

AN EVALUATION OF THE CURRICULUM  
OF THE SCHOOLS OF AGRICULTURE IN NIGERIA

by

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## CHAPTER I

### INTRODUCTION

The problems and trends in agricultural education and training in Nigeria call for a citation of a fictitious prayer to holy 'Ulu' in an Ibo tribe, adapted from the novel, "Arrow of God" by Chinua Achebe: He held one end of the short staff in his right hand and with the other end hit the earth to punctuate his prayer:

"Ulu, I thank you for making me see another moon.  
May I see it again and again  
May this household be healthy and prosperous.  
As this is the moon of planting, may the six  
villages plant with profit.  
May we escape danger in the farm - the bite of  
snake or the sting of the scorpion, the mighty  
one of scrubland.  
May we not cut our shin-bones with the matchet  
or the hoe.  
May our wives bear male children.  
May children put their fathers into the earth  
and not fathers their children.  
May good meet the face of every man and every  
woman.  
May good come to the land of the riverain fold  
and to the land of the forest peoples."

There is not one Nigerian who would fail to understand the aspirations and constraints of this prayer. Yet many agricultural educators in Nigeria who live on the fringes of those daily experiences of peasant and farming life, often tend to forget or blur the image of those stupendous forces that engulf the farmer in his daily toil and nightly fears.

This prayer is placed in the beginning of this thesis so it could serve as a reminder to readers that a typical peasant farmer in

Nigeria has limited and fragile propensities that are being frequently projected in the minds and eyes of Nigerians in an optimistic fashion. The prayer has therefore more to offer than simple plea!

This prayer portrays the physical, biological, socio-economic and behavioural components of rural life, with its constraints as well as its serenity and regards. It further emphasizes the gulf between the traditional forces that in fact exist and the change which Nigerians aspire to achieve.

The Federal Republic of Nigeria occupies an area of 941,849 Km<sup>2</sup> (about the size of Texas and Oklahoma in the United States of America) in the West Africa sub-region, between latitudes 4° and 14° North. It is bounded on the south by the Atlantic Ocean, and on the east, west, north, and northeast by the Republics of the Cameroons, Benin (former Dahomey) Niger and Tchad respectively.

Nigeria is the most populous and richest country in Black Africa with an estimated current population of 80 million which varies substantially between and even within the States. The average population density is 90 persons per Km<sup>2</sup> - this is expected to reach 109 per Km<sup>2</sup> by 1985.

The economy of Nigeria has grown in recent years at the rate of 10% with Gross Domestic Product (GDP) of \$27.2 billion in 1976. Increases in income have been due to tremendous exports because of rapidly expanding petroleum industry which has made the country the fifth leading oil-producing nation of the world.

Agriculture in Nigeria is yet underdeveloped since it employs 70% of labor force while industry employs only 10%. Only 30% of the

agricultural land is cultivated from which export crops such as cocoa (Theobroma cacao) cotton (Gossypium spp.) rubber (Hevea brasiliensis) food crops produced include: Maize (Zea mays) yams, (Dioscorea spp.) cassava (Manihot spp.) guinea corn (Sorghum spp.) and rice (Oriza sativa).

Education in Nigeria has grown rapidly in recent years also. In 1977 there were 13 universities and several hundreds of polytechnics, technical colleges and high schools. The minimum qualification for admission to a Nigerian university is the West African School Certificate, which is an equivalent of the U. S. high school diploma, but admission is highly competitive. University enrollment in 1977 was 23,000; with primary school enrollment of 8.5 million.

Nigeria has potentials for making dynamic contribution to her economic development from the agricultural sector since significant improvement in rural welfare depend upon the modernization of agriculture through technological change.

A progressive agriculture is characterized by constant appearance of new alternatives, the acceptance of some, and just as important, the rejection of others. A high degree of variability within agriculture due to differences in physical resources, past practices and current management, renders it inadvisable at this time to make blanket recommendations regarding new alternatives. As a result, farmer education programs must be tailored in a flexible manner to relatively small geographical areas. Implementation of such a policy requires that agricultural manpower be rapidly developed. Consequently agricultural education has an important role to play in facilitating rapid economic growth in Nigeria; and in this overall effort, the development of intermediate level agricultural manpower is of highest priority. Mayer and Onazi (1976) estimated the



junior and intermediate level manpower requirements in agriculture as 17,000 out of a total of 20,000 target set for the third National Development in Agriculture (1975-80) in Nigeria.

Agricultural education, research and extension appear as if they are the three essential services that federal government in Nigeria must expand for the rapid development of her agriculture since these three services constitute the framework in the government effort, including international technical assistance, that can work to benefit the farming population.

It is evident that the oil boom in Nigeria suddenly diverted attention from agriculture! This is a sad situation when it is considered that before the oil boom agricultural exports comprised the substantial foreign exchange earnings. There is therefore no surprise in the recent report in African Development Magazine (1977) that Nigeria's food import bills amounted to N88 million (\$143.6 million). The irony of the situation is that as oil production increases, agricultural production declines.

The future of agriculture in Nigeria is however not bleak! The federal government in Nigeria has realized that oil is a "wasting asset" and that the country's salvation lies more in agriculture. It was against this background that the Nigerian Head of State, Lt. Gen. Olusegun Obasanjo launched a nation wide campaign for boosting agricultural production in April, 1977 which was named "Operation Feed the Nation" (OFN). After its one year of launching the African Development Magazine (1977) reported a review of its progress. According to the review, agricultural productivity has increased in the States from 20% to 40% as a result of OFN activities, with overall national increase of 2-3%.

Now that all hands are on deck to ensure some consistency in

agricultural productivity in Nigeria, it is time for a more dynamic agriculture education program. It must be conceived that trained manpower is the basic bottleneck to Agricultural development. It goes without saying that agricultural development programs have floundered because they are frequently ill conceived for lack of adequate training and education of the planners and where they are well conceived they often fail in execution for lack of personnel with requisite skill and training.

It is the opinion of the researcher that the first requirement for persons who serve in agriculture locally, is that they acquire the basic skills and techniques of their jobs. For many jobs this will require substantial training, for others, greater breadth will be necessary. The consideration in training persons for extension education work etc. so as to ameliorate past deficiencies has largely been the main objective why this research was undertaken.

#### Background to the Problem

During the past twenty years considerable efforts have been made in developing countries of the world (Nigeria is conspicuously one) to increase the effectiveness of agricultural education and training systems.

The FAO/UNESCO/ILO World Conference on Agricultural Education and Training held in Copenhagen in 1970 provided an opportunity for an exchange of views and experiences on this important topic. The Copenhagen Conference rationalized the important factors to be borne in mind in devising agricultural education and training programs designed to serve the cause of rural development which include (a) higher education specialists teachers and research workers (b) intermediate agricultural education (c) vocational training and (d) farmer training. The Conference

also recognized the importance of defining a profile for each type of training and recommended that such profiles should be prepared after a survey of the present and potential users on the basis of immediate and future tasks, responsibilities, ranks in hierarchy, relations with other sectors, and possible promotions.

Trouillot (1970) writing as an expert on agricultural education in developing countries indicated that if agricultural education curricula are to be designed to meet the needs of the respective countries, a training committee within the establishments should be set up that include future employers and the faculty at the agricultural institutions. Such committees are to undertake periodic appraisal of the effectiveness of the curricula with regards to the purpose of training, level of requirements, subjects and contents, time schedule, duration of practical and theoretical courses, systems of student evaluation, teaching staff requirements, school facilities to be used (laboratories, farms, libraries) relationship between schools, extension services, research and production services.

The researcher believes that the level of training agricultural field workers should however be determined by local situations and economic conditions as well as the availability of trained personnel officers. In the United States and in European countries, the minimum requirement is a Bachelor's degree from an institution of recognized standing. In Nigeria the standard is by far lower, ranging from few years of schooling to that of the school of agriculture graduates.

Efforts should therefore be geared at training agricultural field workers in Nigeria who should not only be competent in the technical skills, but should be able to give intelligent advice to farmers. Simply

put, agricultural extension workers should be able to understand the language of the farmers. It must be conceived that although farmers are unlettered, they are shrewd and realistic--they have many years of farming behind them, and have adjusted themselves to the prevailing situations. Agricultural extension workers must be trained in interpersonal communications: they should like people, possess integrity, industry, patience, be sincere, tactful, courageous, and above all possess a sense of humor.

Felton (1968) analyzed the gross dimensions of the agricultural education and training problems in Ghana (Nigeria is a next door neighbor of Ghana) and noted that food and fiber economy of Ghana still had its roots deeply implanted in traditional practices and also was surrounded by value systems and customs providing inhospitable climate for modern agricultural technology. He thought that the traditional system of farming in Ghana would have to be replaced rather than improved.

Situations in Nigeria and Ghana after 10 years of Felton's observations have not drastically changed since the two countries are still faced with the problems of introducing new concepts of production agriculture and training personnel which are still difficult to relate to farmers and students' previous experiences. It is recognized that the lack of modern practical demonstrations of viable agricultural production systems on a large scale make it difficult to design fully relevant agricultural education programs, but it must also be noted that the practice of introducing strong academic elements into the agricultural courses should now slant toward practical application.

At the present phase of Nigeria's development programs, emphasis has been on accountability. The mandates of agricultural education

legislation stipulate that valid evidence of program effectiveness should not be designed to serve only the individuals but the community in which the individual lives.

One way to determine the effectiveness of agricultural education programs in Nigeria will be to study the job performances of the individuals who have completed the courses of study at the various schools of Agriculture.

#### Statement of the Problem

Evidently capable and experienced officers occupied top administrative and professional divisions within the Ministries of Agriculture in Nigeria, but the abrupt proliferations of the Ministries, and the continuing growth of their activities had left the Ministries short of adequately trained, and experienced agricultural field workers. Consequently the close supervision needed for upholding staff efficiency on their jobs has also been short of expectations.

Therefore the central purpose of this study was to determine the relevance of the courses being offered at the schools of agriculture in Nigeria to the jobs that the students would be required to perform upon graduation. Four features were designed to contribute to the central purpose.

1. To determine the types of jobs that graduates considered relevant to the courses taken at the schools of agriculture.
2. To determine the areas of course specialization that were considered the most useful to university bound graduates.
3. To determine the subjects considered by graduates as the most significantly valuable for teaching the courses.

4. To determine the correlation between values of the courses based on year of job experience and the types of jobs performed.

#### Hypotheses to be Tested

Four hypotheses stated in the null form served as the basis for this study.

1. There are no significant differences in the opinions of graduates who had worked for 1-5 years; 6-10 years, and 11-15 years as to the importance of the agriculture courses.
2. There are no significant differences in the opinions of graduates who had worked in agricultural extension, farm mechanization, farm management and field experiments as to the importance of the agricultural courses.
3. There are no significant differences in the opinions of graduates who had worked for 1-5 years; 6-10 years; and 11-15 years as to the importance of the various subjects offered in the agriculture courses.
4. There are no significant differences in the opinions of graduates who had worked in agricultural extension, farm mechanization, farm management and field experiments as to the importance of the various subjects offered in the agriculture courses.

#### Significance and Goals of the Study

It was anticipated that this study would assist agricultural educators in the State Ministries of Agriculture as well as in the colleges of agriculture throughout Nigeria in planning and modification of agriculture

education and training programs designed to prepare agricultural field workers in extension, farm mechanization, farm management and field experiments.

This study should be especially helpful to those responsible for designing vocational agriculture programs throughout the country since the project dealt exhaustively with the evaluation of the subjects offered under the various courses of study.

The study should help agricultural teachers, educators, and administrators of agricultural education and training programs answer these questions: What technical competencies should be attained by students in the schools of agriculture and in what depth? How should courses be remodified and oriented towards making students specialize in the areas of their interests? What courses should be on the supervised occupational experience programs?

#### Delimitations

The study was limited to the graduates of the schools of agriculture in Nigeria who were pursuing degree courses in the fields of agriculture at Kansas State and Fort Hays State Universities.

The study evaluated the importance of 7 major agricultural courses of study under which a total of 54 various subjects were offered. The types of jobs that graduates did before coming over to the USA for degree courses were categorized into agricultural extension, farm mechanization, farm management, and field experimentation, while the number of years that they were on the various jobs were grouped into 1-5 years; 6-10 years; and 10-15 years for data processing and analysis.

The findings of this study will apply only to the sample of 60

graduates of the schools of agriculture who participated in the study through opinionated questionnaires. No inferences will be implied to other groups who were not part of this study.

#### Definitions of Terms

For the purpose of this study, certain terms were identified and defined as they had special significance. The definitions given in this section are not necessarily those customarily used.

1. Course - an organized subject matter in which class instructions are offered within a given period of time.
2. Subjects - are materials taught under a course.
3. Agricultural Extension - a course of study in a vocational agriculture curriculum where skills abilities in making decisions and planning strategies to be used in convincing farmers to adopt new recommended farming practices, e.g. Young Farmers Clubs, Village Extension Council, communications etc.
4. Crop Production - a course of study in a vocational agriculture curriculum in which skills and abilities in the production and management of all arable and tree crops are taught e.g. groundnuts, maize, guinecorn, cocoa, banana, cashew, citrus etc.
5. Crop Protection - a course of study in the vocational agriculture curriculum in the protection of crops and vegetables through the use of pesticides, fungicides and cultural practices against diseases, pests infestations are taught.
6. Livestock Production - a course of study in the vocational agriculture curriculum in which skills and abilities in husbandry of all livestock such as cattle, swine, poultry, etc. are taught.



7. Basic Sciences - a course of study in the vocational agriculture curriculum in which basic theoretical and practical knowledge in biology, chemistry, soils, meteorology and physics are taught.

8. Agricultural Mechanics - a course of study in the vocational agriculture curriculum in which skills and abilities in welding, carpentry, concrete and masonry, electricity, etc. are taught.

9. Vocational Agriculture - a curriculum in the schools of agriculture in which major emphasis is devoted to agricultural occupations.

10. Farm Management - a course of study in the vocational education curriculum in which skills and abilities in making decisions, and planning the farm operations are taught.

11. Ministry of Agriculture and Natural Resources - an arm of a state or federal government in Nigeria usually headed by a commissioner or a minister, which is largely responsible for the agricultural development on a state or federal level. A Ministry of Agriculture and Natural Resources is usually sub-divided into administrative sections such as the agricultural services, agricultural education and training, forestry services and veterinary services.

12. Field Experiments - field trials undertaken to discover or demonstrate appropriate cultural practices for farming which could be sited either on governments' or farmers' farms.

13. df - degree of freedom.

## CHAPTER II

### REVIEW OF LITERATURE

In reviewing the literature it became explicitly apparent that in the field of agricultural education and training in Nigeria only very few studies have been published. It was imperative in consequence, to look up to other countries, particularly the USA where myriads of studies have been conducted and published. This reveals that for a long time there has been a growing concern to American agricultural educators to discover how effectively vocational agriculture curricula have been meeting the needs of the graduating students and the farming communities.

The review of literature helped the researcher establish conceptual framework for the study culminating in the formulation of the hypotheses. Generally, the findings and results in other studies which bear relevance to this one, have attested to the fact that former students of vocational agriculture programs placed high premium on the value of curricula as being extremely effective in aiding the efficient performances of their jobs upon graduation. In the USA, livestock production, farm mechanics and record keeping were opinionated as being the most relevant courses of instruction to jobs performed.

The agricultural educators in Nigeria both at the state and federal governments levels have shown some recognition for agricultural education and training programs as being invaluable for rapid agricultural and socio-economic development. It was conceived that the goals of the country's

"green revolution" could be quickly accomplished through the reorientation of the programs towards supervised occupational experience programs which should be organized for students at the schools of agriculture.

On the international scene, agricultural education and training programs have been recognized as vehicles for achieving rapid agricultural development considering the numerous and periodic World Conferences on strategies of agricultural education in the developing countries.

FAO/UNESCO/ILO Conference on the Situation, Problems and Trends in Agricultural Education and Training in the African Region held in Copenhagen (1970) made this unanimous observation on Intermediate level Agricultural Education and training in Africa: "In most developing countries of Africa, intermediate-level agricultural training is the least developed, although it is the one which countries can best afford. Its aim is to produce agricultural technicians who are capable of bridging the gap between the university graduate and the farmer. The work of the university graduate and the diploma (or certificate) holder is different but complementary. At this point the following question is pertinent: What is the optimum ratio between these two categories in Africa?"

One of the summaries and conclusions of the Provisional Indicative World plan for Agricultural Development (1963) on a survey of the world food situation in relation to population and overall development, and of preparing a plan for action to counter the widening food gap, vividly noted that trained manpower was a major constraint on agricultural development in the developing countries adding (para. 245-246) "With very few exceptions in countries studied, trained manpower for essential agricultural services will, either quantitatively or qualitatively, often in both respects, be a major constraint on agricultural development. This

is a recurrent theme of all technical chapters of the plan, and is amply confirmed by the specific study of the subject in the manpower chapter. There is therefore, an unprecedented training problem associated with agricultural progress in the developing countries. At the corresponding stage of their own advancement, none of the present developed countries had to face problems of the same magnitude."

#### Relevant Studies

Olatunji (1975) studied 160 second year Education Students of the University of Ife to determine their present status with respect to curriculum development objectives. She found that 50.75% of the class were of the opinion that course objectives in the cognitive domain were achieved; 37.05% thought the objectives were only partially achieved and 12.20% felt the objectives were not achieved.

Aboaba (1975) appraised the agricultural engineering education in Nigeria and found there were significant deficiencies in the training of the intermediate personnel.

Onazi (1973) studied the primary responsibilities of extension agents and analyzed their opinions on a variety of problems confronting the Extensive Service in the Northern states of Nigeria and found that agents were principally responsible for advising farmers on crop production, but the supervision of the agricultural instructors who were directly concerned with advising farmers was considered a major function of agricultural assistants. One notable conclusion drawn from the results of the study was that extension workers in the northern states of Nigeria overwhelmingly endorsed the training offered at the Schools of Agriculture as being relevant to the needs of potential agents, but considered seven

areas of the training program as of extreme importance. These areas in priority order are:-

- (a) Technical Knowledge in Agriculture
- (b) Extension Philosophy, Organization and Administration
- (c) Communications in Extension
- (d) Program Planning
- (e) Research and Evaluation
- (f) Educational Process and Human Development
- (g) Sociological Factors.

On the basis of the results of the study he recommended that since Production Agriculture was the emphasis of extension organization in the norther states, it was therefore desirable to undertake a constant evaluation of the curriculum in technical agriculture to insure that the best possible training is provided to extension agents; and also that the training institutions should consider the possibility of introducing a follow-up program to enable instructors to make a direct appraisal of the performances of their graduates in the field as this could greatly enhance the quality of the training provided at the agricultural schools.

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.

In a study on Evaluation of Learning at the university level, Olatunji (1975) suggested that in order to broaden the base of evaluation of learning at the university level it is best to determine the present status of students; it is best to use oral and written tests, as well as

observations for the determination of the levels in the cognitive or psycho-motor domains, as well as in the effective domain of learning so as to utilize the information for planning learning activities.

Ohuche (1975) conducted a study on the academic achievements of Nigerian undergraduates in American universities as a function of previous educational experiences 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.

Conteh (1974) in an unpublished paper written at Cornell University, Ithaca, New York proposed ways of improving the curriculum of agricultural education in Ghana. He indicated that situational analysis was necessary to make the curriculum more realistic.

Okoye (1971) conducted a study on agricultural education in Nigeria and found that agricultural educators were paying lip service 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.

Taylor (1974) presented scholarly paper on Plant Sciences Curricula to a World Conference on Strategies for Agricultural Education in Developing countries. He was particularly emphatic on effectiveness of graduating students of agriculture on their jobs. He consequently

recommended: "We must be on the guard against an unconscious neglect of agriculture production practices, a situation in which the student becomes knowledgeable but remains unsure of his ability to apply the knowledge.

Trouillot (1970) presented a scholarly paper on agricultural education in developing countries to the FAO/UNESCO/ILO Conference on Agricultural Education in Copenhagen and had this to recommend: "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 a research station, or in a village, and as far as possible should respect the agricultural calendar. The curricula should include a survey to assess the effectiveness of the courses."

Hamilton and Walker (1975) in a study on competencies in entomology needed by agribusiness teachers and extension agents in Indiana found among others that extension agents tended to rate their competencies possessed as slightly higher than did agribusiness teachers. He therefore recommended that a further research of factor analytical nature should be conducted to extend this investigation to workers in other states.

Campbell (1977) evaluated extension program at the University of Missouri and found among others that a planned schedule of follow-up activities helped gain the attention and involvement of personnel, and avoid the trap of continuing with old patterns regardless of evaluations. He recommended an opinion poll of a similar exercise of citizens about their perception of needs and priorities, for programs which would provide additional evidence on which judgements could be based.

Green (1963) reported that about 50% of the 2,241 former Vocational Agriculture Students in Alabama included in his study were engaged in agriculture. Those engaged in non-agriculture businesses made use of

abilities and skills acquired in vocational agriculture and FFA. Students who had left school five years were found engaged in less farming businesses than those who had been out of school just one year.

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

Ross (1973) conducted a follow-up study of Riley County High School Vocational Agriculture and found among other things that graduates of the Riley County High School were successful in farming and agriculture related occupations in the community as a result of vocational agriculture program which they had taken.

Mends (1971) in a Master's Report at Kansas State University proposed 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 the work the students would be expected to perform in terms of curriculum effectiveness.

Gyawfi (1971) conducted an opinion survey of 102 agricultural assistants and 28 senior officers in Ghana who were graduates of Kwadaso Agricultural College and found among other things that some course subjects taught at the agricultural college were more valuable to the former students than others since more materials were covered in some subjects than in others. Generally subjects such as Extension Education, Home Economics, Crop production and protection; and livestock production received very high ratings than others from students.

Hemp (1961) studied former vocational agriculture students in the state of Illinois during 1957-1958, it was found that of the 246 who



participated, 170 stated that vocational agriculture had been helpful to them in the performances of their present jobs. Animal husbandry, soils, crops, and farm mechanics were the phases of instruction listed as most helpful by 42% of those engaged in non-related agriculture businesses.

Ottman (1967) in a follow-up study of 136 former students of Vocational Agriculture in Onaga Rural High School (Kansas) found that the students listed shop, livestock, record books, FFA, and crops as parts of the vocational agriculture program most beneficial to them.

Kastl (1966) conducted a study on occupational status of graduates of vocational agriculture from Washington County High School (Kansas) and found that 81.6% of the graduates considered a knowledge of agriculture as beneficial to them regardless of the type of occupations. Livestock production and judging, and farm mechanics in that order were perceived as extremely important, but these graduates ranked agriculture-related occupations as least important.

Hoppas (1961) found in a follow-up study that of all former vocational agriculture students, 50% thought farm mechanics to have been the most useful to them, 17.3% said livestock production; 10.6% listed supervised farming, 21.3% cropping systems, 17.3% FFA participation, and 28% livestock judging as least helpful.

Hall (1966) evaluated the curriculum offered at Severy High School (Kansas) from 1961-1965 and indicated that the former students found Vocational Agriculture, Home Economics, English, Bookkeeping and Typing as most beneficial to them. The least beneficial subjects were Band, American History, Shorthand, Athletics, and Chorus.

Williams (1978) identified the factors that 183 students of Iowa vocational agriculture program felt were important in planning and

conducting their Supervised Occupational Experience programs. He generally found that the students perceived parents and vocational agriculture classes as the two most important factors. However, the students who were with different types of Supervised Occupational Experience programs recognized their vocational agriculture teacher as an important factor.

## CHAPTER III

### METHODS AND PROCEDURES

The study was designed to determine the degree of relevance of the agricultural courses and the subjects taught in the courses at the school of agriculture in Nigeria to the different types of jobs that students would do upon graduation; and also whether or not the opinions of the graduates as to the relevance or importance of the courses and the subjects were influenced by the number of years of job experience and the different types of jobs performed. Such information would be useful for in-service-training of field workers, as well as for use in the administrative decision making.

Following the review of literature it was ascertained that the primary objective of this study could be fulfilled by obtaining the opinions of former students on the relevance and importance of the courses and the subjects to the types of jobs they did upon graduation.

#### Development of the Instrument

The first draft of the instrument was made after a thorough review of literature and of the researcher's experiences as the Principal of the Agricultural Training Center, Ilorin, Kwara State, for 9 years. This draft was distributed to few individuals (former students of the schools of agriculture) who were then attending the Kansas State University and pursuing degree courses in agriculture for suggestions. A second draft which included the suggestions was submitted to the researcher's major

adviser for final refinement. A third draft was unaltered and became the final draft (see Appendix A).

The research instrument comprised of 10 sections. Sections 1-6 were concerned with personal information of the respondents. The sections sought information on the verification of the school of agriculture attended, years of job experience after graduation, the types of jobs done, the certificate courses taken, and present student status at the universities.

Sections 7-9 were also concerned with the verification of the values that former students placed on the schools of agriculture vocational programs as functions of effectiveness of job performances.

Section 10 which was the major part of the instrument was subdivided into seven parts (A-G). Each part was designated by a course of study under which its specific subjects for teaching the course were grouped as follows:-

Part A - Agricultural Extension	-	10 subjects
Part B - Livestock Production	-	8 subjects
Part C - Crop Production	-	9 subjects
Part D - Crop Protection	-	5 subjects
Part E - Agricultural Mechanics	-	11 subjects
Part F - Farm Management	-	5 subjects
Part G - Basic Sciences	-	6 subjects

A questionnaire (the research instrument) was constructed with a five-point Likert type scale which permitted respondents to designate the degree of relevance of each of the 54 subjects by the numbers one through five defined as 1 = of no use; 2 = somewhat useful; 3 = useful; 4 = very useful; and 5 = essential.

### Population

The lists of Nigerian students at both Kansas State and Fort Hays State Universities were obtained from their respective foreign adviser's offices. Out of the total of 143 students in both schools, 63 were screened since they were listed as majoring in agriculture, and certainly they constituted the population target for this study.

### Data Collection

Questionnaires and instructions were mailed to the 63 former students described above. This the researcher requested the students to complete and return the questionnaires within three weeks. The questionnaires were coded to allow a follow-up mailing to those who had not responded within ten days. At this time, a reminder notice was mailed to individuals who had not returned their questionnaires. In the event, 3 responses were not received after the follow-up mailing.

On the whole an excellent record of 95.2% return was obtained which means that 60 out of 63 responses were received.

### Statistical Treatment

The Analysis of Variance Statistical method was used to test two of the four hypothesis. The first hypothesis stated: "There are no significant differences in the opinions of categories of graduates who had worked 1-5 years; 6-10 years, and 11-15 years as to the importance of the agricultural courses." The second hypothesis stated: "There are no significant differences in the opinion of categories of graduates who had worked in agricultural extension, farm mechanization, farm management and field experiments as to the importance of the agricultural courses."

Chi Square test for contingency tables were used as a test of

independence for hypothesis three and four. Hypothesis three stated: "There are no significant differences in the opinions of categories of graduates who had worked for 1-5 years; 6-10 years and 11-15 years as to the importance of the various subjects taught in the agricultural courses." Hypothesis four stated: "There are no significant differences in the opinions of categories of graduates who had worked in agricultural extension, farm mechanization, farm management, and field experiments as to the importance of the subjects taught in the agricultural courses."

The Spearman Rank-Order Correlation Coefficient was used to test the degree of equivalence of the weighted means for each subject of opinions of graduates categorized by the number of years of job experience and the types of jobs performed.

CHAPTER IV

REPORT OF FINDINGS

The Spearman rank order correlation coefficients in Table I were used to estimate the degree of agreement of the opinions of the two groups as to the importance of the agricultural courses. The following levels of Coefficient of Spearman rank order were designated for the purpose of interpretation: 1.000 was a perfect agreement, 0.8000 to 0.999 - Very strong agreement, 0.6000 to 0.7999 - Strong agreement and below 0.5000 was weak.

TABLE I  
SPEARMAN RANK-ORDER CORRELATION COEFFICIENTS FOR  
THE AGRICULTURAL COURSES\*\*

Rank Order	Agricultural Courses	No. of Subjects	Reliability Coefficients*
1.	Farm Management	5	1.000
2.	Crop Protection	5	0.992
3.	Basic Sciences	6	0.943
4.	Crop Production	9	0.904
5.	Agricultural Extension	10	0.745
6.	Livestock Production	8	0.690
7.	Agricultural Mechanics	11	0.582

\*perfect reliability for the Coefficient scores is 1, and no reliability is 0.

\*\*The Correlation Coefficient was obtained by comparing the rank order of the averages of the means for years of experience and types of jobs.

There was one perfect agreement with Coefficient of 1.0000, three

in the range 0.8000-0.999, two in the 0.6000 to 0.7999 and one was 0.582. Weighted mean scores were calculated on a five point Likert scale with five, "essential", four, "very useful", three, "useful", two, "somewhat useful", and one, "of no use."

#### Personal Information

Through the letter of transmittal, respondents were assured of their rights to remain anonymous, to privacy, and to confidentiality and that all these would not be violated as a result of their participation in the study. The personal information in Table I considered years of job experience, the types of jobs performed, and student status in American Universities.

There were five schools of agriculture in Nigeria, with 54% (33 out of 60 participants) attended the School of Agriculture, Zaria, and 21% (12) attended the School of Agriculture, Kabba. These two schools of agriculture were administered by the Ahmadu Bello University, Zaria. Twelve percent (7) of the respondents attended the School of Agriculture, Akure, and 5% (3) respondents attended the School of Agriculture at Umudike.

In terms of Certificate Courses taken at the various schools, more than half, i.e. 62% (37) had the agricultural assistant course, and 6.5% (4) had the baccalaureate degree in Nigeria before coming over to the United States of America for their graduate work. Twenty-eight percent (17) of the respondents were undergraduates, and 22% (13) were graduates in American Universities at the time of this study.

Of importance in the statistical analyses of this study is the types of jobs that respondents did after graduation from the Schools of



Agriculture. Almost half of the respondents were agricultural extension workers with such jobs as teaching, home economics, horticulture, Young Farmers Clubs, and soil conservation. Specifically, 47% (28) did agriculture extension work, 20% (12) worked in farm mechanization programs (Tractor Hiring Units), 15% (9) were farm managers, and 18% (11) supervised or ran field experiments.

The number of years on the job after graduation provided useful information for the statistical treatment of the data of this study. Three ranges for the number of years on the job were categorized: 6-10 years of job experience numbered 30 (50%) while 11-15 years were 25 (15%). One to five years were 13 (22%), and two respondents had worked for more than 15 years before proceeding to the United States of America for further studies. The mean number of years for job experience was 7.88 years.

Three quarters of the participants agreed that the certificate courses taken at the schools of agriculture in Nigeria were found useful in their present degree programs. Specifically 73.7% indicated that the courses were very useful, 12.2% said they were useful, 0.05% said they were of no use while 14.05% were undecided.

#### Analyses of Opinions of Graduates as to the Importance of the Agriculture Courses

There were seven categories of the agricultural courses and 54 subjects were included in the seven courses. An analysis of the degree of importance was done for each of the seven agricultural courses in Table III based on years of job experience and the types of jobs done. The seven agricultural courses included in this study and which formed the total vocational agriculture curriculum in the schools of agriculture

TABLE II  
PERSONAL INFORMATION

Information Item	N	%
<u>1. Schools of Agriculture attended</u>		
(a) Samaru - Zaria, Kaduna State	33	54
(b) Kabba, Kwara State	12	21
(c) Ibadan (Moor Plantation) Oyo State	7	12
(d) Akure, Ondo State	5	8
(e) Umudike, Anambra State	3	5
TOTAL	<u>60</u>	<u>100</u>
	===	=====
<u>2. Certificate Courses taken</u>		
(a) Agricultural Assistant	37	62
(b) Assistant Agricultural Superintendent	15	25
(c) Diploma	4	6.5
(d) Baccalaureate	4	6.5
TOTAL	<u>60</u>	<u>100</u>
	===	=====
<u>3. Student Status in American Universities</u>		
(a) Undergraduates	47	78
(b) Graduates	13	22
TOTAL	<u>60</u>	<u>100</u>
	===	=====
<u>4. Types of Jobs Performed</u>		
(a) Agricultural Extension	28	47
(b) Farm Mechanization	12	20
(c) Field Experimentation	11	18
(d) Farm Management	9	15
TOTAL	<u>60</u>	<u>100</u>
	===	=====
<u>5. Years of Jobs Experience</u>		
(a) 6-10 years	30	50
(b) 11-15 years	15	25
(c) 1-5 years	13	22
(d) Over 15 years	2	3
TOTAL	<u>60</u>	<u>100</u>

were as follows:- (a) Agricultural Extension, (b) Livestock Production, (c) Crop Production, (d) Crop Protection, (e) Agricultural Mechanics, (f) Farm Management and (g) Basic Sciences.

Information on the above seven agricultural courses in Tables III and IV included the rank order of importance for each course, composite mean scores for types of job performance and years of job experience, total mean scores for each of the agriculture courses, analysis of variance showing mean squares, df, and F-ratios. For the purpose of clear interpretation, the researcher classified the mean scores for the courses by subgroups according to importance as follows: Mean Score from 4.00 to 4.99 = Essential; 3.00 to 3.99 = Very Important; 2.00 to 2.99 = Little Importance; and 1.00 to 1.99 = Of no use. These scales were used for the interpretation of all the results of this study with regard to some of the aspects of the hypotheses being tested and for making the recommendations based on the findings.

#### Opinions on the Importance of the Agricultural Courses Based on the Years of Job Experience of Graduates

The overall composite mean scores for responses on the importance of the seven agricultural courses as rated by the graduates in the three subgroups of years of job experience was 3.52. This indicated that graduates who had had 1-5 years, 6-10 years and 11-15 years of job experience rated each of the seven agricultural courses as important for the vocational agriculture curricula in the Schools of Agriculture throughout Nigeria.

The total mean scores for each group of years of job experience were as follows: Graduates with 6-10 years experience = 3.75; 11-15

years = 3.38; 1-5 years = 3.44. These indicated that the ratings of the importance of the agriculture courses did not necessarily depend upon how long a graduate had worked in the field because there were no significant differences in the mean scores between the variable groups, although it was noted that the graduates with 6-10 years experience found the courses more useful to them while the next category of years of experience, 1-5 years also found the courses very useful. The last category of years of job experience which found the courses useful were the graduates with 11-15 years of job experience.

The rank order of composite mean scores for the degree of importance of the agricultural courses based on the number of years of job experience of respondents is as follows:- (1) Agricultural Extension = 3.91; (2) Crop Production = 3.72; (3) Farm Management = 3.61; (4) Crop Protection = 3.51; (5) Basic Sciences = 3.43; (6) Livestock Production = 3.42; (7) Agricultural Mechanics = 2.99. Like in the mean scores for the importance of the agriculture courses based on the types of jobs done by graduates in which agricultural mechanics had the least rating of 3.01, the mean score according to years of job experience for agricultural mechanics was 2.99 - also the least rating. All these responses indicated that the Agricultural Extension Course was found to be the most important followed by Crop Production, Farm Management, Crop Protection, Basic Sciences and Livestock Production in that order for the performances of jobs by graduates within one and 15 years of job experience. Agricultural Mechanics was therefore regarded as least important for jobs of graduates within the specified years of job experience. It must be noted however that there were no significant differences of opinions on the importance of the courses between the variable groups of graduates and as such there

TABLE III

ANALYSIS OF THE COMPARISON OF OPINIONS OF GRADUATES  
ON THE IMPORTANCE OF THE AGRICULTURE COURSES BASED  
ON THE RANGES OF YEARS OF JOB EXPERIENCE

Rank Order	Agriculture Courses	Ranges of Years of Job Experience				Total Mean	df	Mean Squares		F-Ratio
		1-5 years N=13	6-10 years N=30	11-15 years N=15				Between Groups	Within Groups	
1	Agricultural Extension	3.64	3.99	3.99	3.91	2/55	0.601	0.753	0.799	
2	Crop Production	3.75	3.78	3.59	3.72	2/55	0.183	0.840	0.217	
3	Farm Management	3.30	3.73	3.64	3.61	2/55	0.862	1.710	0.509	
4	Crop Protection	3.36	3.87	2.90	3.51	2/55	4.929	1.436	3.484*	
5	Basic Sciences	3.56	3.37	3.43	3.43	2/55	0.158	1.773	0.089	
6	Livestock Production	3.20	3.59	3.30	3.42	2/55	0.868	1.230	0.706	
7	Agricultural Mechanics	3.28	3.95	2.82	2.99	2/55	0.756	1.486	0.509	
	Composite Means	3.44	3.75	3.38	3.52					

\*Significant at .05 level.

was no basis for rejecting this hypothesis.

Taking a clearer look at the responses of each of the three subgroups of years of job experience for each of the seven agricultural courses, in Table III it was noted that workers with 11-15 years of experience rated Crop Protection as of little importance for their jobs since the mean score was 2.90. Those who had worked for the same number of years on the field, 11-15 years, rated Agricultural Mechanics as of little importance to their jobs, with the mean score of 2.82. These ratings indicated that after 11-15 years on the job, Crop Protection and Agricultural Mechanics Courses were of very little importance as functions of job performances. But graduates with 1-5 years and 6-10 years categories of job experience rated these two courses as important functions of their job performances.

A significant difference in responses between and within the three variable groups on the importance of Crop Protection shown in Table III indicated that it was significant at 0.05 level with an F-ratio of 3.84. It should be noted that 11-15 years category of job experience of 2.90 mean score was significantly different from those of 1-5 years of 3.36, and 3.87 for 6-10 years for Crop Protection. The null hypothesis for the Crop Protection Course was therefore rejected--one of the seven courses.

For the remaining six agriculture courses, there were no significant differences in the opinions of graduates according to years of job experience as to the importance of the agriculture courses as revealed in the Table of Analysis of Variance, Table III, and consequently the first null hypothesis of this study which stated: "There are no significant differences in the opinions of graduates who had worked for 1-5 years; 6-10

years; and 11-15 years as to the importance of the following six courses: Agriculture Extension, Crop Production, Agricultural Mechanics, Farm Management, Livestock Production and Basic Sciences," was retained--six of the seven courses.

Opinions on the Importance of the Agriculture  
Courses Based on the Types of Jobs  
Done by Graduates

The overall composite mean scores for responses on the importance of the seven agriculture courses as rated by the four subgroups of the types of jobs performed was 3.50. This indicated that graduates who had worked in the agricultural extension, farm mechanization, farm management and field experimentation rated each of the seven agriculture courses as "very important" for the vocational agriculture curricula in Nigerian Schools of Agriculture. The mean scores for each group indicated however that the Farm Managers placed highest premium on all the courses with 3.78 mean score, followed by those who worked in the Farm Mechanization with 3.58; Agricultural Extension with 3.47 and graduates who worked in the field experiments had 3.12. The composite mean scores for the four categories of jobs for each course also indicated that the seven agricultural courses were very important for graduates' jobs. The rank order of importance according to the composite mean scores for each of the seven agriculture courses were:- (1) Agricultural Extension = 3.95, (2) Crop Production = 3.73, (3) Farm Management = 3.63, (4) Crop Protection = 3.49, (5) Basic Sciences = 3.43, (6) Livestock Production = 3.41, and (7) Agricultural Mechanics = 3.01.

Although the Agricultural Mechanics Course was rated the least important, its composite mean score is within the range of "very important"

rating. Probing deeper into the responses of each category of field workers it was revealed that those who worked in the field experiments had a mean score of 2.93 for Farm Management course in Table IV. This indicated that this category of workers did not regard the Farm Management course as "very important" for their jobs. Also the agricultural extension workers had a mean score for the Agricultural Mechanics course of 2.96, indicating that extension workers did not value Agricultural Mechanics as very important for their jobs.

The field workers in the field experimentation had a mean score of 2.50 for the Agricultural Mechanics course. This indicated that this course was regarded by them as not very important for their jobs.

However the workers in farm mechanization had a mean score of 3.43 and farm managers had a mean score of 3.13 for the Agricultural Mechanics course. These two categories regarded Agricultural Mechanics course as very important for their jobs. No other category of workers rated any of the Agriculture courses lower than the mean score of 3.000-3.999, (the "very important" scale).

The analysis of variance for within and between groups of the four categories of jobs for each of the seven agriculture courses revealed no significant differences, even for the Agricultural Mechanics course which had the mean squares between groups of 1.784 and 1.500 mean squares within the groups; 3/56 df and 1.189 F-ratio.

Consequently the second null hypothesis of this study which stated: "There are no significant differences in the opinions of graduates who worked in agricultural extension, farm mechanization, farm management, and field experimentation as to the importance of the agricultural courses," was retained.



TABLE IV

ANALYSIS OF THE COMPARISON OF OPINIONS OF GRADUATES  
ON THE IMPORTANCE OF THE AGRICULTURE COURSES BASED  
ON THE TYPES OF JOBS PERFORMED

Rank Order	Agriculture Courses	Types of Jobs Performed					df	Mean Squares		F- Ratio
		Agric. Extension N=28	Farm Mechani- zation N=12	Farm Management N=9	Field Experi- mentation N=11	Total Mean		Between		
								Groups	Within Groups	
1	Agricultural Extension	4.34	3.89	4.22	3.56	3.95	3/56	0.868	0.748	1.159
2	Crop Production	3.90	3.57	3.78	3.41	3.73	3/56	0.753	0.796	0.946
3	Farm Management	3.71	3.70	4.14	2.93	3.63	3/56	2.664	1.588	1.678
4	Crop Protection	3.51	3.67	3.63	3.09	3.49	3/56	0.776	1.575	0.493
5	Basic Sciences	3.50	3.42	3.59	3.12	3.43	3/56	0.492	1.733	0.284
6	Livestock Production	3.37	3.42	3.86	3.13	3.41	3/56	0.903	1.224	0.738
7	Agricultural Mechanics	2.96	3.43	3.13	2.50	3.01	3/56	1.784	1.500	1.189
	Composite Means	3.47	3.58	3.76	3.12	3.50				

Analysis of Opinions of Graduates as to the  
Importance of the Subjects for Teaching  
the Agriculture Courses

The 54 subjects designated for teaching the seven agriculture courses included in this study are exhibited in Table V. An analysis was made of each of the subjects for teaching each of the course.

The seven agriculture courses and the number of subjects designated for teaching each course are as follows:-

(1) Agricultural Extension Course	=	10 subjects
(2) Livestock Production	=	8 subjects
(3) Crop Production	=	9 subjects
(4) Crop Protection	=	5 subjects
(5) Agricultural Mechanics	=	11 subjects
(6) Farm Management	=	5 subjects
(7) Basic Sciences	=	6 subjects

Chi-square was used to test if the mean scores for each subject for teaching the appropriate courses were significantly different across the categories of the three years of job experience of graduates and for the four categories of the types of jobs that graduates performed. From these tests it was possible to remove subjects which graduates did not value as important for teaching the courses. The information for each of the seven courses and the number of subjects designated for teaching the courses are exhibited in Tables V-XI and these included the rank order of the importance of the subjects by their composite mean scores for the subgroups, Chi Square totals, df, and the levels of significance.

Opinions of the Importance of the Subjects Rated  
According to Years of Job Experience

For the analysis of the responses of graduates based on their years

of job experience, each course will be taken individually for analysis of mean scores and Chi Square tests.

#### Agricultural Extension Course

The overall composite mean scores for the 10 subjects for teaching this course was 3.94 as exhibited in Table V.

The composite mean score for the three subgroups of years of job experience was as follows:- 1-5 years = 3.97; 11-15 years = 3.96; and 6-10 years = 3.89. These mean scores indicated that the number of years that graduates worked had no significant impact on the ratings of the subjects for teaching agricultural extension course since the three subgroups rated all the subjects as "very important."

The composite mean score for each subject was in rank order of importance as follows:- (1) Leadership training was 4.32, (2) Communication skills = 4.20, (3) Principles and Philosophy = 4.13, (4) Package Demonstrations = 3.93, (5) Village Extension Council = 3.92, (6) Rural Sociology = 3.89, (7) Agricultural Shows = 3.86, (8) Young Farmers Club = 3.80, (9) Field Tours and visits = 3.78 and (10) Occupational Experience = 3.59. Leadership Training, Communications, Principles and Philosophy were rated as "essential" subjects for teaching agricultural extension course.

The remaining subjects were also rated as "very important" for teaching the course. Occupational Experience was the last in order of importance but yet it was rated as very important (3.00 to 3.99).

There were no significant differences in the distribution of mean scores of subjects across the three subgroups of years of job experience since none of the subjects was significant at  $\chi^2 = 26.30$   $p < 0.05$ , 16 df, or  $\chi^2 = 21.03$   $p < 0.05$  12 df.

### Livestock Production Course

The composite mean score, Table VI for subjects under the three subgroups of years of job experience for Livestock Production course was 3.51, this indicated that all the variable groups rated all the subjects as "very important" for teaching the course, since the composite mean score for each category was within 3.000 to 3.99 rating scale as follows:  
6-10 years = 3.60, 11-15 years = 3.49 and 1-5 years = 3.45.

The rank order of the importance of subjects for teaching this course according to composite mean scores was as follows: (1) Animal Health = 4.07, (2) Cattle Husbandry = 3.85, (3) Poultry Husbandry = 3.77, (4) Feeds and Feeding = 3.58, (5) Sheep and Goats Husbandry = 3.54, (6) Marketing = 3.37, (7) Swine Husbandry = 3.11, and (8) Rabbit Husbandry = 2.81. Only Animal Health was rated by graduates as "essential" for teaching livestock production course while rabbit was regarded as of little importance. Other subjects were rated as very important.

Mean scores distribution across the three subgroups for each subject did not reveal significant differences at  $P < 0.05$  level when  $\chi^2 = 26.30$  with 16 df.

### Crop Production

The overall composite mean scores for each subject for teaching Crop Production for the three subgroups of years of job experience was 3.67 in Table VII. Each subgroup years of experience composite mean score for 11-15 years = 3.81, 6-10 years = 3.78 and 1-5 years = 3.78.

The composite mean scores for each subjects for the three categories of years of job experience in the rank order of importance is as follows:  
(1) Fertilizers = 4.27, (2) Principles = 4.16, (3) Soil Conservation = 4.06,

(4) Plant Science = 4.06, (5) Arable Crops = 4.00 (6) Vegetable Gardening = 3.91, (7) Tree Crops = 3.59, (8) Forage Crops = 3.22, (9) Floriculture = 2.78. Therefore Fertilizers, Principles, Soil Conservation, Plant Science and Arable Crops were rated as "essential" for teaching Crop Production course. Vegetable Gardening, Tree Crops and Forage Crops were rated as "very important"; Floriculture was rated "of no use" for teaching Crop Production course.

At  $P < 0.05$  level with  $\chi^2 = 26.30$ , 16 df; and  $\chi^2 = 21.03$  at  $P < 0.05$  level, 12 df, no significant differences were revealed for distribution of mean scores across the subgroups of years of job experience.

#### Crop Protection

The overall composite mean scores for subjects for teaching Crop Protection for three categories of years of job experience in Table VIII was 3.62. Mean score for each subgroup was as follows: 6-10 years = 3.92, 1-5 years = 3.61 and 11-15 years = 3.34. Composite mean scores across the three categories of job experience for each subject in the rank order of importance is as follows: (1) Entomology = 3.93, (2) Plant Pathology = 3.71, (3) Field Experimentation = 3.70, (4) Weeds and Crop Insect = 3.45, (5) Plant Ecology = 3.33. All subjects were thus rated as very important for teaching this course.

There were no significant differences in the mean score distribution for subjects across the three categories of years of experience when tested at  $\chi^2 = 26.30$   $P < 0.05$  level.

#### Agricultural Mechanics

The overall mean scores for subjects rated by the three categories of years of job experience was 3.27 in Table IX. Mean scores for the

subgroups were: 1-5 years = 3.55, 6-10 years = 3.17, and for 11-15 years = 3.09. The mean scores for each subject according to the rank order of importance is as follows: (1) Surveying = 3.92, (2) Use of Hand Tools = 3.65, (3) Use of Power Tools = 3.51, (4) Project Construction = 3.36, (5) Tolls Conditioning = 3.27, (6) Small Gas Engines = 3.20, (7) Electricity = 3.15, (8) Carpentry = 3.06, (9) Concrete and Masonry = 3.06, (10) Oxy-Acetylene Welding = 2.90, and (11) Arc Welding = 2.86. In the opinions of the graduates, Oxy-Acetylene and Arc Welding were of little importance for teaching Agricultural Mechanics while all other subjects listed above were rated as "very important" but since there were no significant differences in the mean scores for these subjects within the variable groups the null hypothesis was retained.

For the Agricultural Mechanics course, mean scores distribution for subjects were not significantly different at  $P < 0.05$  level when  $\chi^2 = 26.30$  with 16 df.

#### Farm Management

The overall composite mean score for years of experience for each of the subjects was 3.92 shown in Table X. The composite mean scores for each group was as follows: 1-5 years = 3.88, 6-10 years = 3.70 and 11-15 years = 4.16.

The composite mean scores for each subject according to rank order of importance for teaching Farm Management course was as follows: (1) Work Organizations = 4.39, (2) Stores and Accounts = 3.99, (3) Record Keeping = 3.96, (4) Office Routine = 3.78, (5) Farmstead Planning = 3.46.

Work Organizations was regarded as the only "essential" subject for teaching Farm Management while others were rated as "very important."

There were no significant differences for mean scores distribution for subjects across the subgroups when these were tested at  $\chi^2 = 26.30$   $P < 0.05$  level with 16 df and  $\chi^2 = 21.03$   $P < 0.05$  level with 12 df.

#### Basic Sciences

The overall composite mean score for subjects and years of job experience for teaching Basic Sciences course was 3.81 in Table XI. The composite mean scores for each group were as follows: 11-15 years = 3.95, 6-10 years = 3.61 and 1-5 years = 3.21.

The subject mean scores according to the rank order of importance was as follows: (1) Biology = 4.15, (2) Soils = 4.02, (3) Chemistry = 3.99, (4) Crop Botany = 3.73, (5) Physics = 3.65, (6) Meteorology = 3.30. Biology was rated "essential" for teaching Basic Science course while other subjects were rated "very important."

There were no significant differences in the mean scores for the subjects for the 3 variable groups when these were tested with  $\chi^2 = 26.30$  at  $P < 0.05$  level with 16 df and  $\chi^2 = 21.03$  at  $P < 0.05$  level with 12 df.

#### Summary of Opinions of the Importance of the Subjects Rated According to Years of Job Experience of Graduates

In Tables V-XI it would be noted that overall composite mean scores for the importance of subjects for teaching the agriculture courses judged according to years of experience and according to rank order were as follows: (1) Agricultural Extension = 3.94, (2) Farm Management = 3.92, (3) Basic Sciences = 3.81, (4) Crop Production = 3.67, (5) Crop Protection = 3.62, (6) Livestock Production = 3.51, (7) Agricultural Mechanics = 3.27.

All subjects designated for teaching each of the courses were therefore rated "very important" by the graduates. Differences of opinions

TABLE V

ANALYSIS OF THE COMPARISON OF OPINIONS OF GRADUATES ON  
THE IMPORTANCE OF THE SUBJECTS FOR TEACHING THE  
AGRICULTURE COURSES BASED ON 3 CATEGORIES  
OF YEARS OF JOB EXPERIENCE

AGRICULTURAL EXTENSION COURSE:  $\chi^2 = 26.30$   $P < 0.05$ , 16 df  
 $\chi^2 = 21.03$   $P < 0.05$ , 12 df

Rank Order	Subjects	Years of Job Experience			Composite Mean	Chi Square Totals	df	Level of Sig.
		1-5 yrs N=13 Mean	6-10 yrs N=30 Mean	11-15 yrs N=15 Mean				
1.	Leadership Training	4.50	4.03	4.42	4.32	10.53	16	0.8378
2.	Communications	4.18	4.07	4.36	4.20	9.20	16	0.9050
3.	Principles & Philosophy	3.91	4.21	4.27	4.13	11.94	12	0.4501
4.	Package & Method Demn.	3.81	3.90	4.08	3.93	9.96	16	0.8687
5.	Village Extension Council	4.09	4.10	3.58	3.92	15.05	16	0.9050
6.	Rural Sociology	3.67	4.07	3.93	3.89	8.51	12	0.7438
7.	Agricultural Shows	4.00	4.07	3.50	3.86	14.62	16	0.5530
8.	Young Farmers Club	4.09	3.80	3.50	3.80	8.51	16	0.9320
9.	Field Tours & Visits	3.83	3.83	3.67	3.78	9.64	16	0.8846
10.	Occupational Experience	3.60	2.83	4.33	3.59	12.61	16	0.7013
	Composite Means	3.97	3.89	3.96	3.94			



TABLE VI

ANALYSIS OF THE COMPARISON OF OPINIONS OF GRADUATES ON  
THE IMPORTANCE OF THE SUBJECTS FOR TEACHING THE  
AGRICULTURE COURSES BASED ON 3 CATEGORIES  
OF YEARS OF JOB EXPERIENCE

LIVESTOCK PRODUCTION:  $\chi^2 = 26.30$   $P < 0.05$

Rank Order	Subjects	Years of Job Experience						Chi Square Totals	df	Level of Sig.
		1-5 yrs N=13		6-10 yrs N=30		11-15 yrs N=15				
		Mean	Mean	Mean	Mean	Composite Mean				
1.	Animal Health	3.75	4.47	4.00	4.07	14.03	16	0.5966		
2.	Cattle	3.75	4.03	3.77	3.85	22.03	16	0.1423		
3.	Poultry	3.67	3.57	4.07	3.77	19.59	16	0.2391		
4.	Feeds & Feeding	3.67	3.50	3.57	3.58	19.62	16	0.2378		
5.	Sheep & Goats	3.58	3.67	3.36	3.54	17.46	16	0.3567		
7.	Swine	3.08	3.67	2.58	3.11	18.99	16	0.2691		
8.	Rabbits	2.92	2.37	3.15	2.81	10.29	16	0.8510		
	Composite Means	3.45	3.60	3.49	3.51					

TABLE VII

ANALYSIS OF THE COMPARISON OF OPINIONS OF GRADUATES ON  
THE IMPORTANCE OF THE SUBJECTS FOR TEACHING THE  
AGRICULTURE COURSES BASED ON 3 CATEGORIES  
OF YEARS OF JOB EXPERIENCE

CROP PRODUCTION:  $\chi^2 = 26.30$   $P < 0.05$  for 16 df  
 $\chi^2 = 21.03$   $P < 0.05$  for 12 df

Rank Order	Subjects	Years of Job Experience					Composite Mean	Chi Square Totals	df	Level of Sig.
		1-5 yrs N=13 Mean	6-10 yrs N=30 Mean	11-15 yrs N=15 Mean						
1.	Fertilizers	4.38	4.03	4.38	4.27	14.99	16	0.5256		
2.	Principles	4.31	3.93	4.23	4.16	13.20	16	0.6654		
3.	Soil Conservation	4.31	4.03	3.85	4.06	8.89	12	0.7126		
4.	Plant Science	4.08	4.03	4.08	4.06	20.31	16	0.2066		
5.	Arable Crops Husbandry	3.92	4.00	4.08	4.00	13.10	16	0.6654		
6.	Vegetable Gardening	3.85	3.45	4.43	3.01	25.43	16	0.0626		
7.	Tree Crops Husbandry	3.85	3.57	3.36	3.59	16.68	16	0.4063		
8.	Forage Crops Husbandry	3.00	3.43	3.23	3.22	7.65	16	0.9587		
9.	Floriculture	2.08	3.57	2.69	2.78	25.43	16	0.0626		
Composite Means		3.76	3.78	3.81	3.67					

TABLE VIII

ANALYSIS OF THE COMPARISON OF OPINIONS OF GRADUATES ON  
THE IMPORTANCE OF THE SUBJECTS FOR TEACHING THE  
AGRICULTURE COURSES BASED ON 3 CATEGORIES  
OF YEARS OF JOB EXPERIENCE

Rank Order	Subjects	CROP PROTECTION: $\chi^2 = 26.30$ P<0.05					Chi Square Totals	df	Level of Sig.
		Years of Job Experience							
		1-5 yrs N=13 Mean	6-10 yrs N=30 Mean	11-15 yrs N=15 Mean	Composite Mean				
1.	Entomology	3.92	4.17	3.69	3.93	20.47	16	0.1998	
2.	Plant Pathology	3.50	4.17	3.46	3.71	23.60	16	0.0987	
3.	Field Experimentation	4.08	3.93	3.08	3.70	22.92	16	0.1158	
4.	Weed & Crop Indent	3.36	3.69	3.31	3.45	16.08	16	0.4471	
5.	Plant Ecology	3.17	3.66	3.17	3.33	18.22	16	0.3110	
	Composite Means	3.61	3.92	3.34	3.62				

TABLE IX

ANALYSIS OF THE COMPARISON OF OPINIONS OF GRADUATES ON  
THE IMPORTANCE OF THE SUBJECTS FOR TEACHING THE  
AGRICULTURE COURSES BASED ON 3 CATEGORIES  
OF YEARS OF JOB EXPERIENCE

Rank Order	Subjects	Years of Job Experience				Composite Mean	Chi Square Totals	df	Level of Sig.
		1-5 yrs N=13		11-15 yrs N=15					
		Mean	6-10 yrs N=30	Mean	Mean				
1.	Surveying	3.91	3.93	3.92	3.92	6.01	16	0.9879	
2.	Use of Hand Tools	4.00	3.44	3.50	3.65	30.22	16	0.0169	
3.	Use of Power Tools	3.83	3.32	3.36	3.51	17.98	16	0.3249	
4.	Project Construction	3.73	2.91	3.42	3.36	17.23	16	0.3708	
5.	Tools Conditioning	3.55	3.18	3.09	3.27	21.45	16	0.1619	
6.	Small Gas Engines	3.82	3.04	2.75	3.20	21.63	16	0.1556	
7.	Electricity	3.50	3.04	2.92	3.15	18.24	16	0.3098	
8.	Carpentry	3.17	2.68	3.33	3.06	16.80	16	0.3985	
9.	Concrete & Masonry	3.67	2.68	2.83	3.06	26.60	16	0.0462	
10.	Oxy-Acetylene Welding	2.92	3.25	2.55	2.90	13.36	16	0.6461	
11.	Arc Welding	2.92	3.39	2.27	2.86	20.62	16	0.1934	
	Composite Means	3.55	3.17	3.09	3.27				

TABLE X  
 ANALYSIS OF THE COMPARISON OF OPINIONS OF GRADUATES ON  
 THE IMPORTANCE OF THE SUBJECTS FOR TEACHING THE  
 AGRICULTURE COURSES BASED ON 3 CATEGORIES  
 OF YEARS OF JOB EXPERIENCE

FARM MANAGEMENT:  $\chi^2 = 26.30$   $P < 0.05$  for 16 df  
 $\chi^2 = 21.03$   $P < 0.05$  for 12 df

Rank Order	Subjects	Years of Job Experience			Composite Mean	Chi Square Totals	df	Level of Sig.
		1-5 yrs N=13 Mean	6-10 yrs N=30 Mean	11-15 yrs N=15 Mean				
1.	Work Organization	4.36	4.27	4.54	4.39	9.13	12	0.6920
2.	Stores & Accounts	3.91	3.77	4.31	3.99	14.51	12	0.2693
3.	Record Keeping	4.09	3.57	4.23	3.96	13.00	16	0.6729
4.	Office Routine	3.40	3.70	4.23	3.78	17.10	16	0.3791
5.	Farmstead Planning	3.64	3.17	3.58	3.46	14.34	16	0.5734
	Composite Means	3.88	3.70	4.16	3.92			

TABLE XI

ANALYSIS OF THE COMPARISON OF OPINIONS OF GRADUATES ON  
THE IMPORTANCE OF THE SUBJECTS FOR TEACHING THE  
AGRICULTURE COURSES BASED ON 3 CATEGORIES  
OF YEARS OF JOB EXPERIENCE

BASIC SCIENCES:  $\chi^2 = 26.30$   $P < 0.05$  for 16 df  
 $\chi^2 = 21.03$   $P < 0.05$  for 12 df

Rank Order	Subjects	Years of Job Experience						Chi Square Totals	Composite Mean	df	Level of Sig.
		1-5 yrs		6-10 yrs		11-15 yrs					
		N=13 Mean	N=30 Mean	N=30 Mean	N=15 Mean						
1.	Biology	4.17	3.96	4.31	4.15	21.63	16	0.1557			
2.	Soils	4.00	3.82	4.23	4.02	4.22	16	0.9985			
3.	Chemistry	4.18	3.93	3.85	3.99	22.30	12	0.0343			
4.	Crop Botany	3.50	3.36	4.33	3.73	13.62	16	0.6267			
5.	Physics	3.83	3.50	3.62	3.65	17.28	16	0.3675			
6.	Meteorology	3.42	3.11	3.38	3.30	14.92	16	0.5309			

on the importance of these subjects for teaching the courses were not significant when tested with the Chi Square contingency tables for distribution of mean scores across the three variable groups of years of job experience of graduates.

Consequently the third hypothesis of this study which stated: "There are no significant differences in the opinions of graduates who had had 1-5 years; 6-10 years and 11-15 years of job experience as to the importance of the subjects for teaching the agricultural courses," was retained.

Opinions of the Importance of the Subjects  
for Teaching the Agriculture Courses  
Based on the Types of Jobs  
Performed by Graduates

The responses of graduates on the importance of the subjects for teaching the agriculture courses were analyzed for four categories of jobs performed. The following findings for each of the courses were recorded in Tables XII-XVIII.

Agricultural Extension Course

An overall composite mean score of 4.02 was obtained for the ratings of the importance of the subjects for teaching this course. Each type of jobs had mean scores as follows:- Agricultural Extension = 4.02, Farm Management = 4.22, Field Experimentation = 3.94, and Farm Mechanization = 3.89. These scores indicated that Extension Workers and the Farm Managers rated all the subjects "essential" for teaching Agricultural Extension course. Graduates who worked in Farm Mechanization and in Field Experimentation rated the subjects "very important".

The composite mean scores of each of the subjects according to rank

order are as follows: (1) Communications = 4.30, (2) Principles and Philosophy = 4.25, (3) Leadership Training = 4.25, (4) Package Demonstrations = 4.01, (5) Occupational Experience = 3.99, (6) Village Extension Council = 3.97, (7) Agricultural Shows = 3.94, (8) Young Farmers Club = 3.91, (9) Rural Sociology = 3.85, (10) Field Tours and Visits = 3.72. Therefore Communications, Principles and Philosophy, Leadership Training and Package Demonstrations were rated by all the four subgroups of jobs as "essential" for teaching this course. Other subjects were rated "very important".

The Chi Square test at  $\chi^2 = 26.30$  at 0.05 level, 16 df, and  $\chi^2 = 21.03$  at 0.05 level with 12 df, did not reveal significant differences in the distribution of mean scores across the four categories of jobs.

#### Livestock Production

An overall composite mean scores of 3.52 given in Table XIII was obtained for rating the subjects designated for teaching Livestock Production. Each category of job mean score was as follows: Agricultural Extension = 3.49, Farm Mechanization = 3.42, Farm Management = 3.89 and Field Experimentation = 3.47. Each subject composite mean score set in the rank order pattern was as follows: (1) Cattle Husbandry = 3.91, (2) Poultry Husbandry = 3.78, (3) Animal Health = 3.61, (4) Sheep and Goats = 3.55, (5) Marketing = 3.45, (6) Swine = 3.36, (7) Rabbits = 3.31, (8) Feeds and Feeding = 3.30. All these scores indicated that all the categories of workers rated all the subjects "very important" for teaching this course.

No significant differences in the opinions of workers as to the importance of the courses were obtained when tested with Chi-Square contingency tables for distribution of mean scores at  $\chi^2 = 21.03$  at level  $P < 0.05$  with 12 df.



### Crop Production

The overall mean score of 3.67 as shown in Table XIV was obtained for all the subjects for teaching Crop Production. The mean scores for each category of jobs were as follows: Agricultural Extension = 3.91, Farm Mechanization = 3.36, Farm Management = 3.76, and Field Experimentation = 3.76. The rank order of the importance of each of the subjects according to the mean scores was as follows: (1) Principles = 4.11, (2) Fertilizers = 4.07, (3) Soil Conservation = 4.05, (4) Arable Crops = 3.99, (5) Plant Science = 3.81, (6) Vegetable Gardening = 3.76, (7) Tree Crops = 3.67, (8) Floriculture = 2.85, (9) Forage Crops = 2.71.

These scores indicated that all the four types of agricultural workers rated these subjects: Principles, Fertilizers, Soil Conservation and Arable Crops "essential" for teaching Crop Production. Plant Science, Vegetable Gardening, and Tree Crops were rated "very important" while Floriculture and Forage Crops were rated "of little importance." However when mean scores were tested with Chi Square for differences in distribution across the 4 types of jobs done by graduates, no significant differences were obtained at  $\chi^2 = 21.03$  at 0.05 level with 12 df, and  $\chi^2 = 16.92$  at 0.05 level with 9 df.

### Crop Protection

Overall composite mean scores for subjects for teaching Crop Protection shown in Table XV was 3.66. Each type of agricultural worker had a mean score as follows: Agricultural Extension = 3.65, Farm Mechanization = 3.76, Farm Management = 3.52, Field Experimentation = 3.73. The composite mean scores for each subject set in a rank order pattern were as follows: (1) Entomology = 3.98, (2) Field Experimentation = 3.78,

(3) Plant Pathology = 3.64, (4) Weeds and Crop Indent = 3.55, (5) Plant Ecology = 3.36. These scores indicated that all the types of field agricultural workers rated each of the subjects "very important." There were no significant differences in the opinions of graduates within the subgroups of types of jobs when tested with Chi Square at  $\chi^2 = 21.03$   $P < 0.05$  level with 12 df.

#### Agricultural Mechanics

The overall composite mean score for the subjects for teaching Agricultural Mechanics shown in Table XVI was 3.21. Each type of agricultural field workers had the following mean scores: Agricultural Extension = 3.19, Farm Mechanization = 3.45, Farm Management = 3.32 and Field Experimentation = 2.88. The rank order of the importance of the subjects according to their composite mean scores was as follows: (1) Surveying = 3.98, (2) Use of Hand Tools = 3.50, (3) Project Construction = 3.28, (4) Electricity = 3.23, (5) Small Gas Engines = 3.22, (6) Tools Conditioning = 3.20, (7) Arc Welding = 3.00, (8) Carpentry = 3.00, (9) Concrete and Masonry = 3.00, (10) Oxy-Acetylene Welding = 2.96, (11) Use of Power Tools = 2.96. These scores indicated that the "Field Experimenters" thought that all the subjects were of little importance for teaching agricultural mechanics course. Other categories of workers rated the subjects "very important." Two of the 11 subjects, Oxy-Acetylene Welding and Use of Power Tools, were rated "of little importance" for teaching the Agricultural Mechanics course while the remaining nine subjects were rated as "very important." No significant differences were obtained when opinions on the importance of the subjects for the four types of jobs were tested with Chi Square at  $\chi^2 = 21.03$  at 0.05 level with 12 df.

### Farm Management

All the subjects designated for teaching this course received the "very important" rating with an overall mean score of 3.92 given in Table XVII. Each category of the agricultural workers had the following composite mean scores: Agricultural Extension = 3.84, Farm Mechanization = 3.70, Farm Management = 4.12 and Field Experimentation = 4.02.

The composite mean scores for the subjects set in a rank order pattern were as follows: (1) Work Organizations = 4.42, (2) Stores and Accounts = 3.98, (3) Record Keeping = 3.95, (4) Office Routine = 3.83, (5) Farmstead Planning = 3.42. These mean scores revealed that Farm Managers and Field Experimenters rated the subjects, "essential" for teaching this course while extension workers and the farm mechanization workers rated the subjects "very important." Work Organization was particularly rated by all categories of workers "essential" for farm management course while other subjects were also rated "very important." No significant differences were obtained for opinions of workers as to the importance of the subjects when tested with Chi Square at  $\chi^2 = 21.03$  at 0.05 level, 12 df and  $\chi^2 = 16.92$  at 0.05 level, 9 df.

### Basic Sciences

The subjects designated for teaching this course received very important ratings for all categories of workers with an overall composite mean score of 3.80 shown in Table XVIII. The composite mean score for each category of workers was as follows: Agricultural Extension = 3.63, Farm Mechanization = 3.73, Farm Management = 4.05 and Field Experimentation = 3.80.

The rank order of the importance of the subjects for teaching this course set according to composite mean scores was as follows: (1) Soils =

4.18, (2) Biology = 4.10, (3) Chemistry = 3.86, (4) Crop Botany = 3.76, (5) Physics = 3.55 and (6) Meteorology = 3.33. These mean scores revealed that the Farm Managers rated the subjects "essential" for teaching Basic Sciences while other categories of workers regarded the subjects as "very important." Soils and Biology were rated "essential" for teaching this course while Chemistry, Crop Botany, Physics and Meteorology were rated "very important." When Chi Square was used to test the differences of opinions of the sub job groups as to the importance of the subjects,  $\chi^2 = 21.03$  at 0.05 level, 12 df and  $\chi^2 = 16.92$  at 0.05 level, 9 df they were found as insignificant.

Summary of Analysis of Opinions of Graduates on  
the Importance of the Subjects for Teaching  
the Agriculture Courses

On the whole the opinions of graduates as to the importance of the subjects for teaching the courses based on the types of jobs done were rated high on the scales. The rank order of the importance of the subjects for teaching the courses according to the composite overall mean scores was as follows: (1) Agricultural Extension = 4.02, (2) Farm Management = 3.92, (3) Basic Sciences = 3.80, (4) Crop Production = 3.67, (5) Crop Protection = 3.66, (6) Livestock Production = 3.67, (7) Agricultural Mechanics = 3.21.

There were no significant differences in the responses for the importance of subjects for teaching the agriculture courses when tested with Chi Square for mean score distribution for subjects across the four subgroups of jobs performed by the graduates. The null hypothesis which stated: "There are no significant differences in the opinions of graduates who had worked in Agricultural Extension, Farm Mechanization, Farm Manage-

ment and Field Experimentation as to the importance of the subjects for teaching the agriculture courses," was retained.

TABLE XII

ANALYSIS OF COMPARISON OF OPINIONS OF GRADUATES  
ON THE IMPORTANCE OF THE SUBJECTS FOR TEACHING  
THE AGRICULTURE COURSES BASED ON THE TYPES  
OF JOBS PERFORMED

$$\chi^2 = 26.30 \text{ } p < 0.05, 16 \text{ df}$$

$$\chi^2 = 21.03 \text{ } p < 0.05, 12 \text{ df}$$

Rank Order	Subjects	Types of Jobs Done				Composite Mean	Chi Square Totals	df	Level of Sig.
		Agric Extension N=28 (Means)	Farm Mechani- zation N=12 (Means)	Manage- ment N=9 (Means)	Field Experi- mentation N=11 (Means)				
1	Communications	4.07	3.92	4.44	4.75	4.30	12.54	12	0.4033
2	Principles & Philosophy	3.96	4.25	4.67	4.13	4.25	5.99	9	0.7412
3	Leadership Training	4.19	4.33	4.33	4.11	4.24	20.51	12	0.0581
4	Package Method Demn.	4.04	3.25	4.00	4.75	4.01	11.35	12	0.4991
5	Occupational Experience	3.85	3.75	4.67	3.71	3.99	17.67	12	0.1259
6	Village Extension Council	4.08	4.17	4.00	3.63	3.97	6.91	12	0.8640
7	Agric Shows	4.00	3.75	4.11	3.89	3.94	17.50	12	0.1318
8	Young Farmers Club	3.69	3.83	4.22	3.88	3.91	6.51	12	0.8883
9	Rural Sociology	4.21	4.08	3.78	3.33	3.85	11.11	9	0.2684
10	Field Tours & Visits	4.11	3.58	4.00	3.20	3.72	12.72	12	0.3900
	Composite Means	4.02	3.89	4.22	3.94	4.02			

TABLE XIII

ANALYSIS OF COMPARISON OF OPINIONS OF GRADUATES  
ON THE IMPORTANCE OF THE SUBJECTS FOR TEACHING  
THE AGRICULTURE COURSES BASED ON THE TYPES  
OF JOBS PERFORMED

LIVESTOCK PRODUCTION:  $\chi^2 = 21.03$   $P < 0.05$

Rank Order	Subjects	Types of Jobs Done				Composite Mean	Chi Square Totals	df	Level of Sig.
		Agric Extension N=28 (Means)	Farm Mechani- zation N=12 (Means)	Manage- ment N=9 (Means)	Field Experi- men- tation N=11 (Means)				
1	Cattle	3.85	4.00	3.88	3.90	3.91	4.07	12	0.9821
2	Poultry	3.67	3.33	4.33	3.80	3.78	10.20	12	0.5982
3	Animal Health	3.74	3.17	4.22	3.30	3.61	12.91	12	0.3753
4	Sheep & Goats	3.37	3.58	3.56	3.70	3.55	13.37	12	0.3427
5	Marketing	3.48	3.08	4.22	3.00	3.45	17.49	12	0.1322
6	Swine	3.15	3.83	3.13	3.33	3.36	10.18	12	0.6005
7	Rabbits	2.85	3.33	3.75	3.30	3.31	17.83	12	0.1209
8	Feeds & Feeding	3.81	3.00	4.00	2.40	3.30	14.87	12	0.1322
	Composite Means	3.49	3.42	3.89	3.47	3.53			

TABLE XIV

ANALYSIS OF COMPARISON OF OPINIONS OF GRADUATES  
ON THE IMPORTANCE OF THE SUBJECTS FOR TEACHING  
THE AGRICULTURE COURSES BASED ON THE TYPES  
OF JOBS PERFORMED

CROP PRODUCTION:  $\chi^2 = 21.03$   $p < 0.05$ , 12 df  
 $\chi^2 = 16.92$   $p < 0.05$ , 9 df

Rank Order	Subjects	Types of Jobs Done			Composite Mean	Chi Square Totals	df	Level of Sig.
		Farm Mechani- zation N=12 (Means)	Farm Manage- ment N=9 (Means)	Field Experi- mentation N=11 (Means)				
1	Principles	4.11	4.11	4.40	4.11	11.07	12	0.5230
2	Fertilizers	4.56	4.22	4.10	4.07	15.08	12	0.2371
3	Soil Conservation	4.07	3.75	4.50	4.05	11.74	9	0.2283
4	Arable Crop Husbandry	4.15	4.22	4.10	3.99	10.45	12	0.5763
5	Plant Science	4.19	4.11	4.10	3.81	8.03	12	0.7828
6	Vegetable Gardening	3.93	4.11	3.10	3.76	10.82	12	0.5448
7	Tree Crops Husbandry	3.71	3.58	3.50	3.67	5.40	12	0.9432
8	Floriculture	3.12	3.18	2.22	2.85	10.07	12	0.6097
9	Forage Crops Husbandry	3.37	1.25	3.11	2.71	12.41	12	0.3400
	Composite Means	3.91	3.36	3.76	3.67			



TABLE XV

ANALYSIS OF COMPARISON OF OPINIONS OF GRADUATES  
ON THE IMPORTANCE OF THE SUBJECTS FOR TEACHING  
THE AGRICULTURE COURSES BASED ON THE TYPES  
OF JOBS PERFORMED

CROP PROTECTION:  $\chi^2 = 21.03$   $P < 0.05$

Rank Order	Subjects	Types of Jobs Done				Composite Mean	Chi Square Totals	df	Level of Sig.
		Agric Extension N=28 (Means)	Farm Mechani- zation N=12 (Means)	Farm Manage- ment N=9 (Means)	Field Experi- mentation N=11 (Means)				
1	Entomology	3.93	4.45	3.89	3.67	3.98	11.63	12	0.4761
2	Field Experimentation	3.67	3.58	3.56	4.33	3.78	8.18	12	0.7709
3	Plant Pathology	3.78	3.91	3.11	3.78	3.64	3.74	12	0.9877
4	Weeds & Crop Indent	3.48	3.50	3.67	3.56	3.55	11.40	12	0.4946
5	Plant Ecology	3.37	3.36	3.38	3.33	3.36	6.31	12	0.8999
	Composite Means	3.65	3.76	3.52	3.73	3.66			

TABLE XVI

ANALYSIS OF COMPARISON OF OPINIONS OF GRADUATES  
ON THE IMPORTANCE OF THE SUBJECTS FOR TEACHING  
THE AGRICULTURE COURSES BASED ON THE TYPES  
OF JOBS PERFORMED

AGRICULTURAL MECHANICS:  $\chi^2 = 21.03$   $P < 0.05$

Rank Order	Subjects	Types of Jobs Done				Composite Mean	Chi Square Totals	df	Level of Sig.
		Agric Extension N=28 (Means)	Farm Mechanization N=12 (Means)	Farm Management N=9 (Means)	Field Experimentation N=11 (Means)				
1	Surveying	3.96	3.83	4.38	3.75	3.98	6.17	12	0.9074
2	Use of Hand Tools	3.64	3.75	3.29	3.33	3.50	4.11	12	0.9814
3	Project Construction	3.15	3.00	3.71	3.25	3.28	10.18	12	0.5999
4	Electricity	2.96	3.50	3.57	2.89	3.23	14.33	12	0.2802
5	Small Gas Engine	2.88	3.67	3.57	2.75	3.22	12.90	12	0.3768
6	Tools Conditioning	3.31	3.08	3.29	3.14	3.20	12.89	12	0.3774
7	Arc Welding	3.04	3.83	2.57	2.56	3.00	20.44	12	0.0592
8	Carpentry	2.88	2.58	2.86	3.67	3.00	10.83	12	0.5433
9	Concrete & Masonry	2.77	3.33	3.00	2.89	3.00	13.05	12	0.3657
10	Oxy-Acetylene Welding	3.00	3.67	2.86	2.33	2.96	11.79	12	0.4627
11	Use of Power Tools	3.48	3.67	3.43	1.11	2.92	7.75	12	0.8044
	Composite Means	3.19	3.45	3.32	2.88	3.21			

TABLE XVII

ANALYSIS OF COMPARISON OF OPINIONS OF GRADUATES  
ON THE IMPORTANCE OF THE SUBJECTS FOR TEACHING  
THE AGRICULTURE COURSES BASED ON THE TYPES  
OF JOBS PERFORMED

$\chi^2 = 21.03$   $p < 0.05$ , 12 df  
FARM MANAGEMENT:  $\chi^2 = 16.92$   $p < 0.05$ , 9 df

Rank Order	Subjects	Types of Jobs Done				Composite Mean	Chi Square Totals	df	Level of Sig.
		Agric Extension N=28 (Means)	Farm Mechani- zation N=12 (Means)	Farm Manage- ment N=9 (Means)	Field Experi- men- tation N=11 (Means)				
1	Work Organization	4.30	4.33	4.56	4.50	4.42	5.00	9	0.8342
2	Stores & Accounts	3.96	3.67	4.56	3.75	3.98	9.50	9	0.3921
3	Record Keeping	3.78	3.67	4.22	4.13	3.95	10.27	12	0.5923
4	Office Routine	3.67	3.67	4.11	3.86	3.83	8.01	12	0.7840
5	Farmstead Planning	3.50	3.17	3.13	3.88	3.42	5.72	12	0.9297
	Composite Means	3.84	3.70	4.12	4.02	3.92			

TABLE XVIII

ANALYSIS OF COMPARISON OF OPINIONS OF GRADUATES  
ON THE IMPORTANCE OF THE SUBJECTS FOR TEACHING  
THE AGRICULTURE COURSES BASED ON THE TYPES  
OF JOBS PERFORMED

$\chi^2 = 21.03$   $P < 0.05$ , 12 df  
BASIC SCIENCES:  $\chi^2 = 16.92$   $P < 0.05$ , 9 df

Rank Order	Subjects	Agric Extension N=28 (Means)	Farm Mechanization N=12 (Means)	Farm Management N=9 (Means)	Field Experimentation N=11 (Means)	Composite Mean	Chi Square Totals	df	Level of Sig.
1	Soils	3.63	4.45	4.63	4.00	4.18	13.69	12	0.3208
2	Biology	4.04	4.00	4.13	4.22	4.10	7.85	12	0.7968
3	Chemistry	3.93	3.91	3.63	4.00	3.86	4.33	9	0.8882
4	Crop Botany	3.46	3.09	4.50	4.00	3.76	10.55	12	0.5644
5	Physics	3.52	3.73	3.75	3.22	3.55	15.26	12	0.2276
6	Meteorology	3.19	3.18	3.63	3.33	3.33	17.67	12	0.1261
	Composite Means	3.63	3.73	4.05	3.80	3.80			

## CHAPTER V

### SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

#### Summary

It was anticipated that this study would assist agricultural educators throughout Nigeria in planning the remodification of agricultural education programs designed to prepare agricultural field workers in Extension, Farm Mechanization, Farm Management and Field Experimentation.

The study evaluated each of the 54 subjects designated for teaching the seven basic agriculture courses at the Schools of Agriculture in Nigeria. From the results of the study it should be possible for Training Officers in the Ministries of Agriculture, Agricultural Teachers, and the Principals of the Schools of Agriculture to find answers to questions such as: What subjects in the vocational agriculture programs are most relevant for teaching the agriculture courses? How should the courses be oriented and modified? What courses are most relevant to the jobs which are opted for after graduation? What inservice courses should be provided for workers? What is the optimum period of job experience needed by workers before they could be awarded busary for further studies to improve upon their technical and professional capabilities?

The central purpose of this study was to determine the degree of importance and relevance of the agricultural courses to the jobs that students do upon graduation. Another purpose was to determine if the responses of the graduates were influenced by the number of years that graduates had worked, or by the types of jobs that graduates did.

Data were collected from the former students of the Schools of Agriculture throughout Nigeria who were pursuing degree courses in agriculture at both Kansas State and Fort Hays State Universities.

The research instrument used for obtaining the opinions of former students as to the importance of the agriculture courses was constructed. A five point Likert type scale was used which permitted respondents to designate the degree of importance of the 54 subjects for teaching the seven courses. The responses were given values as follows: 5 = "essential," 4 = "very useful," 3 = "useful," 2 = "somewhat useful," 1 = "of no use."

Sixty three of the 143 Nigerian students at Kansas State and Fort Hays State Universities who were pursuing degrees in the fields of agriculture and who were also former students of Schools of Agriculture in Nigeria, constituted the population of this study. Sixty of 63 (95.2%) former students responded to the questionnaire which was mailed to them.

The data collected were analyzed at the Kansas State University Computer Center. The Analysis of Variance statistical method was used to test two of the four null hypotheses. The first stated: "There are no significant differences in the opinions of graduates who had worked for 1-5 years, 6-10 years, 11-15 years as to the importance of the agriculture courses." The second stated: "There are no significant differences in the opinions of graduates who had worked in agricultural extension, farm mechanization, farm management and field experimentation as to the importance of the agriculture courses."

The Chi Square tests were used as a test of independence for hypotheses three and four. The third hypothesis stated: "There are no significant differences of opinions of graduates who had worked 1-5 years, 6-10 years, 11-15 years as to the importance of the subjects for teaching

the agriculture courses." The fourth stated: "There are no significant differences in the opinions of graduates who had worked in agricultural extension, farm mechanization, farm management and field experimentation as to the importance of the subjects for teaching the agriculture courses."

The agreement of opinions as to the importance of the subjects and the courses for the two variables was tested by the Spearman Rank Order Correlation Coefficient of weighted mean scores.

For the purpose of the interpretation of results, comparisons of the consistency of opinions for the two groups were: Mean scores of 4.00 to 4.99 = "essential," 3.00 to 3.99 = "very important," 2.00 to 2.99 = "of little importance," 1.00 to 1.99 = "of no use."

In Appendix B, Tables XIX and XX included the rank ordering of the seven courses. The seven courses were rated in the "very important" range when the mean scores for the two groups were combined. When each group was examined separately the group for the variable, years of job experience, rated six of the courses in the "very important" range, while the Agricultural Mechanics course was rated in the "of little importance" range. The group for the variable, types of jobs, rated the seven courses in the "very important" range.

When the degrees of importance of the 54 subjects for teaching the seven courses were examined for the two groups, 12 subjects were rated "essential," thirty six "very important" and six "of little importance." There were four of the eleven subjects rated "essential" and seven "very important" in the Agricultural Extension course. Three of the nine in Crop Production were rated "essential," five "very important," and two were rated "of little importance." Nine subjects in Agricultural Mechanics were rated as "very important" while 2 were rated "of little importance."

One of the five in Farm Management was rated "essential" while four were rated "very important." Two subjects in the Basic Science course were rated "essential," and four "very important." All subjects in Livestock Production and Crop Protection, were rated "very important."

The four null hypotheses in this study were tested for the 0.05 level of significance. The Analysis of Variance for comparison of opinions for the three subgroups for the variables, years of job experience, revealed a significant difference for one of the seven courses, Crop Protection. Therefore the null hypothesis number one was retained for six of the seven courses. The second null hypothesis tested for differences of opinions between the four subgroups for the variable, types of jobs done, did not reveal any significant differences, hence the null hypothesis was retained.

The third null hypothesis was tested with Chi Square Contingency Tables for differences in the opinions of the three subgroups for the variable, years of job experience. No significant differences of opinions were found and therefore this null hypothesis was retained.

The fourth hypothesis was also tested with Chi Square Contingency Tables for differences of opinions between the four subgroups for the variable, types of jobs done by graduates, and none were significant, hence this null hypothesis was retained.

### Conclusions

Based on the findings of the opinions of former students of the Schools of Agriculture in Nigeria the following conclusions were drawn.

1. The seven agriculture courses which received overall mean scores of 3.50 or higher provided a sound basis for vocational agriculture programs.



2. The graduates were in agreement as to the importance of 48 subjects for teaching and agriculture courses.

3. The graduates placed higher values on the courses: Agricultural Extension, Crop Production, Crop Protection, and Farm Management than on Agricultural Mechanics, Livestock Production, and Basic Sciences.

4. The significant differences for the Crop Protection course were due to responses of graduates who had been on the job for eleven years or more, and for those who worked in the field experimentation area.

5. The most important subjects for teaching the Agricultural Extension course were: Leadership Training, Communication Skills, Principles and Philosophy, Package Demonstration, and Village Extension Council in that order, and the least was Occupational Experience.

6. For teaching Livestock Production the most important subjects were Animal Health, Husbandry of Cattle, Poultry, Goats, Sheep, and Feeds and Feeding. Rabbit Husbandry was regarded as of little importance.

7. Fertilizers, Principles, Soil Conservation, Plant Science, Arable Crops, Vegetable Gardening and Tree Crops were the most important subjects for teaching Crop Production. Forage Crops and Floriculture were not regarded as very important for this course.

8. For the Crop Protection Course, Entomology, Plant Pathology, and Field Experimentation were the most important subjects.

9. Surveying, Use of Power Tools and Use of Hand Tools were the most important subjects for teaching the Agricultural Mechanics Course and Oxy-Acetylene and Arc-Welding were perceived as least important.

10. Work Organization, Stores and Accounts, and Record Keeping were the most important subjects for teaching Farm Management.

11. Soils, Biology, Chemistry, and Crop Botany were the most important subjects for teaching the Basic Sciences.

12. The curriculum of the School of Agriculture should include subjects such as psychology, principles and philosophy of education, teaching methods, and organization of adult classes since many students teach after graduation.

13. The approach of using former students in this study seemed to be an appropriate method of studying the problem.

14. The researcher for this type of study should have previous experience in Nigerian agriculture.

#### Recommendations

After conducting this study, the researcher made the following recommendations:

1. That the findings in this study should be used to base decisions regarding the development of curriculum for vocational agriculture in the Schools of Agriculture in Nigeria.

2. That further studies be done to determine the importance of Crop Protection since differences of opinions about the importance of this course were statistically significant.

3. The study revealed that there were deficiencies in the training offered in Agricultural Mechanics. Efforts should be made to review this course to cover subjects such as welding, project construction, carpentry, masonry and small gas engines in greater depths.

4. The four types of jobs for which specialized training could be offered should be Agricultural Extension (this should include home economics, agricultural education, pest control, irrigation) Farm Mechanization, Farm Management and Field Experimentation.

5. Evaluation of the curricula of the Schools of Agriculture should be done by an independent body of agricultural education experts at least once in every five years.

#### Implications

1. Supervised Experience Programs should be introduced in which all categories of students are supervised by agricultural teachers from

the Schools of Agriculture.

2. The Schools of Agriculture should evolve a system whereby students could specialize in courses which would prepare them for jobs which they would prefer to do upon graduation.

3. This study indicated that agricultural workers need to be given periodical inservice training. Workers should be permitted to further their studies two to three years after graduation from the Schools of Agriculture.

4. The Schools of Agriculture need to be better equipped for teaching the agricultural courses. Improved laboratory equipment would enhance the quality of courses taught. Subjects, like Chemistry, Biology, Physics, Horticulture, Plant Science, and Agricultural Mechanics should have separate laboratories in which provision should be made for students to work individually.

5. Efforts should be made to train more agricultural teachers for the Schools of Agriculture. Where it is possible, only holders of Bachelor of Science Degree in Agricultural Education should teach the courses at the Schools since this would improve the quality of the graduates from these schools.

6. A system whereby students of the Schools of Agriculture could evaluate the quality of teaching by the agricultural teachers should be introduced. It is anticipated that if the results of such evaluations were used, the effectiveness of the teachers would improve. If criterion for promotion were based on teaching effectiveness, the quality of instruction would improve.

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THE APPENDIX

## Appendix A: Letter of Transmittal

Q-10 Jardine Terrace,  
Kansas State University  
Manhattan, Kansas 66502

Date: \_\_\_\_\_

Dear Mr. Mrs. Ms.

I am 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 of selected program components of the agricultural curricula in Nigerian Schools of Agriculture.

This study is designed for obtaining information from former students of Nigerian Schools of Agriculture on the values they placed on vocational agriculture program as an aid in their previous job performances after graduation; and also if vocational agriculture courses taken in Nigeria have been helpful in the pursuits of their degree programs in agriculture in American Universities.

Your prompt response to the questionnaire will help improve Agricultural Education programs in Nigeria. Please note that this questionnaire has been tested with a sampling of graduate students at Kansas State University and the time required for trying them out was fifteen minutes at the most.

It will be highly appreciated if you could complete the questionnaire and return it to me prior to January 15, 1978 in the stamped enclosed envelope.

Your valuable comments which you may have concerning any aspects of vocational agriculture programs in any Nigerian Schools of Agriculture which this questionnaire might not properly include, should be inserted on the reverse side of the last page of the questionnaire.

The results of the findings will be mailed to you if you contact me one month from the date you return the questionnaire. Your responses will be treated in strict confidence since they will only be used in a mass data in writing out my Master's Thesis and as such they will not be identifiable with any one person.

Yours Sincerely,

Ezekiel B. Ogungbemi  
Graduate Student  
Agricultural Education



The Research Instrument

Questionnaire for Evaluating the Curriculum of  
Nigerian Schools of Agriculture

1. School of Agriculture and year attended \_\_\_\_\_  
Year \_\_\_\_\_
2. Certificate Course taken at the school (delete whichever is not applicable) Agric. Assistant; Assistant Agric. Supt.; Diploma; others.
3. Number of years on job after graduation \_\_\_\_\_
4. List duties performed \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. State your student status in American University (delete whichever is not applicable) undergraduate, graduate, others.
6. If you are a faculty member, state the Nigerian School of Agric. in which you taught and for how long.  
(a) \_\_\_\_\_ (b) \_\_\_\_\_ years
7. Indicate the usefulness of your vocational agriculture program as follows: (Circle the response which most nearly describes your situation).  
a) very useful in aiding efficiency in the performances of your job.  
b) useful in aiding efficiency in the performances of your job.  
c) not useful in aiding efficiency in the performances of your job.
8. Indicate the usefulness of your vocational agriculture program as follows: (Circle the response which most nearly describes your situation)  
a) very useful in your present studies  
b) useful in your present studies  
c) not useful in your present studies
9. Indicate the usefulness of each of the following courses: (Rank in order of usefulness, i.e. 1, 2, 3, 4 etc. with 1 = the most useful, and 8 = the least useful)  
(a) Agricultural Extension  
(b) Livestock Production  
(c) Crops Husbandry  
(d) Crops Protection  
(e) Farm Management  
(f) Basic Sciences  
(g) Agricultural Mechanics  
(h) Agricultural Economics

10. In the following list of courses indicate the value of each subject to you in performing your job functions by marking an (X) in the appropriate spaces.

Item	Course Subjects	Essential	Very Useful	Useful	Somewhat Useful	Of no use	Remarks
A.	<u>AGRICULTURAL EXTENSION</u>						
1.	Philosophy and principles						
2.	Leadership training						
3.	Young Farmers Club						
4.	Village Extension Councils						
5.	Communications						
6.	Field Tours and Visits						
7.	Agric. Shows						
8.	Rural Sociology						
9.	Occupational Experience						
10.	Package and Method Demonstrations						
B.	<u>LIVESTOCK PRODUCTION</u>						
1.	Cattle						
2.	Swine						
3.	Sheep and Goats						
4.	Rabbits						
5.	Poultry						
6.	Animal health						
7.	Feeds and Feeding						
8.	Marketing						
C.	<u>CROP PRODUCTION</u>						
1.	Principles						
2.	All arable crops husbandry						
3.	All tree crops husbandry						
4.	Forage crops husbandry						
5.	Vegetable gardening						
6.	Floriculture						
7.	Fertilizers						
8.	Soil Conservation						
9.	Plant Science						
D.	<u>CROP PROTECTION</u>						
1.	Entomology						
2.	Plant Pathology						
3.	Plant Ecology						
4.	Field Experimentation						
5.	Weed and Crop Indent						

Item	Course Subjects	Essential	Very Useful	Useful	Somewhat Useful	Of no use	Remarks
E.	<u>AGRIC MECHANICS</u>						
1.	Arc Welding						
2.	Oxy-Acetylene Welding						
3.	Use of Hand tools						
4.	Use of Power Tools						
5.	Tool Conditioning						
6.	Carpentry						
7.	Concrete and Masonry						
8.	Small Gas Engines						
9.	Project Construction						
10.	Electricity						
11.	Surveying						
F.	<u>FARM MANAGEMENT</u>						
1.	Work Organizations						
2.	Stores and Accounts						
3.	Office Routine						
4.	Record Keeping						
5.	Farmstead Planning						
G.	<u>BASIC SCIENCES</u>						
1.	Biology						
2.	Chemistry						
3.	Physics						
4.	Soils						
5.	Crop Botany						
6.	Meteorology						

COMMENTS:



APPENDIX C: TABLE XX

COMPARISON OF RESPONSES BASED ON YEARS OF JOBS EXPERIENCE AND TYPES OF JOBS DONE ON THE IMPORTANCE OF THE SUBJECTS FOR TEACHING THE AGRICULTURE COURSES

TABLE XX (A) AGRICULTURAL EXTENSION COURSE

	Years of Experience				Types of Jobs Done						Rank Order	Composite Mean
	N=13	N=30	N=15	N=28	N=12	N=9	N=11	Field Experimentation Mean	Farm Management Mean	Com-posite Mean		
	1-5 yrs Mean	6-10 yrs Mean	11-15 yrs Mean	Agri-cul-ture Exten-sion Mean	Farm Mecha-ni-zation Mean	Farm Man-agement Mean	Field Experi-mentation Mean					
Agriculture Courses	4.50	4.03	4.42	4.19	4.35	4.33	4.11	4.24	4.30	4.25	3	4.24
Leadership Training	4.18	4.07	4.36	4.07	3.92	4.94	4.75	4.30	4.30	4.25	1	4.30
Communications	3.91	4.21	4.27	3.96	4.25	4.67	4.13	4.25	4.25	4.67	2	4.25
Principles & Philosophy	3.81	3.90	4.08	4.04	3.25	4.00	4.75	4.01	4.00	4.75	4	4.01
Package Demonstration	4.09	4.10	3.58	4.08	4.17	4.00	3.63	3.97	4.00	3.63	6	3.97
Village Extension Council	3.67	4.07	3.93	4.21	4.08	3.78	3.33	3.85	3.78	3.33	9	3.85
Rural Sociology	4.00	4.07	3.50	4.00	3.75	4.11	3.89	3.94	4.11	3.89	7	3.94
Agricultural Shows	4.09	3.80	3.50	3.69	3.83	4.27	3.88	3.91	4.27	3.88	8	3.91
Young Farmers Clubs	3.83	3.83	3.67	4.11	3.58	4.00	3.20	3.72	4.00	3.20	10	3.72
Field Tours & Visits	3.60	2.83	4.33	3.85	3.75	3.67	3.71	3.99	3.67	3.71	5	3.99
Occupational Experience	3.99	3.89	3.96	4.02	3.89	4.22	3.94	4.02	4.22	3.94	-	4.02
Composite Means												

TABLE XX (B): LIVESTOCK PRODUCTION

Agriculture Courses	Years of Experience				Types of Jobs Done				Rank Order	Composite Mean	Rank Order
	N=13 1-5 yrs Mean	N=30 6-10 yrs Mean	N=15 11-15 yrs Mean	Composite Mean	N=28 Agric Extension Mean	N=12 Farm Mechanization Mean	N=9 Farm Management Mean	N=11 Field Experimentation Mean			
Animal Health	3.75	4.47	4.00	4.07	3.74	3.17	4.22	3.30	3.61	3	
Cattle Husbandry	3.75	4.03	3.77	3.85	3.85	4.00	3.88	3.90	3.91	1	
Poultry Husbandry	3.67	3.57	4.07	3.77	3.67	3.33	4.33	3.80	3.78	2	
Feeds and Feeding	3.67	3.50	3.57	3.58	3.81	3.00	4.00	2.40	3.30	8	
Sheep and Goats	3.58	3.67	3.36	3.54	3.37	3.58	3.56	3.70	3.55	4	
Marketing	3.17	3.53	3.42	3.37	3.48	3.08	4.22	3.00	3.45	5	
Swine	3.08	3.67	2.58	3.11	3.15	3.83	3.13	3.33	3.36	6	
Rabbits	2.92	2.37	3.15	2.81	2.85	3.33	3.75	3.30	3.31	7	
Composite Means	3.45	3.60	3.49	3.51	3.49	3.92	3.89	3.47	3.53	-	

TABLE XX (C): CROP PRODUCTION

Agriculture Courses	Years of Experience				Types of Jobs Done						Rank Order	Com- posite Mean	Rank Order
	N=13 1-5 yrs Mean	N=30 6-10 yrs Mean	N=15 11-15 yrs Mean	Com- posite Mean	N=28 Agriculture Extension Mean	N=12 Farm Mechani- zation Mean	N=9 Farm Manage- ment Mean	N=11 Field Experi- ment Mean	Com- posite Mean				
	4.38	4.03	4.38	4.27	4.56	3.42	4.22	4.10	4.07				
Fertilizers	4.31	3.93	4.23	4.16	4.11	3.83	4.11	4.40	4.11	4.07	2	4.11	1
Principles	4.31	4.03	3.85	4.06	4.07	3.75	3.89	4.50	4.05	4.05	3	3.81	5
Soil Conservation	4.08	4.03	4.08	4.06	4.19	2.83	4.11	4.10	3.81	3.81	5	3.99	4
Plant Science	3.92	4.00	4.08	4.00	4.15	3.50	4.22	4.10	3.99	3.99	4	3.76	6
Arable Crops	3.85	3.45	4.43	3.91	3.93	3.91	4.11	3.10	3.76	3.76	6	3.67	7
Vegetable Gardening	3.85	3.57	3.36	3.59	3.71	3.58	3.89	3.50	3.67	3.67	7	2.71	9
Tree Crops	3.00	3.43	3.23	3.22	3.37	1.25	3.11	3.10	2.71	2.71	9	2.85	8
Forage Crops	2.08	3.57	2.69	2.78	3.12	3.18	2.22	2.90	2.85	2.85	8	3.67	-
Floriculture	3.76	3.78	3.81	3.67	3.91	3.36	3.76	3.76	3.67	3.67	-	3.67	-
Composite Means													

TABLE XX (D): CROP PROTECTION

Agriculture Courses	Years of Experience				Types of Jobs Done				Rank Order	Composite Mean	Rank Order
	N=13 1-5 yrs Mean	N=30 6-10 yrs Mean	N=15 11-15 yrs Mean	Com- posite Mean	N=12 Farm Mechani- zation Mean	N=9 Farm Manage- ment Mean	N=11 Field Experi- ment Mean	Com- posite Mean			
	3.92	4.17	3.69	3.93	4.45	3.89	3.67	3.98			
Entomology				1	3.93	4.45	3.89	3.67	3.98	1	
Plant Pathology	3.50	4.17	3.46	2	3.78	3.91	3.11	3.48	3.64	3	
Field Experimentation	4.08	3.93	3.08	3	3.67	3.58	3.56	4.33	3.78	2	
Weeds & Crop Indent	3.36	3.69	3.31	4	3.48	3.50	3.67	3.56	3.55	4	
Plant Ecology	3.17	3.60	3.17	5	3.37	3.36	3.38	3.33	3.36	5	
Composite Means	3.61	3.92	3.34	-	3.65	3.76	3.52	3.73	3.66	-	



TABLE XX (E): AGRICULTURAL MECHANICS

Agriculture Courses	Years of Experience				Types of Jobs Done				Rank Order
	N=13	N=30	N=15	Com- posite	N=12	N=9	N=11	Com- posite	
	1-5 yrs Mean	6-10 yrs Mean	11-15 yrs Mean	Mean	Farm Mechani- zation Mean	Farm Manage- ment Mean	Field Experi- ment Mean	Mean	
Surveying	3.91	3.93	3.97	3.92	3.83	4.38	3.75	3.98	1
Use of Hand Tools	4.00	3.44	3.50	3.65	3.75	3.29	3.33	3.50	2
Use of Power Tools	3.83	3.32	3.36	3.51	3.67	3.43	1.11	2.92	11
Project Construction Tools	3.73	2.91	3.42	3.56	3.00	3.71	3.25	3.28	3
Conditioning Small Gas Engines	3.55	3.18	3.09	3.27	3.08	3.29	3.14	3.20	6
Electricity	3.82	3.04	2.75	3.20	3.67	3.57	2.75	3.22	5
Carpentry	3.50	3.04	2.92	3.15	3.50	3.57	2.89	3.23	4
Concrete & Masonry	3.17	2.68	3.33	3.06	2.58	2.86	3.67	3.00	8
Oxy-Acetylene Welding	3.67	2.68	2.83	3.06	3.33	3.00	2.89	3.00	9
Arc Welding	2.92	3.25	2.55	2.90	3.67	2.86	2.33	2.90	10
Composite Means	2.92	3.39	2.27	2.86	3.83	2.57	2.56	3.00	7
	3.55	3.17	3.09	3.27	3.19	3.32	2.88	3.21	-

TABLE XX (F): FARM MANAGEMENT

	Years of Experience				Types of Jobs Done						Rank Order		
	N=13		N=15		N=26		N=12		N=9			N=11	
	1-5 yrs Mean	6-10 yrs Mean	11-15 yrs Mean	Com- posite Mean	Agric Exten- sion Mean	Farm Mechani- zation Mean	Farm Manage- ment Mean	Field Experi- mentation Mean	Com- posite Mean	Rank Order			
Agriculture Courses	4.36	4.27	4.54	4.39	4.30	4.33	4.56	4.50	4.42	1			
Work Organizations	3.91	3.77	4.31	3.99	3.96	3.67	4.56	3.75	3.98	2			
Stores & Accounts	4.09	3.57	4.23	3.96	3.78	3.67	4.22	4.13	3.95	3			
Record Keeping	3.40	3.70	4.23	3.78	3.67	3.67	4.11	3.86	3.83	4			
Office Routine	3.64	3.17	3.58	3.46	3.50	3.17	3.13	3.83	3.42	5			
Farmstead Planning	3.88	3.70	4.16	3.92	3.84	3.70	4.12	4.02	3.92	-			
Composite Means													

TABLE XX (G): BASIC SCIENCES

Agriculture Courses	Years of Experience			Types of Jobs Done						Rank Order				
	N=13 1-5 yrs Mean	N=30 6-10 yrs Mean	N=15 11-15 yrs Mean	N=28 Agric Exten- sion Mean		N=12 Fram Mechani- zation Mean		N=9 Farm Manage- ment Mean			N=11 Field Experimen- tation Mean		Com- posite Mean	Rank Order
				Com- posite Mean	Rank Order	Mean	Rank Order	Mean	Rank Order		Mean	Rank Order		
Biology	4.17	3.96	4.31	4.15	1	4.04	4.00	4.13	4.28	4.18	2			
Soils	4.00	3.82	4.23	4.02	2	3.63	4.45	4.63	4.00	4.10	1			
Chemistry	4.18	3.93	3.85	3.99	3	3.93	3.91	3.63	4.00	3.86	3			
Crop Botany	3.50	3.36	4.33	3.73	4	3.46	3.09	4.50	4.00	3.76	4			
Physics	3.83	3.50	3.62	3.65	5	3.52	3.73	3.75	3.22	3.55	5			
Meteorology	3.42	3.11	3.38	3.30	6	3.19	3.18	3.63	3.33	3.33	6			
Composite Means	3.21	3.61	3.95	3.81	-	3.63	3.73	4.05	3.80	3.80	-			

\*Weighted means calculated in a five point Likert Scale. One was "of no use," two "somewhat useful," three "useful," four "very useful," five "essential."

Note: For the purpose of interpretation ratings were classified as follows: - 4.00 to 4.99 - "essential," 3.00 to 3.99 - "very important," 2.00 to 2.99 - "of little importance," 1.00 to 1.99 - "of no use."

## APPENDIX D

## Selected Comments of Respondents

The following are direct quotations of selected comments made by respondents on the questionnaire.

1. "Agricultural Information does not get its fair share on the curriculum of the schools of agriculture! More emphasis should be placed on Communication methods such as gathering and exchange of ideas."

2. "The Ministries of Agriculture in Nigeria had in the past recruited Secondary School drop-outs for training at the Schools of Agriculture. In my opinion, more incentives are needed for students of agriculture so as to make the field more attractive for the best secondary school graduates."

3. "I would like to suggest that while I would like to support students in Agricultural Assistant Course enrolling in General Agriculture Curriculum, students on the Diploma Course should be allowed to specialize in those subjects that would best help them do their jobs upon graduation."

4. "I have noted that two years after secondary school education are too short for completion of the curriculum on the vocation agriculture programs at the schools of agriculture. This should be increased to three years but the entry level of salary into the civil service should be likewise adjusted from 6 to 7 for agricultural assistants while Diploma holders should be placed on salary level 8."

5. "I have taught in Farm Institutes for four years and in farm Training Center for three years and while on these jobs, I found most of the subjects taught at the school of agriculture helpful. However I should like to suggest that students of the school of agriculture who might be called upon to teach after graduation, should be prepared for it

at the school. It is therefore important for subjects like Teaching Methods to be taught at the school of agriculture."

6. "Since Basic Sciences are very useful to College bound students, they should be taught at a level up to the first two years of degree courses."

7. One graduate student doing Ph.D. in Agronomy had this to say: "At B.S. degree level my observation is that universities in Nigeria adequately prepare one for the challenges of graduate work in United States, even though most Nigerian Universities had programs directed toward General Agriculture."

8. A Ph.D. student in Animal Science who was once a temporary instructor at one of the Schools of Agriculture made the following useful comments:

It would appeal to me that if the schools of agriculture are to meet the objectives for which they have been established, i.e. meeting the manpower requirements in the field of agriculture at both the junior and the intermediate levels, the following suggestions at this point wouldn't be worthless:

1. teaching staff should comprise of personnel with considerable field experience and who should possess appropriate teaching certificates in agriculture as well as in basic sciences to complement other teaching staff with baccalaureate degrees. The present emphasis on recruiting teaching staff with B.S. degree has not helped to upgrade the quality of students graduating from the schools.
2. the conditions of service for school of agriculture graduates should be harmonized with those of graduates from the colleges of Technology - this should help agricultural workers to put forth their best on their jobs rather than craving to read for degrees which do not necessarily make them more useful to the Nation.

9. "Constructive and objective evaluation of agricultural field workers should be undertaken periodically and data collected from the exercise should be the bases or criteria for staff promotion. The present system of confidential report lacks content validity."

10. "Trainees at the schools of agriculture should be more exposed to supervised occupational experience programs. The Federal Government of Nigeria should set up guidelines for these programs and supply funds for their execution."

11. "Courses at the schools of agriculture should be streamlined with those of the American Junior Colleges so that students of the schools of agriculture transferring to an American University could have courses taken in Nigeria validated. It is disheartening for one to have attended the school of agriculture in Nigeria for 3 years but only to be told in an American University that his courses are not transferrable because they appear not to be better than those of secondary school graduates."

12. "I advocate a unified curriculum for all schools of agriculture in Nigeria. It is my hope that such an arrangement would enable agricultural workers to acquire diversified knowledge that is applicable to solving any agricultural problems in any part of Nigeria. Also this approach will foster the much needed unity among the various states' Ministries of Agriculture and enhance for more prestige to be accorded the profession."

AN EVALUATION OF THE CURRICULUM  
OF THE SCHOOLS OF AGRICULTURE IN NIGERIA

by

EZEKIEL BABANIYI OGUNGBEMI

B.S., Fort Hays State University, 1977

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AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

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## ABSTRACT

The primary purpose of this study was to determine the importance of the courses being offered at the Schools of Agriculture in Nigeria for the performance of the job functions of the graduates. The respondents for the study were limited to the 60 graduates of the schools who were pursuing degree courses in the fields of Agriculture at both Kansas State and Fort Hays State Universities at the time of this study. The seven agriculture courses for the Schools of Agriculture included in the study were: Agricultural Extension, Livestock Production, Crop Production, Crop Protection, Agricultural Mechanics, Farm Management and Basic Sciences.

The graduates were grouped for two major variables, years of experience and types of jobs. Job experience was classified as 1-5 years, 6-10 years, and 11-15 years. The other groups were those graduates who had worked in agricultural extension, farm mechanization, farm management and field experimentation before coming to the United States for further studies.

This study involved the determination of the level of importance of the 54 subjects designated for teaching the seven agriculture courses. The responses of the graduates were scored by a Likert type scale consisting of 5 = essential, 4 = very useful, 3 = useful, 2 = somewhat useful, 1 = of no use.

A research instrument was developed to allow the respondents to rate the level of importance of the 54 subjects for teaching the seven



agriculture courses. The subjects were grouped by courses according to the way they were taught in the schools of agriculture. Four hypotheses were developed as follows:

1. There are no significant differences in the opinions of graduates who had worked for 1-5 years, 6-10 years and 11-15 years as to the importance of the agriculture courses.
2. There are no significant differences in the opinions of graduates who had worked in agricultural extension, farm mechanization, farm management and field experimentation as to the importance of the agriculture courses.
3. There are no significant differences in the opinions of graduates who had worked for 1-5 years, 6-10 years and 11-15 years as to the importance of each subject for teaching the agriculture courses.
4. There are no significant differences in the opinions of the graduates who had worked in agriculture extension, farm mechanization, farm management and field experimentation as to the importance of each subject for teaching the agriculture courses.

The Analysis of Variance statistical procedure was used to test hypothesis one and two. The F Distribution at the 0.05 level was used to determine significant differences between the responses of the subgroups. Hypothesis one was retained for six of the seven courses at the 0.05 level of significance and rejected in one. Hypothesis two was retained for all the seven courses. The findings indicated that there was a large degree of agreement as to the levels of importance of the courses by the subgroups.

The Chi Square test for Independence was used to test hypotheses

number three and four. The data indicated that there were no significant differences of opinions for the subgroups as to the importance of the 54 subjects for teaching the seven courses. Also the findings indicated that there was a large degree of agreement as to the levels of importance of the subjects. However there were 48 of the 54 subjects identified in the questionnaire which received an importance rating of 3.00 or higher. Agricultural courses were ranked in order of importance as follows: Agricultural Extension (3.92); Crop Production (3.73); Farm Management (3.63); Crop Protection (3.50); Basic Sciences (3.43); Livestock Production (3.42); and Agricultural Mechanics (3.00). The low importance rating for Agricultural Mechanics was due to the responses of the graduates who had had 11-15 years of job experience on other jobs such as Field Experimentation in which they had little or nothing to do with the Ministry of Agriculture Tractor Hiring Services. The significant differences of opinions for Crop Protection were also due to responses of graduates who had had 11-15 years of job experience.

Recommendations of the study were as follows: that the findings should be used to base decisions regarding the development of curriculum for vocational agriculture programs in the Schools of Agriculture in Nigeria; that further studies be done to determine the importance of the Crop Protection course for performing job functions of graduates since the differences of opinions were statistically significant; and that evaluation of the schools' curricula should be done periodically by an independent body of agricultural education experts; and that four types of jobs which specialized training could be offered should be Agricultural Extension (this should include home economics, agricultural education, pest control, irrigation), Farm Mechanization, Farm Management and Field Experimentation.