level

Table V. Analysis of the Comparison of the Responses of Supervisors of Graduates on the Importance of the Agriculture Courses Based on Degree Status

Agricultural Courses	No. of Subjects	By Degree Status: Undergraduates N = 85 Mean	Graduates N = 15 Mean	Total Mean	Aver. Mean of Subject	df Between/ within	F-ratio	F-probabiliy
Agricultural Extension	10	43.72	43.93	43.75	4.38	1/98	0.032	0.8588
Agronomy/Crop Production	10	44.22	45.40	44.30	4.43	1/98	1.253	0.2657
Horticulture	11	47.26	48.60	47.46	4.31	1/98	0.710	0.4016
Livestock (Animal Science)	8	33.44	34.87	33.65	4.21	1/98	1.082	0.3007
Farm Management	9	39.51	39.87	39.56	4.40	1/98	0.093	0.7607
Agricultural Mechanization	10	40.89	44.13	41.38	4.14	1/98	3.727	0.0564
Soil and Soil Conservation	7	31.15	32.27	31.32	4.47	1/98	1.317	0.2539
Agricultural Maths/ Surveying	9	36.88	39.00	37.20	4.13	1/98	1.815	0.1810
Meteorology and Geography	7	29.96	30.20	30.00	4.29	1/98	0.033	0.8558
Home Economics	8	35.23	37.27	35.54	4.44	1/98	2.731	0.1016
Health and Sanitation	10	44.00	45.33	44.20	4.42	1/98	0.733	0.3941
English Language	8	21.16	22.67	21.39	4.28	1/98	2.140	0.1467
Basic Sciences	5	21.41	22.60	21.59	4.32	1/98	1.600	0.2089
Government Procedure	5	21.41	22.60	21.59	4.32	1/98	1.600	0.2089

In Table VI the analysis of variance for the four categories of college attended for each of the 14 courses revealed that Farm Management and Agricultural Mechanization were the only courses that showed significant differences between the groups at .05 level. Farm Management had a total mean score of 39.56, F-ratio of 3.000 and F-probability of 0.0344. Agricultural Mechanization had a total mean score of 41.38, F-ratio of 3.292 and F-probability of 0.0239. Farm Management with 9 subjects had a total average mean score of 4.40 per subject and agricultural mechanization with 10 subjects had a total average mean score of 4.14 per subject and both were considered to be "much needed".

Analysis of the Responses of Supervisors of Graduates as to the Importance of the Subjects

The 117 subjects designated for teaching agriculture courses included in this study are shown in Tables VII - XX with the mean scores for each subject. These 117 subjects were obtained from 14 courses used in this study as follows:

a. Agricultural Extension = 10
b. Agronomy/Crop Production = 10
c. Horticulture = 11
d. Livestock (Animal Science) = 8
e. Farm Management = 9
f. Agricultural Mechanization = 10
g. Soil and Soil Conservation = 7
h. Agricultural Maths/Surveying = 9
i. Meteorology and Geography = 7
j. Home Economics = 8

Table VI. Analysis of the Comparison of the Responses of Supervisors of Graduates from Samaru, Kabba, Jos and Kaduna as to the Importance of the Agriculture Courses offered in the Agricultural Training Centers in the Northern States of Nigeria

Agricultural Courses	No. of Subjects	College Attended: Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Mando-Kaduna N = 21 Mean	Total Mean	Aver. Mean of Subject	df Between/ within	F-ratio	F-probability
Agricultural Extension	10	44.24	43.94	44.40	42.10	43.75	4.38	3/96	0.032	0.8588
Agronomy/Crop Production	10	44.16	44.67	45.90	43.57	44.30	4.43	3/96	0.778	0.5089
Horticulture	11	47.18	48.83	50.70	45.43	47.46	4.31	3/96	2.481	0.0657
Livestock (Animal Science)	8	32.84	33.11	35.10	35.38	33.65	4.21	3/96	1.726	0.1668
Farm Management	9	39.43	38.83	43.10	38.81	39.56	4.40	3/96	3.000	0.0344*
Agricultural Mechanization	10	41.76	38.39	45.50	41.05	41.38	4.14	3/96	3.292	0.0239*
Soil and Soil Conservation	7	31.30	30.72	32.70	31.24	31.32	4.47	3/96	0.703	0.5526
Agricultural Maths/ Surveying	9	37.41	36.39	40.70	35.71	37.20	4.13	3/96	1.979	0.1223
Meteorology and Geography	7	29.41	29.44	31.20	31.33	30.00	4.29	3/96	1.245	0.2908
Home Economics	8	36.18	35.38	34.60	34.57	35.54	4.44	3/96	0.840	0.4755
Health and Sanitation	10	45.37	43.28	41.00	43.66	44.20	4.42	3/96	2.167	0.0970
English Language	8	31.12	31.78	32.70	29.71	31.10	3.89	3/96	0.552	0.6482
Basic Sciences	5	21.63	19.72	22.40	21.76	21.39	4.28	3/96	1.651	0.0556
Government Procedure	5	22.10	21.67	22.50	19.86	21.59	4.32	3/96	2.614	0.0556

*Significant difference at .05 level

k. Health and Sanitation = 10

l. English Language = 8

m. Basic Science = 5

n. Government Procedure = 5

Agricultural Extension Course

Looking at the mean scores in Table VII each of the 10 subjects for the agricultural extension course were rated in the "much needed" category with the mean scores of 4.00 or more. The mean scores also indicated that no significant differences in the responses of supervisors of graduates by years of job experience, types of position held, student status, and college attended since all rated the subjects with mean scores above 4.00 with the exception of Young Farmers Club which was rated by the graduate students at 3.93.

Agronomy/Crop Production Course

The responses in Table VIII indicated that the 10 subjects for agronomy/crop production course were rated "much needed" with the mean scores of above 4.00. Although the respondents considered that the classification of crops had the lowest score of the nine subjects but was rated as "much needed". The supervisors who attended the School of Soil Conservation at Jos rated soil and soil conservation as "very much needed" with a mean score of 5.00.

Horticulture Course

The replies in Table IX indicated that all the 11 subjects under Horticulture were rated as "much needed" by the supervisors of graduates.

Table VII. Mean Scores for the Importance of Agricultural Extension Subjects by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Philosophy and Principles	4.12	4.35	4.20	4.23	4.50	4.24	4.27	4.26	4.28	4.50	4.05
Village Survey	4.29	4.59	4.56	4.11	4.50	4.40	4.67	4.61	4.56	4.40	3.95
Leadership Training	4.16	4.51	4.42	4.04	4.60	4.34	4.33	4.49	4.44	4.50	3.81
Young Farmers Club	4.29	4.11	4.11	4.39	4.30	4.25	3.93	4.16	4.67	4.20	4.29
Farmers Advisory Committee	4.49	4.37	4.48	4.31	4.40	4.43	4.47	4.43	4.28	4.30	4.29
Program Planning	4.47	4.45	4.44	4.50	4.50	4.48	4.33	4.49	4.70	4.70	4.43
Communication	4.67	4.63	4.67	4.58	4.70	4.64	4.73	4.67	4.72	4.60	4.57
Farm Tours and Visits	4.35	4.28	4.30	4.42	4.10	4.34	4.13	4.24	4.44	4.30	4.38
Method and Results Dem.	4.41	4.24	4.31	4.23	4.60	4.28	4.53	4.37	4.22	4.50	4.19
Evaluation	4.37	4.35	4.36	4.15	4.90	4.33	4.53	4.53	4.11	4.40	4.14

Table VIII. Mean Scores for the Importance of Agronomy/Crop Production Subjects by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Soil and Soil Conservation	4.65	4.67	4.60	4.85	4.60	4.64	4.80	4.50	4.67	5.00	4.81
Principles of Crop Production	4.63	4.73	4.72	4.58	4.70	4.67	4.73	4.71	4.72	4.90	4.48
Ennvironmental Factors	4.57	4.39	4.45	4.54	4.50	4.53	4.20	4.45	4.39	4.80	4.48
Fertilizers	4.71	4.67	4.72	4.65	4.60	4.70	4.67	4.73	4.67	4.70	4.62
Harvesting	4.49	4.43	4.55	4.39	4.10	4.46	4.47	4.49	4.61	4.40	4.29
Storage of Produce	4.63	4.59	4.61	4.58	4.70	4.59	4.73	4.57	4.78	4.70	4.52
Pests and Diseases	4.63	4.74	4.67	4.73	4.70	4.70	4.67	4.69	4.67	4.70	4.71
Marketing	4.04	4.28	4.23	3.96	4.20	4.08	4.60	4.22	4.28	4.10	3.95
Classification of Crops	3.80	3.73	3.70	3.92	3.70	3.74	3.87	3.67	3.72	4.30	3.75
Practicals	4.10	4.11	4.14	4.00	4.20	4.01	4.67	4.12	4.17	4.30	3.95

Table IX. Mean Scores for the Importance of Horticulture Subjects by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Pre-Nursery	4.33	4.41	4.44	4.19	4.40	4.34	4.53	4.35	4.56	4.90	4.00
Nursery Practices	4.37	4.45	4.41	4.42	4.40	4.39	4.53	4.31	4.61	4.80	4.29
Site Selection	4.41	4.43	4.47	4.39	4.20	4.41	4.47	4.31	4.61	4.80	4.33
Vegetable Gardening	4.22	4.39	4.31	4.23	4.50	4.32	4.27	4.28	4.44	4.70	4.10
Propagation	4.31	4.20	4.27	4.23	4.20	4.25	4.27	4.22	4.39	4.50	4.10
Tree Crop Production	4.37	4.35	4.33	4.42	4.40	4.31	4.67	4.24	4.50	4.80	4.33
Harvesting Techniques	4.37	4.26	4.33	4.19	4.50	4.32	4.27	4.33	4.50	4.30	4.10
Storage	4.49	4.35	4.39	4.31	4.90	4.42	4.40	4.45	4.50	4.40	4.39
Common Pests and Deseases	4.51	4.47	4.50	4.35	4.80	4.51	4.40	4.53	4.53	4.80	4.19
Marketing	4.04	4.14	4.08	4.00	4.40	4.07	4.20	4.10	4.17	4.30	3.91
Practicals	4.04	4.02	4.10	3.92	3.90	3.93	4.60	4.06	4.00	4.40	3.81

There were no significant differences in the mean scores. Although all of the 11 subjects were rated above 4.00 with the exception of Marketing which had a mean score of 3.91 by the supervisors who attended the College of Animal Science at Kaduna. Practicals had an importance rating of 3.93 by the supervisors of graduates who had worked in Livestock and Home economics.

Livestock (Animal Science) Course

The responses in Table X indicated that seven of the eight subjects were rated above the mean score of 4.00 by all the groups. These subjects were Livestock Husbandry, Cattle, Sheep and Goats. Poultry, Rabbits, Feeds and Feeding, and Marketing. Swine (Pigs) had a slightly lower score as follows: Years of job experience (1-6 years) 3.86; 7 years or over 3.59; student status (undergraduates) 3.71; graduates 3.80; college attended Samaru 3.51; Kabba 3.72; Jos 3.40; and Kaduna 4.38.

Farm Management Course

Replies in Table XI revealed that 9 subjects were rated as "much needed" or above. The mean scores were very high. There was no single subject with a mean score of less than 4.00

Agricultural Mechanization

Data in Table XII indicated that 10 subjects were offered in Agricultural Mechanization but only eight of these subjects were rated very important by all the supervisors of graduates in respect of years of job experience, types of position held, student status, and college attended.

Table X. Mean Scores for the Importance of Livestock (Animal Science Subjects by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
LIvestock Husbandry	4.63	4.41	4.45	4.69	4.50	4.48	4.73	4.49	4.28	4.90	4.62
Cattle	4.41	4.24	4.22	4.65	4.10	4.33	4.27	4.18	4.22	4.70	4.57
Swine (Pigs)	3.86	3.59	4.45	4.23	4.10	3.71	3.80	3.51	3.72	3.40	4.38
Sheep and Goats	4.35	4.18	4.11	4.54	4.50	4.24	4.40	4.18	4.11	4.40	4.52
Poultry	4.55	4.49	4.47	4.69	4.40	4.53	4.47	4.45	4.44	4.70	4.67
Rabbits	3.63	3.73	3.55	3.81	4.20	3.60	4.13	3.57	3.78	3.70	3.86
Feeds and Feeding	4.61	4.53	4.52	4.69	4.60	4.55	4.67	4.53	4.44	4.90	4.62
Marketing	4.10	4.02	4.02	4.19	4.00	4.00	4.40	3.94	4.11	4.40	4.14

Table XI. Mean Scores for the Importance of Farm Management by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Objectives of Farm Management	4.39	4.63	4.58	4.50	4.10	4.48	4.67	4.47	4.56	4.90	4.38
General Farm Economics	4.29	4.45	4.38	4.42	4.20	4.35	4.47	4.33	4.33	4.80	4.29
Principles of Economics	4.06	4.20	4.14	4.08	4.20	4.10	4.27	4.14	4.11	4.60	3.91
The Econ. Use of Farm Resources	4.43	4.51	4.44	4.46	4.70	4.45	4.60	4.51	4.39	4.70	4.33
Crop Management	4.55	4.55	4.56	4.54	4.50	4.57	4.67	4.55	4.50	4.90	4.43
Livestock Management	4.59	4.12	4.45	4.62	4.50	4.53	4.33	4.41	4.44	5.00	4.32
Farm Practices and Farm Crafts	4.18	3.94	4.02	4.15	4.10	4.02	4.27	4.02	3.94	4.50	4.05
Land Inprovements	4.59	4.33	4.44	4.58	4.30	4.50	4.27	4.47	4.17	4.80	4.52
Record Keeping	4.55	4.46	4.52	4.50	4.50	4.51	4.53	4.53	4.39	4.90	4.38

Table XII. Mean Scores for the Importance of Agricultural Mechanization by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Farm Machinery, Tools and Crafts	4.67	4.20	4.36	4.65	4.30	4.42	4.47	4.41	4.11	4.80	4.57
Workshop Safety	4.37	4.26	4.28	4.39	4.30	4.24	4.73	4.37	4.06	4.50	4.29
Safety in Use of Farm Tools, Machinery and Equipment	4.37	4.41	4.39	4.35	4.50	4.31	4.87	4.47	4.22	4.60	4.24
Use of Hand and Power Tools	4.04	4.11	4.16	3.89	4.10	4.03	4.40	4.12	4.28	4.70	3.71
Maintenance and Care of Farm Equipment	4.45	4.41	4.44	4.42	4.40	4.38	4.73	4.49	4.22	4.50	4.33
Farm Stead and Utilities	4.12	3.86	3.99	4.08	3.80	3.93	4.33	3.98	3.83	4.90	3.90
Tractor Implements	4.55	4.12	4.27	4.54	4.20	4.29	4.53	4.31	3.89	4.20	4.48
Carpentry	3.63	3.35	3.42	3.77	3.20	3.42	3.87	3.51	2.94	4.50	3.57
Mixed Farming	4.37	3.94	4.18	4.04	4.20	4.11	4.40	4.26	3.89	4.50	3.95
Rural Electrity	3.88	3.69	3.58	4.19	4.00	3.78	3.80	3.85	2.94	4.70	4.00

The most important subjects were: Farm Machinery, Tools and Crafts; Work-Shop Safety; Safety in Use of Farm Tools, Machinery and Equipment; Use of Power Tools, Maintenance and Care of Equipment; Farmstead and Utilities; Tractor Implements and Mixed Farming. But Carpentry and Rural Electricity were rated lower in importance as indicated below: Carpentry had mean score of 3.63 for years of job experience (1-6); and 3.35 for 7 years or more; 3.42 for home economics; 3.42 for undergraduates; 3.87 for graduates; 3.51 for college attended. 2.94 for Kabba graduates; 4.50 for Jos graduates; and 3.57 for Kaduna graduates. Rural Electricity rated as less important by the supervisors of graduates for years of job experience 1-6 years 3.88; 7 years or more 3.69; types of position held (agricultural extension) 3.58; student status (undergraduates) 3.78; graduates 3.80; college attended (Samaru) 3.78; and Kabba 2.90

Soil and Soil Conservation

Data in Table XIII indicated that seven subjects were offered in the Soil and Soil Conservation course. All the seven subjects were rated very important by all the supervisors of graduates who participated in this study. The suvervisors by years of experience, types of position held, student status, and college attended, rated all the subjects above the 4.00 mean score which indicated that all the subjects were "much needed".

Agricultural Mathematics/Surveying Course

The responses in Table XIV indicated that nine subjects were offered in the Agricultural Mathematics/Surveying course. Seven of the nine

Table XIII. Mean Scores for the Importance of Soil and Soil Conservation by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Soil Formation/Components	4.43	4.28	4.33	4.58	3.90	4.35	4.33	4.35	4.00	4.70	4.48
Soil Profile	4.27	4.26	4.23	4.35	4.20	4.26	4.27	4.24	4.22	4.60	4.19
Major Nutrients	4.65	4.55	4.61	4.65	4.40	4.59	4.67	4.61	4.44	4.80	4.62
Fertilizers and Manures	4.67	4.67	4.64	4.77	4.60	4.66	4.73	4.65	4.61	4.80	4.71
Soil Erosion	4.53	4.61	4.54	4.65	4.50	4.53	4.80	4.51	4.56	4.80	4.62
Soil Conservation	4.61	4.68	4.75	4.46	4.40	4.60	4.87	4.69	4.72	4.60	4.48
Care of Farm Structures	4.29	4.18	4.28	4.23	3.90	4.17	4.60	4.26	4.17	4.40	4.14

Table XIV. Mean Scores for the Importance of Agricultural Mathematics/Surveying by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Metric and Imperial Systems of Measurement	4.12	4.41	4.42	4.12	3.70	4.21	4.60	4.37	4.22	4.50	3.95
Arithmatic	4.20	4.33	4.33	4.19	4.10	4.24	4.47	4.28	4.39	4.60	4.00
Basic Geometry	3.80	3.63	3.67	3.96	3.30	3.68	3.87	3.67	3.33	4.60	3.71
Basic Algebra	3.78	3.75	3.73	3.89	3.60	3.75	3.80	3.90	3.22	4.00	3.76
Field Calculations	4.33	4.35	4.44	4.39	3.60	4.32	4.47	4.28	4.39	4.70	4.29
General Intr. to Surveying	4.31	4.18	4.34	4.23	3.60	4.22	4.33	4.20	4.33	4.60	4.10
Chain Surveying	4.20	4.18	4.38	4.04	3.40	4.14	4.47	4.20	4.28	4.60	3.91
Intr. to Surveyors Notebook	4.12	3.75	4.06	3.85	3.30	3.87	4.27	3.96	3.89	4.40	3.67
Field Practicals	4.51	4.47	4.56	4.42	4.20	4.45	4.73	4.57	4.33	4.70	4.33

subjects were rated as "much needed" by the supervisors of graduates with mean scores above 4.00. They were (1) Metric and Imperial System of Measurement, (2) Arithmetic, (3) Field Calculations, (4) General Introduction to Surveying, (5) Chain Surveying, (6) Introduction to Surveyor's Notebook, and (7) Field Practicals. Basic geometry and basic algebra were rated as "somewhat needed" by the supervisors of graduates. Their mean scores were less than 4.00.

Meteorology and Geography

The replies in Table XV indicated that seven subjects were taught in the Meteorology and Geography course. All of these subjects were rated "much needed" since they all had mean scores of above 4.00

Home Economics

Data in Table XVI indicated that eight subjects were taught in the Home Economics course. The researcher observed that all subjects were rated as "much needed" by the supervisors of graduates with the mean scores of 4.00 or higher. There was not much distinction in years of job experience, types of position held, student status, and college attended.

Health and Sanitation

Information in Table XVII indicated that 10 subjects were taught in the Health and Sanitation course. All the courses were rated very important. All the subjects had mean scores of above 4.00 except Physiology and Anatomy of Man had mean scores of less than 4.00 as follows:

Table XV. Mean Scores for the Importance of Meteorology and Geography by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Climate	4.41	4.41	4.38	4.73	3.80	4.40	4.47	4.30	4.33	4.50	4.71
Seasons in Nigeria	4.37	4.31	4.33	4.58	3.80	4.31	4.53	4.27	4.28	4.30	4.57
Nigeria - Vegetative Zones	4.31	4.16	4.20	4.39	4.00	4.22	4.27	4.18	4.17	4.50	4.28
Economic Geography of Nigeria	4.31	4.18	4.09	4.58	4.30	4.24	4.27	4.09	4.17	4.50	4.52
Rainfall - Formation and Types	4.25	4.24	4.22	4.46	3.80	4.25	4.20	4.16	4.22	4.20	4.48
Weather Intruments	4.37	4.26	4.20	4.50	4.50	4.31	4.33	4.26	4.17	4.60	4.43
Weather Observation	4.31	4.16	4.20	4.42	3.90	4.25	4.13	4.16	4.11	4.60	4.33

Table XVI. Mean Scores for the Importance of Home Economics by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Food and Nutrition	4.70	4.69	4.64	4.73	4.90	4.67	4.80	4.78	4.56	4.50	4.67
Home Improvement Family Relationship	4.65	4.69	4.64	4.69	4.80	4.64	4.87	4.73	4.56	4.70	4.62
Textile Clothing and Hand Craft	4.22	4.20	4.20	4.15	4.40	4.14	4.60	4.29	4.17	4.30	4.00
Child Care	4.63	4.59	4.59	4.62	4.70	4.59	4.73	4.71	4.56	4.40	4.52
Extension	4.57	4.63	4.59	4.50	4.90	4.54	4.93	4.65	4.72	4.40	4.48
Knitting	4.00	3.84	4.09	3.89	2.90	3.85	4.33	3.91	4.11	3.90	3.81
Gardening	4.29	4.37	4.33	4.23	4.60	4.31	4.46	4.43	4.33	4.30	4.10
Family Economics	4.55	4.47	4.52	4.39	4.80	4.51	4.53	4.69	4.39	4.10	4.38

Table XVII. Mean Scores for the Importance of Health and Sanitation by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Personal Hygiene	4.71	4.71	4.75	4.58	4.80	4.70	4.80	4.88	4.61	4.20	4.62
Care of Our Surroundings	4.71	4.53	4.63	4.54	4.80	4.59	4.80	4.75	4.56	4.20	4.57
Latrines and Toiletts	4.61	4.35	4.47	4.35	4.90	4.45	4.67	4.65	4.33	4.10	4.38
Physiology and Anatomy of Man	4.08	3.90	3.91	4.11	4.10	3.95	4.20	3.90	4.06	4.20	4.05
The First Aid and the Box	4.33	4.28	4.33	4.11	4.60	4.28	4.40	4.45	4.17	4.30	4.05
Water Supply	4.61	4.43	4.58	4.31	4.70	4.53	4.47	4.67	4.44	4.20	4.38
Making Water Safe for Drinking	4.78	4.59	4.72	4.50	4.90	4.65	4.87	4.82	4.67	4.10	4.62
Refuse Disposal	4.63	4.33	4.47	4.35	4.90	4.48	4.47	4.69	4.33	3.80	4.43
Exercise, Rest and Sleep	4.22	3.92	3.98	4.15	4.40	4.04	4.27	4.16	3.94	3.60	4.19
Common Diseases	4.30	4.28	4.28	4.50	4.40	4.34	4.40	4.41	4.17	4.30	4.38

years of job experience (7 years or more) 3.90; types of position held, (agricultural extension) 3.92; and student status, (undergraduates) 3.95. Excercise, Rest and Sleep had mean scores of less than 4.00 as follows: years of job experience (7 years or more) 3.92; types of position held (agricultural extension) 3.98 and college attended, (Kabba) 3.4. Since these two subjects were rated above 3.90, the researcher considered that they were "much needed".

English Language

Data in Table XVIII indicated that eight subjects were taught in the English Language course. Oral English, Written English, and Report Writing were the subjects rated with mean scores of 4 or more. Grammar, Direct and Indirect Speech, Letter Writing, Comprehension and Precis were also rated above 3.50 score and were "some what needed".

Basic Science

Information in Table XIX indicated that five subjects were taught in Basic Science. Chemistry and Physics were rated low by the supervisors of graduates of Agricultural Training Centers by the college they attended. They were rated low by only Kabba. Chemistry had a mean score of 3.89 and Physics had a mean score of 3.28 by college attended. Generally most of the subjects are rated as "much needed".

Government Procedure

According to the data in Table XX five subjects were taught in Government Procedure. All the five subjects were rated about 4.00 and above. The frequencies were well distributed by years of job experience, types of postion held, student status and college attended.

Table XVIII. Mean Scores for the Importance of English Language by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Grammar	3.69	3.96	3.88	3.89	3.40	3.80	4.00	3.77	3.89	4.50	3.62
Direct and Indirect Speech	3.63	3.57	3.72	3.42	3.30	3.57	3.80	3.59	3.83	3.90	3.29
Oral English	4.04	4.10	4.03	4.19	4.00	4.09	3.93	3.96	4.17	4.50	4.05
Written English	3.98	4.18	4.13	4.11	3.70	4.06	4.20	4.00	4.33	4.30	3.95
Letter Writing	3.63	3.80	3.81	3.65	3.30	3.72	3.73	3.75	3.83	3.70	3.57
Report Writing	4.43	4.51	4.50	4.35	4.70	4.48	4.47	4.53	4.67	4.00	4.43
Comprehension and Vocabulary	3.67	3.75	3.78	3.58	3.60	3.73	3.07	3.75	3.78	4.00	3.43
Precis	3.67	3.55	3.63	3.46	3.90	3.57	3.87	3.78	3.28	3.80	3.38

lable XIX. Mean Scores for the Importance of Basic Science by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Biology	4.55	4.53	4.52	4.65	4.40	4.51	4.73	4.57	4.33	4.70	4.57
Chemistry	4.33	4.33	4.20	4.58	4.50	4.27	4.67	4.37	3.89	4.50	4.52
Physics	3.96	3.90	3.83	4.11	4.10	3.87	4.27	4.08	3.28	4.10	4.05
Zoology	4.29	4.14	4.14	4.35	4.30	4.15	4.53	4.20	4.00	4.50	4.29
Botany	4.37	4.40	4.36	4.42	4.40	4.37	4.47	4.41	4.22	4.60	4.33

Table XX. Mean Scores for the Importance of Government Procedure by Years of Job Experience, Types of Position, Student Status and College Attended

Subjects	Years of Job Experience		Types of Position held			Student Status		College Attended			
	1-6 years N = 49 Mean	7 yrs or More N = 51 Mean	Ag. Ext. N = 64 Mean	Livestock N = 26 Mean	Home Ec. N = 10 Mean	Undergraduate N = 85 Mean	Graduate N = 15 Mean	Samaru N = 51 Mean	Kabba N = 18 Mean	Jos N = 10 Mean	Kaduna N = 21 Mean
Civil Service	4.39	4.40	4.42	4.31	4.40	4.34	4.67	4.45	4.33	4.70	4.14
Government Regulation	4.49	4.40	4.48	4.34	4.70	4.40	4.67	4.58	4.33	4.70	4.05
Disciplinary Matters	4.41	4.20	4.42	3.96	4.60	4.26	4.67	4.49	4.33	4.20	3.95
States Regulation	4.14	4.30	4.33	3.85	4.50	4.19	4.40	4.33	4.39	4.30	3.76
Office Procedure	4.27	4.18	4.20	4.08	4.70	4.22	4.20	4.24	4.28	4.60	3.95

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The growing population and the inadequacy of food to feed the expanding population constituted the most fundamental problem in Nigeria. In Nigeria, particularly the Northern States, rural areas have lagged behind the urban areas in development resulting in increasing disparity between the standard of living in the urban and rural sectors. The three major components in production agriculture cycle include: the farmer; the research institutions; and the agricultural extension service which owns the Agricultural Training Centers in the Northern States of Nigeria.

It was anticipated that this study would help agricultural educators, administrators, and policy makers in planning agricultural programs and curricula for all Agricultural Training Centers in the Northern States of Nigeria.

The study evaluated each of the 117 subjects for teaching the 14 courses at the Agricultural Training Centers of the Northern States of Nigeria. With the results of this study, agricultural teachers and principals of the Agricultural Training Centers will be able to communicate the relevance of the courses taught in the center. The results will assist the administrators in planning and the modifying the agricultural training programs.

The central prupose of this study was to determine the relevance of the courses offered at the Agricultural Training Centers in the Northern States of Nigeria. The study determined the subjects which were considered by the supervisors of graduates to be the important for teaching the 14 agriculture courses taught in the Agricultural Training Centers.

Data were collected from the Nigerian students from Kansas State and Fort Hays State Universities who worked as supervisors of the graduates of the Agricultural Training Centers in the Northern States of Nigeria.

The research instrument was developed and contained 14 major courses offered at the Agricultural Training Centers in the Northern States of Nigeria. The appropriate subjects were identified by the researcher through his experiences as the former principal of one of the Agricultural Training Centers, and the syllabi developed by Ahmadu Bello University personnel for all Agricultural Training Centers in the Northern States of Nigeria. The questionnaire was constructed using a five-point Likert type rating scale which allowed respondents to indicate the degree of importance by numbers 1 to 5 as follows: 1 not needed; 2 little need; 3 some what needed; 4 much needed; and 5 very much needed.

One hundred two students with agricultural background were selected for the study, and 100 students returned the questionnaires. This was a return of 98.3 % of the population selected for the study.

The data collected were analyzed by the Kansas State University computer. The Analysis of Variance Statistical method was used to test the

four null hypotheses as follows: 1. There are no significant differences in the responses of the supervisors of graduates by years of job experiences as to the importance of courses or subjects offered in the Agricultural Training Centers in the Northern States of Nigeria. 2. There are no significant differences in the responses of the supervisors of graduates who had agricultural extension, livestock (animal science), or home economics assignments as to the importance of courses or subjects offered in the Agricultural Training Centers in the Northern States of Nigeria. 3. There are no significant differences in the responses of the supervisors of graduates by degree status (graduate or undergraduate) as to the importance of courses or subjects offered in the Agricultural Training Centers in the Northern States of Nigeria. 4. There are no significant differences in the responses of the supervisors of graduates who had completed their training at Samaru, Kabba, Jos, and Kaduna as to the importance of courses or subjects offered in the Agricultural Training Centers in the Northern States of Nigeria. The years of job experiences were divided into 1 - 6 years, and 7 years or more. The Scheffe test was used at the point of evaluating the significance of the F-ratio. The Cochran test was used to test the homogeneity of variance by dividing the largest within-groups variances. The Bartlett test was used to accommodate unequal sample size.

In interpreting the results the comparisons of the responses were done by rating the mean scores as follows: 5, very much needed; 4, much needed; 3, some what needed; 2, little need, and 1, not needed. None of the 14 courses were rated below a mean of 3.00 which indicated that all the courses were needed. The English Language was given a total average mean of 3.89.

Data in Table III to VI indicated that the four null hypotheses were retained since there were no significant differences between the groups except for the following factors:

1. By the types of jobs performed, where the Agricultural Mathematics/ Surveying course indicated a significant difference between groups with an F-ratio of 3.809, and F-probability of .0256. 2. By the college attended, where the Farm Management and Agricultural Mechanization courses indicated significant differences. Farm Management had a total mean score of 39.56, F-ratio 3.00 and F-probability of 0.0239. Agricultural Mechanization had a total mean score of 41.38 F-ratio of 3.292 and F-probability of 0.0239.

Conclusions

Based upon the results of the responses of the supervisors of graduates of the Northern States of Nigeria, the following conclusions were drawn:

1. The 14 agriculture courses which had mean scores of 4.00 or more, provide a basis for the curriculum development in the Agricultural Training Centers in the Northern States of Nigeria.
2. The supervisors of graduates were in agreement as to the importance of 117 subjects for teaching agriculture courses in the Agricultural Training Centers of the Northern States of Nigeria.
3. The significant differences for the Mathematics/Surveying course were due to the responses of the supervisors of graduates who had worked in home economics.

4. The significant differences for the farm management and agricultural mechanization courses were due to the responses of the supervisors of graduates who had attended the Colleges of Agriculture at Kabba and Jos.

Recommendations

After reviewing the results of this study, and based upon related information and the remarks of the supervisors of the graduates, the researcher made the following recommendations:

1. The ministries of agriculture in the Northern States of Nigeria should utilize the findings of this study in the development of curriculum for vocational agriculture in the Agricultural Training Centers.

2. Another study should be done to involve Agriculture Mechanization, Farm Management, Rural Electricity, and Carpentry graduates who are working in the field of the Agricultural Extension Services.

3. A continuous survey of farm problems and innovations should be conducted by the Agricultural Training Centers to meet the dynamic role of agriculture.

4. The principals of the Agricultural Training Center should have the qualifications of at least a Bachelor Science degree and at least five years of field and teaching experience.

5. There should be more emphasis on the place of practicals in the curriculum.

6. In-service training programs should be provided for Agricultural Training Center teaching personnel.

7. That a study be conducted to evaluate Agricultural Training Centers to include: administrator preparation; library resources; teacher pay; teacher housing; and the adequacy of institution funding.

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APPENDIX

M-3 Jardine Terrace
Kansas State University
Manhattan, Kansas 66502

Date: _____

Dear Mr/Mrs/Ms _____

I am currently working on my master's thesis at Kansas State University. The attached questionnaire is concerned with the collection of data to be used for assessing the program components of the agricultural curricula in Agricultural Training Centers in the Northern States of Nigeria. Please indicate your perception of the importance of the units of instruction in the field assignments of the graduates.

On the basis of your answers and those of others, it is hoped that an effective curriculum will be prepared for Agricultural Training Centers in Northern States of Nigeria to enhance our agricultural development.

On the front page of the questionnaire is a list of bibliographical data which you are kindly requested to complete. You are also being requested to co-operate in this study by giving a very honest opinion on the different aspects of the curriculum.

Your responses will be treated in strict confidence since they will be reported only as group data in the final report.

Please feel free to call me (913) 776-1473 if you have questions to ask about the questionnaire.

Your sincerely,

Athanasius A. Akpehe
Graduate Student
Agricultural Education

The Research Instrument

Questionnaire for Evaluating the Curriculum of Agricultural Training Centers in Northern States of Nigeria

1. College of Agriculture and year attended (Circle those which apply)

   Samaru or Kabba, Jos or Mado-Kaduan

   Year _____

2. Certificate Course taken at the College (Circle those which apply)

   Diploma; Assistant Agric., Supt.; Higher Diploma; Please specify others _____

3. Number of Years on job after graduation _____

4. Positions held since completing course

Position	Dates

5. State your student status in U.S. (Indicate by inserting an X in space provided)

   Undergraduate _____

   Graduate _____

   Others _____

6. If you were a faculty member, state the Nigerian college of Agriculture in which you taught and for how long?

   (a) _____ (b) _____

7. Below are lists of courses (subjects) from A - N offered at the center. Please mark X in the appropriate column against each unit of the courses to indicate their relevance with reference to the graduates field assignments after graduation. Your objective remaks shall be of great value too.

Item	Course Subjects	Very much needed	Much needed	Some what needed	Little need	Not needed	Remarks
A.	AGRICULTURAL EXTENSION						
1.	Philosophy and Principles						
2.	Village Survey						
3.	Leadership Training						
4.	Young Farmers Club						
5.	Farmers Advisory Committee and other Extension Councils						
6.	Program Planning						
7.	Communications						
8.	Farm Tours and Visits						
9.	Method and Results Demonstrations						
10.	Evaluation						
B.	AGRONOMY/CROP PRODUCTION						
1.	Soil						
2.	Principles of Crop Production						
3.	Environm,ental Factors Affecting Crop Production (e.g. Light, Cultivation, Seed, Weeds, Herbicides)						
4.	Fertilizers						
5.	Harvesting						
6.	Storage of Produce						
7.	Pests and Disease Control						
8.	Marketing						
9.	Classification of Crops						
10.	Practicals (Handfarm and Plots Allocated to Individuals)						
C.	HORTICULTURE						
1.	Pre-Nursery Practices						
2.	Nursery Practices						
3.	Site Selection (Factors)						
4.	Vegetable Gardening						
5.	Progagation						

Item	Course Subjects	Very much needed	Much needed	Some what needed	Little need	Not needed	Remarks
	6. Tree Crop Production						
	7. Harvesting Techinques						
	8. Storage						
	9. Common Pests and Diseases						
	10. Marketing						
	11. Practical (Handfarm and Plots Allocated to Individuals)						
D.	LIVESTOCK (ANIMAL SCIENCE)						
	1. Livestock Husbandry						
	2. Cattle						
	3. Swine (Pigs)						
	4. Sheep and Goats						
	5. Poultry						
	6. Rabbits						
	7. Feeds and Feeding						
	8. Marketing						
D.	FARM MANAGEMENT						
	1. Objectives of Farm Management						
	2. General Farm Economics						
	3. Principles of Economics						
	4. The Economic Use of Farm Resources						
	5. Crop Management						
	6. Livestock Management						
	7. Farm Practices and Farm Crafts						
	8. Land Improvements						
	9. Record Keeping						
F	AGRICULTURAL MECHANIZATION						
	1. Farm Machinery, Tools and Crafts						
	2. Workshop Safety						
	3. Safety in Use of Farm Tools, Machinery and Equipment						

Item	Course Subjects	Very much needed	Much needed	Some what needed	Little need	Not needed	Remarks
	4. Use of Hand and Power Tools						
	5. Maintenance and Care of Farm Equipment						
	6. Farm Stead and Utilities						
	7. Tractor Implements						
	8. Carpentry						
	9. Mixed Farming						
	10. Rural Electricity						
G.	SOIL AND SOIL CONSERVATION						
	1. Soil Formation/Components						
	2. Soil Profile						
	3. Major Nutrients (Soil Fert.)						
	4. Fertilizers and Manures						
	5. Soil Erosion						
	6. Soil Conservation						
	7. Care of Farm Structure						
H.	AGRICULTURAL MATHEMATICS/SURVEYING						
	!. Metric and Imperial System of Measurement						
	2. Arithmetic						
	3. Basic Geometry						
	4. Basic Algebra						
	5. Field Calculations						
	6. General Introduction to Surveying						
	7. Chaing Surveying						
	8. Introduction to Surveyor's Notebook						
	9. Field Practicals						

Item	Course Subjects	Very much needed	Much needed	Some what needed	Little need	Not needed	Remarks
I.	METEOROLOGY AND GEOGRAPHY						
	1. Climate						
	2. Seasons in Nigeria						
	3. Nigeria - Vegetative Zones						
	4. Economic Geography of Nigeria						
	5. Rainfall - Formation and Types						
	6. Weather Instruments (Rainguage, Wind vane, Dry and Wet Bulb Thermometers)						
	7. Weather Observations						
J.	HOME ECONOMICS						
	1. Food ' Nutrition						
	2. Home Improvement, Mangement, and Family Relationships						
	. 3. Textile Clothing and Handi-craft						
	4. Child Care						
	5. Extension						
	6. Knitting						
	7. Gardening						
	8. Family Economics						
K.	HEALTH AND SANITATION						
	1. Personal Hygiene						
	2. Care of Our Surroundings . Home, Compound and Community						
	3. Latrines and Toiletts						
	4. Physiology and Anatomy of Man						
	5. The First Aid and the Box						
	6. Water Supply						
	7. Making Water Safe for Drinking						
	8. Refuse Disposal						
	9. Exercise, Rest and Sleep						
	10. Common Diseases						

Item	Course Subjects	Very much needed	Much needed	Some what needed	Little need	Not needed	Remarks
L.	ENGLISH LANGUAGE						
	1. Grammar						
	2. Direct and Indirect Speech						
	3. Oral English						
	4. Written English						
	5. Letter Writing						
	6. Report Writing						
	7. Comprehension and Vocabulary						
	8. Precis						
M.	BASIC SCIENCE						
	1. Biology						
	2. Chemistry						
	3. Physics						
	4. Zoology						
	5. Botany						
N.	GOVERNMENT PROCEDURE						
	1. Civil Service						
	2. Government Regulations						
	3. Disciplinary Matters						
	4. Stores Regulations						
	5. Office Procedures						

AN EVALUATION OF THE CURRICULUM OF THE AGRICULTURAL TRAINING CENTERS OF NORTHERN STATES OF NIGERIA

by

ATHANASIUS AKERANAKAA AKPEHE

Higher Diploma (Gen. Agric.) Ahmadu Bello University 1974

B.S. Kansas State University, 1981

ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Agricultural Education

College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1981

ABSTRACT

The farmers of Northern States strongly need the junior staff of the ministries of agriculture to help them promote the new methods of agriculture. While it is certainly recognized that any educational endeavor should relate in some way to the community, Agricultural Training Centers programs are charged with the responsibility of maintaining strong ties with a variety of agriculture, business and industry related areas.

The primary purpose of this study was to determine the relevance of the courses offered at the Agricultural Training Centers in Northern States of Nigeria as to the types of jobs that graduates would be required to perform after their graduation. This study was also to determine the level of importance of the 117 subjects taught in the 14 agriculture courses.

The population for the study was limited to 100 supervisors of graduates who were reading in the fields of agriculture and home economics at both Kansas State and Fort Hays State Universities at the time of this study. The 14 agricultural courses included in the study were Agricultural Extension, Agronomy/Crop Production, Horticulture, Livestock (Animal Science), Farm Management, Agricultural Mechanization, Soil and Soil Conservation, Agricultural Mathematics/Surveying, Meteorology and Geography, Home Economics, Health and Sanitation, English Language, Basic Science and Government procedure. These courses were subdivided into 117 subjects.

The supervisors of graduates were grouped into four major variables, years of job expereince, types of position held, student status and college attended. Years of job experience was classified as 1 - 6 years, and 7 years or more. Types of position held were agricultural extension, Livestock (Animal Science), and home economics. Student status included undergraduates and graduates, college attended included Samaru, Kabba, Jos and Kaduna.

The responses of the supervisors of graduates were scored by a Likert type scale as follows: 5 = very much needed, 4 = much needed, 3 = some what needed, 2 = little needed, and 1 = not needed.

A research instrument was developed to allow the participants to rate the level of importance of the 117 subjects for teaching the 14 agricultural courses. Four hypothesis were developed as follows:

1. There are no significant differences in the responses of the supervisors of graduates by years of job experience as to the importance of courses or subjects offered in the Agricultural Training Centers in Northern States of Nigeria.
2. There are no significant differences in the responses of the supervisors of graduates who had agricultural extension, livestock (animal science) or home economics assignments as to the importance of courses or subjects offered in the Agricultural Training Centers in Northern States of Nigeria.
3. There are no significant differences in the responses of the supervisors of graduates by degree status as to the importance of courses or subjects offered in Agricultural Training Centers in the Northern States of Nigeria.

4. There are no significant differences in the responses of the supervisors of graduates from Samaru, Kabba Jos and Kaduna as to the importance of course or subjects offered in the Agricultural Training Centers of Northern States of Nigeria.

The Analysis of Variance Statistical procedure was used to test the four null hypotheses. The F distribution at 0.050 level of significance was used to determine the significant differences between the responses of the subgroups. All the four null hypotheses were retained although some parts were rejected.

Interpreting the results, the comparison of the responses within the groups was by rating the mean scores as follows: 5.00 = very much needed, 4.00 = much needed, 3.00 = some what needed, 2 = little needed, and 1 = not needed. None of the 14 courses was rated below 3.00 in the total average mean which proved that all the courses were rated as much needed. English language was rated 3.89 total average mean score by all the groups whether by years of experience, types of jobs performed, student status and college attended. Since 3.89 mean score was very close to 4.00 mean score it was taken by the researcher that English language also was rated as much needed by the supervisors of graduates of Agricultrual Training Centers of Northern States of Nigeria. And all the four null hypotheses were retained.