EVALUATION

LIBERIA

RURAL DEVELOPMENT TRAINING AT

CUTTINGTON UNIVERSITY COLLEGE

RURAL DEVELOPMENT INSTITUTE

669-0153

BY

MINISTRY OF AGRICULTURE

MINISTRY OF PLANNING AND ECONOMIC AFFAIRS

US AGENCY FOR INTERNATIONAL DEVELOPMENT

CUTTINGTON UNIVERSITY COLLEGE

MARCH 1981

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RURAL DEVELOPMENT INSTITUTE - 669-0153

Table of Contents

		Page
Summary of Recommendations		
I.	Introduction and Background	1
II.	Project Budget and Expenditures	2
III.	Construction	4
IV.	Faculty and Students	5
V.	Curriculum at RDI	5
VI.	In-Service Training and RDI	6
VII.	Special Concerns	6

Annex A OPG Expenditures

Annex B Faculty and Staff

Annex C RDI Curriculum

RDI EVALUATION

RECOMMENDATIONS

1. AID should provide emergency funding to carry Rural Development Institute (RDI) through the 1981 school year and then phase out AID assistance over the next two year. This plan will require an ammendment to the project extending it for 17 months and adding approximately $2.0 million dollars.

2. The Protestant Episcopal Church (PEC) will take over from AID a greater share of RDI recurrent costs in 1982 and 1983 and then be fully responsible for RDI operations in 1984. This will require that RDI receive greater GOL assistance, increased tuition and fees, expanded PEC support and other donor assistance.

3. All future agreements between AID and PEC should identify the amount and type of support pledged. In-kind and cash contributions will be clearly delineated.

4. Monitoring of project implementation and financial expenditures of the AID grant funds should be the responsibility of USAID/Liberia not AID/Washington. All financial records should be transferred to AID/Liberia Controller. Also all financial records and progress reports should be forwarded to the appropriate Liberian Ministries and PEC authorities.

5. No major buildings or renovation should be built by RDI. The present facilities are adequate for the current agricultural training program of the Institute.

6. All attempts should be made to recruit and train permanent Liberian faculty members.

7. In 1983 a major evaluation should be undertaken of the Institute's curriculum and the level and extent of preparation of RDI graduates for field work in Liberia.

8. The Rural Development Institute and the Ministry of Agriculture should develop a special selection procedure for assigning qualified Ministry of Agriculture employees to the RDI and for placement of the employees after they complete their two years of in-service training.

9. In order to expand students' practical training and understanding of social constraints to technology adoption, some observational and practical field work in villages where agricultural development work is being carried out such as BCADP, NCADP and LCADP should be included in the overall training design. This can be accomplished during the summer vacations when students can be placed in the agricultural development projects or other relevant field locations.

10. The use of RDI facilities for in-service training for government and special project employees should be expanded.

11. RDI should reevaluate the criteria and formula used to calculate the expense of services provided by CUC with a view toward shifting the expense to a source able to pay on a recurrent basis.

12. An outside audit of the farm operations be undertaken before the end of 1981.

I. INTRODUCTION AND BACKGROUND

In August of 1977 an Operation Program Grant (OPG) was awarded by AID to the Protestant Episcopal Church (PEC) to establish a mid-level agricultural training institute in Liberia. This report evaluates the progress of the PEC toward meeting the grant purposes and objectives. The AID grant provided a five-year total of $2.9 million while the PEC and the Government of Liberia (GOL) were to contribute $630,000 and $337,000 respectively. The PEC provided substantial in-kind contribution of land and some facilities adjacent to Cuttington University College (CUC) in Bong County, Liberia. The Rural Development Institute (RDI) is a semi autonomous institute attached to CUC for the purpose of developing a Liberian training capacity for sub-professional agricultural workers to help subsistence farmers improve their production and cash incomes. Facilities were built, staff hired and curriculum developed in order to establish a two-year agricultural technology program for high school graduates. The school can accommodate 200 students and will graduate 75-90 students per year once fully operational. (RDI graduated 61 students in its first class in December of 1980.) The curriculum is designed to impart skills to improve traditional agriculture and introduce new crops and technologies in ways which can be acceptable to the farmers. The training program emphasizes the skills required for the production of tree crops, rice, cassava, vegetables and livestock. Farm management, cooperative development, agricultural economics and rural sociology are also included in course work.

A substantial part of the students' time is spent on the CUC farm doing practical work. At project end (July 31, 1982) RDI should be a self-sustaining institution offering a mid-level two-year agricultural training program. Its graduates will fill what has been identified as a crucial manpower gap within the agricultural sector, that is, the trained mid-level agriculturalists. Graduates are being placed in the Ministry of Agriculture, commercial farming and specialized agricultural development projects.

This grant progress review was undertaken as the major evaluation planned in the OPG proposal after the third year of implementation. It is timely because it offers an opportunity to review the following important project activities.

1. Construction of RDI facilities and the procurement and operation of equipment.

2. Recruitment of students and faculty.

3. Curriculum development.

4. School administration.

5. Student placement in relevant agricultural positions.

Several special concerns make the need for the OPG review especially important at this time. In December of 1980, the PEC informed AID/Washington that nearly the entire $2.9 million grant had been expended fully 18 months before the planned termination of the project. An additional purpose of this evaluation is to look at the cause of the funding shortfall and recommend a course of action to resolve the problem.

Further, the Mission plans to expand greatly its rural training assistance in line with the Liberian Government's desire to decentralize to promote development in the rural areas. USAID/Liberia would like to have the RDI evaluated as a potential site for a comprehensive rural training program. The evaluation team considered this possibility and made recommendations.

The evaluation was conducted by a joint AID, GOL and PEC team composed of the following:

- Coker George, Ministry of Planning
- Aaron Paye, Ministry of Planning
- Carlos Smith, Ministry of Agriculture
- James Squires, Ministry of Agriculture
- Peter Weisel, Ministry of Planning and USAID/Liberia
- B.J. Jadwin, Agricultural Officer, USAID/Liberia
- Jenkins Cooper, Program Operations Assistant, USAID/Liberia
- Jim Dempsey, Project Planner, USAID/Liberia
- Bismark Kuyon, Trustee, Cuttington University College

The team reviewed the OPG Proposal, the Grant Agreement, memorandums of understanding and all relevant reports and files. The team inspected the classrooms, dormitories, workshops and the important section of the CUC training farm. It interviewed the staff and faculty members of RDI as well as important decision makers concerning RDI in the Episcopal Church in Liberia, CUC and the Government.

II. PROJECT BUDGET AND EXPENDITURES

One of the primary concerns expressed during the OPG review and approval process was the lack of identification of continuing source for recurrent cost financing for the Institute. The Government of Liberia and the Protestant Episcopal Church, according to the OPG Proposal were to contribute $338,200 and $632,050 respectively, during the life of the project. In the Grant Agreement, however, no mention is made of these contributions. The evaluation team has found that PEC believes its

contribution was to be in-kind, primarily in land, while the OPG Proposal shows the Church's contribution as cash for recurrent costs. The PEC's cash contribution to date has been minimal. Further, the PVO has not secured GOL funding as indicated in its OPG Proposal. However, a special Government grant of $50,000 will be provided to RDI from revenues generated by the sale of PL 480 rice. The only substantial other donor support that is being provided to the school at this time is through the Near East Foundation faculty support. Negotiations are underway with other donors, but no firm commitments have been made.

A summary of expenditures through December 31, 1981 (see Annex A) shows that $2.81 million of the AID $2.9 million grant has been disbursed and spent. With the near complete expenditure of AID grant funds and the lack of contributions by the GOL and PEC at the proposed levels, RDI is in a situation where it will have to close until a new source of funds is found. The momentum of institution building and the process of mid-level training for agriculture will be stopped.

The evaluation team believes that the closing of RDI at this time would be a mistake. PEC has done an outstanding job of developing an effective two-year agricultural training program. (See Section III through VI.) If RDI closed, the $2.9 million investment by AID could be in part or totally lost. Many of the faculty and students would never return to the Institute and substantial start up costs would be incurred if and when the school reopened. However, the most serious losses do not relate to the operation of the RDI, but to the loss of trained manpower available to work in the agricultural sector. Seventy-five trained individuals per year would not be entering agriculture in Liberia.

On the other hand to continue AID support without any commitment or plan for recurrent costs financing from the GOL or some donor would simply mean a delay in the final closing of RDI. A self sustaining RDI cannot depend on AID funds. However, the team recommends that AID provide some immediate financing in conjunction with the GOL and the PEC to operate the school through the next academic year. In the meantime a plan should be developed to make RDI a self-sustaining institution. Some AID assistance may be required in 1982 and 1983 but generally GOL and student support should be sought to carry the bulk of the recurrent costs. Students should pay some tuition.

The lack of money to operate RDI was not identified as a problem until December of 1980 when nearly all funds were exhausted. That this problem was not identified earlier by PEC or AID reflects poor project management and monitoring. No excuse exists for either party's failure to identify this problem a year earlier. Confusion over the monitoring role of AID/W versus USAID/Liberia for OPG's may have led to the lack of proper financial monitoring by the Agency. To limit the possibility of

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similar AID monitoring failures, the evaluation team recommends that monitoring of the project should be the responsibility of USAID/Liberia not AID/Washington. Monitoring should take place in the locale where the project is implemented. All financial records should be transferred to AID/Liberia. Further, the team recommends that RDI forward all financial and progress reports to the appropriate Government ministries and PEC authorities.

Although the expenditure of AID funds has been at an accelerated pace because of the lack of GOL and PEC contributions, the expenses have been generally in line with the original grant budget. The variations from the original proposal have been justified. Construction costs are higher because of inflation and the decision to add facilities to the campus through the renovation of some existing buildings. The importance and need for these facilities was not envisaged in the original plan. Likewise, the cost of student feeding, utilities, and equipment and supplies were underestimated. Inflation has been the key cause of these overruns.

III CONSTRUCTION

The Operational Program Grant from AID provided $1,006,000 for construction of six faculty houses, dormitories for 150 students, a classroom building (6 rooms), and storage and warehouse facilities for the farm. In the detailed construction design of the buildings listed above, some adjustments were made with the concurrence of AID. Six smaller dormitories were built instead of two larger and the classroom building was expanded slightly. These changes plus higher than expected construction cost led to actual construction cost of $1.1 million. Then an additional $320,000 (total construction expenditure are $1.42 million) was spent to expand the farm facilities and move the workshop to a renovated farm building. Some 30 additional simple block buildings have been built and several important renovations in an old farm building have been made. Thus total construction expenditures are $1.42 million, over $400,000 more than originally budgeted. The additions have greatly enhanced the facilities available for training RDI students. Although funds for this construction were not included in the OPG, the evaluation team believes that these farm facilities are a valuable addition to the school. The additional expenditures are justified. Further, the team believes that the present facilities are adequate. With the completion of laboratory and shop renovations and the construction of a cattle unit on the farm, no further construction should be required.

The construction of the additional farm buildings used local materials made on the school farm under contract. Except for construction supervision, all local labor including craftsmen were hired to construct the farm and school buildings. Finally, much of the school furniture was built in the Institute's own woodworking shop. The use of local materials and labor has not only saved the Institute's money, but also has improved the skill

of local craftmen and generated employment in the Cuttington area. The RDI administration is to be commended for these actions.

IV. FACULTY AND STUDENTS

The first classes at RDI began in March of 1979. Eighty-three students representing all counties in Liberia were admitted to the first class and a faculty of eight was hired to teach. Sixty-one of these students graduated in December of 1980. Nearly all of them have been placed in mid-level agricultural positions. The demand for trained mid-level agriculturalists appears to be as great as originally estimated. Further the number of students applying for one of the 80-100 places in RDI has been approximately 400 per year. The school has used students' high school grades and a competitive exam to select candidates. For the 1981 school year which will have for the first time the full complement of students, a faculty of 10 full time and two part-time instructors will be teaching. A list of the faculty members and their positions and degrees appear in Annex B. The RDI administration has filled the important faculty slots in a timely manner and although no classes were visited by the evaluation team, faculty members teaching and academic qualifications are strong. The evaluation team, however, recommends that in recruiting faculty for RDI, all attempts should be made to hire qualified Liberian instructors before recuiting faculty from abroad. Training of Liberians in order to fill staff positions should continue. Additionally, the team found that the Ministry of Agriculture and RDI need a mutually acceptable selection procedure for Ministry personnel applying to RDI. This procedure should be competitive and still give the Ministry the needed places in RDI to ensure a build-up of trained mid-level agriculturalists.

V. CURRICULUM AT RDI

The training at the Institute is a combination of academic study and practical hands-on work on the CUC farm. All students, during the school year, work at one farm activity for a three-week period before rotating to a different area/activity. The aim of the work program is to give students the practical experience needed to communicate applicable research results and technology to farmers and to assist them in the adaptation of farming techniques. Although the practical work on the farm is good, the team recommends that some field work be done in the actual small farmer village setting. Student awareness and understanding of the social constraints to new technology adoption will be expanded by this type of training. Finally to expand student understanding of the complex of constraints to adoption of new technology and to help in graduate placement, RDI should assist students in finding relevant summer jobs at the special agricultural projects and in the extension service. The Institute's summer work program should be expanded.

The academic program requires that every student completes a basic program of 72 hours in order to graduate. The first three semesters of the program are filled with required course work in a broad range of agricultural technologies. In the last semester the students specialize in plant or animal science. In addition to the agricultural courses, four courses in communication and one each in mathematics and general science are required of all students. A number of the courses require laboratory work in addition to classroom study. An associate degree in agricultural science is awarded graduates. Annex C contains a complete list of the courses offered at RDI.

The evaluation team believes that the training program offered by RDI is strong. How relevant it is to the needs of Liberian agriculture will be seen as graduates enter the field for work. The team recommends that in 1983 a major evaluation be undertaken of the curriculum and level of preparation of RDI graduates.

VI. IN-SERVICE TRAINING AND RDI

The OPG Proposal planned for the use of RDI facilities and faculty for in-service training of Ministry of Agriculture and special agricultural project personnel. However, only one short course for in-service training has been conducted. It did not place a burden on RDI although some adjustment in the classroom use had to be made. Generally RDI is being underutilized for in-service training. The lack of coordination on training among the various agricultural projects, the Ministry and the agricultural training institutions has led to limited training opportunities for agriculturalists in Liberia. Few in-service courses have been offered, however, RDI capability is strong and it expressed a positive desire to host and contribute to such training. Thus it would strengthen RDI to coordinate its activities and offer its facilities to all organizations doing agricultural training.

VII. SPECIAL CONCERNS

Cost of CUC Services to RDI: The OPG Proposal did not include in its budget the cost of some basic services including food preparation, administrative services, maintenance, security and library operation. The body of the paper does not specify the "supportive requirements" to be provided by Cuttington University, but in a memo of understanding between CUC and RDI it was agreed that RDI from its own resource would pay CUC for basic service. In the 1980 academic year, RDI reimbursed CUC $169,000 for services and it is estimated that RDI will pay CUC $250,000 in 1981. The services received are necessary and represent a substantial cost overlooked in the OPG. Full payment for these items has come from the AID grant. The evaluation team recommends that RDI reevaluate the criteria and formula used to calculate the expense of these costs with a view toward cutting this expense and shifting it to a source able to pay on a recurrent basis.

Tuition and Fees: The Rural Development Institute cannot become a viable, self sustaining training school if student contributions remain so low. At present only a $32.00 fee is charged per year per student. The evaluation team recommends that tuition be charged in a manner and level similar to CUC and if feasible, a student loan program be established.

CUC Farm: RDI agreed to manage the 1,200 acre CUC farm to facilitate on-the-farm training of its students. Separate books are kept for the farm and a full time manager is employed to run it. Students are trained on the farm and it has been judged by the faculty to be a needed addition to the agricultural curriculum. The farm is running a loss, but it is small and does not pose a serious financial drain on RDI. The education and training benefits from the farm are greater than the costs. However, there is much potential for improvement in the farm operation and in the control of farm produce. The team recommends that an outside financial and physical audit of farm operations be undertaken before the end of 1981. The farm should be made profitable in the next few years. The evaluation team strongly supports RDI management of the farm for training purposes.

RDI and USAID Agricultural Assistance Program: In the overall AID agriculture assistance strategy, the training of mid-level agriculturalists is crucial. This level of trained individuals is important to the integrated rural development projects in Bong and Lofa and the proposed Agricultural Extension Project. If RDI were to close, recruitment of individuals for the project would be extremely difficult. RDI is one of the crucial projects to not only the USAID agricultural development strategy but also to development of the entire agricultural sector. AID support to the project should continue until the Institute becomes self sustaining.

The Role of Women in Agricultural Production and Training

Because of the increasingly important role of women in agricultural production, RDI should train its agriculturalist to consider the entire farm family in promoting innovations and seeking farm information. Many important production decisions are being made by women. The design of the extension courses at RDI will address this fact and make students aware of the role of women in Liberian agriculture. Further, RDI should make every effort to recruit female students who will have better access to women and special advantage in promoting new farming ideas to them. The Ministry plans to increase the number of women extension agents and RDI is an important source for these increases. The team recommends that in the major evaluation of RDI in 1983, the utilization and performance of women students and graduates be evaluated. Where are these graduates working and how effective are they? What special advantage or disadvantages are linked to being a woman trained as an agriculturalists?

ANNEX A

EXPENDITURES
OPERATIONAL PROGRAM GRANT
RURAL DEVELOPMENT INSTITUTE - LIBERIA

Category	Budget 8/30/77 thru 7/31/82	Expenditures Thru 12/31/80
Personnel	$919,600	$419,000
Travel and Transportation	202,500	103,000
Training	171,000	46,000
Evaluation	8,000	-
Construction	1,006,000	1,422,000
Vehicles	83,000	81,000
Equipment/Supplies	174,000	337,000
Other Direct Costs	305,900	377,000
Administration	30,000	24,000
Totals	$2,900,000	$2,809,000

ANNEX B

RURAL DEVELOPMENT INSTITUTE CUTTINGTON UNIVERSITY COLLEGE

Administration

The Rev. Canon Emmanuel W. Johnson; BS,M.A.,LL.D, President

Dr. Stephen M. Yekeson; B.S., M.S., PH.D., Dean of Academic Affairs

Dr. Henry Kwekwe; B.A.,M.A.,Ed.D., Dean of Administration

Mr. Henry Salifu; B.A.,M.A., Registrar

Rural Development Institute

Dr. Harold R. Capener; B.S.,M.S., Director

Mr. Alfred F. Tubman, B.S.,M.S., Deputy Director

Institute Faculty

Agricultural Economics

Melville Harris; B.S.,M.S., University of Lund

Agricultural Engineering

William Elliott

Animal Science

Wayman P. Justice; B.S.,M.S., Kansas State University, Post-Graduate, University of Tubingen, Pennsylvania State University

English

Karrol H. Capener; B.S., Utah State University

Extension Service

Leopold N.K. Bundoo; B.S. Cuttington University College

David A. Meyers; B.S., Bucknell Agricultural College, M.S., University of Wisconsin

Farm Management

Bibi Z. Roberts; B.S., Cuttington University College, Post Graduate, Virginia Polytechnic Institute

General Science

Deluin Walker; B.S., University of Liberia

Plant Science

Alfred Tubman; B.S., University of Missouri, M.S., University of Missouri

Albert Z. Wolokolie; B.S., Cuttington University College; B.S. Tuskeegee Institute

Soil Science

David A. Meyers; M.S., University of Wisconsin

Work Supervisors

Randolph Sambolah; B.S., Cuttington University College, Advanced Study Ohio State University

Staff

Samuel Bolay; B.S., Cuttington University College - Farm Accountant

Bruce Dahl; B.S., Oregon State University, Administrative Assistant/ Accountant

ANNEX C

RURAL DEVELOPMENT INSTITUTE
CUTTINGTON UNIVERSITY COLLEGE

CURRICULUM

FIRST YEAR

First Term:

General Science
Ag English
Introduction to Soil Science
Introduction to Animal Science
Ag Math
Extension Service - Introduction to Methods & Principles

Second Term:

Farm Management Principles and Methods
Ag English
Soil Problems and Plant Growth
Introduction to Crop Science - Vegetables
Introduction to Agricultural Production & Marketing
Introduction to Agricultural Engineering

SECOND YEAR

First Term

Ag English
Introduction to Crop Science - Tree Crops
Introduction to Crop Science - Cereals
Agricultural Finance & Cooperatives
Record Keeping & Applications
Elective

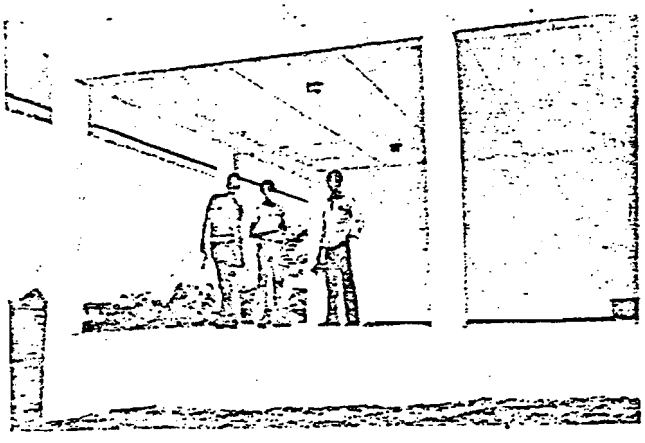
Second Term:

Ag English
Small Technology Ag Machines & Power
Extension Service Problems & Applications
Poultry Science
Elective
Elective

ELECTIVES

Soil Utilization
Practical Soils and Management
Water Management
Ag Construction and Surveying
Legumes and Grasses
Swine
Ruminants
Bookkeeping

Students on dorm porch



Proposed Curriculum-Rural Development Institute

First Year - First Term

I. General Science 101. 3 h
Required. No prerequisite.

General Science. An Introduction to Physical Scie
study of Physics, Geology, Meterology &
Astronomy.

II. Agricultural English 101. 3 ho
Required. No prerequisite.

Agricultural English. Focuses upon basic writing
skills with emphasis on sentence structure
and paragraph organization. Attention is
given to reading and study skills and voca
bulary development.

III. Soil Science 101.
Lab. 1 hour Required. No prerequisite.

Introduction to Soil Science. An introduction to so
properties and the availability of plant
nutrients and minerals in soils. A study of
formation, classification, composition, pro
perties, management, fertility and conser-
vation of soils in relation to plant growth.

IV. Animal Science 101. 3 ho
Lab. 1 hour. Required. No prerequisite.

Introduction to Animal Science. A study of basic
principles of Animal Science and the termi-
nology of the major classes of domestic
livestock.

V. Agricultural Math 101. 3 ho

Required. No prerequisite.

Agricultural Mathematics. Basic calculations and a
study of mathematical problems in agricul
tural production, management, marketing &
mechanization.

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VI. Extension Services 101. 3 hours
Required. No prerequisite.

Introduction to Methods and Principles of Extension Service.

First Year - Second Term

VII. Farm Management 102. 3 hours
Required. No prerequisite.

Farm Management Principles and Methods. An introduction to basic resources for decision making in farming with management techniques and regard to farm operations.

VIII. Agricultural English 102. 3 hours
Required. Prerequisite Agricultural English 101.

Agricultural English: Written and Oral Communication. A course designed to prepare students to use English clearly and concisely in written and oral interpretation of non-fiction. Emphasis will be on vocabulary development, reading and writing of essays and reports and oral reporting.

IX. Soil Science 102. 3 hours
Required. Prerequisite Soil Science 101.

Soil Problems and Plant Growth. A study of principles and practices underlying the maintenance of soil productivity including water, fertilizer, crop rotation and cultivation practices.

X Plant Science 102. 3 hours
Required. Prerequisite Soil Science 101

Introduction to Crop Science: Vegetable Production. Production, adaptation, utilization and marketing of major vegetable crops of Liberia of economic and nutritional importance.

XI. Agricultural Economics 102 3 hours
Required. No prerequisite.

Introduction to Agricultural Production & Marketing. The principles of finance as applied to agricultural production and marketing: capital and credit needs of farmers and problems of credit. An analysis of market functions, methods and institutions.

XII. Agricultural Engineering 102. 3 hours
Lab. 1 hour. Required. No prerequisite

Introduction to Agricultural Engineering. A study of engineering concepts and principles related to farming. Applications of engineering principles to farming problems: i.e. contours and cultivation systems; water conservation and irrigation systems; power and energy needs and supply. Study of tools of shop and engineering.

Second Year - First Term

XIII. Agricultural English 201 3 hours
Required. Prerequisite Ag. English 101, 102.

Agricultural English: Report Writing and Oral Reports.
A course focusing on interpreting research, collecting data, organization of the information and interpreting in both written and oral reports.

XIV. Plant Science 201. 3 hours
Required. Prerequisite Plant Science 102.

Introduction to Tree Crops. The production of rubber, oil palm, citrus, coffee, cocoa and pulp trees with attention to the morphology propagation, cultivation, harvesting and marketing of tree crops.

XV. Plant Science 202 3 hours
Required. Prerequisite Plant Science 102.

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Introduction to Cereal Crops. The processes of selecting seed varieties, planting, cultivating, harvesting, storage and marketing of cereals with emphasis on swamp rice.

XVI. Agricultural Economics 201 — 3 hours
Required. Prerequisite Ag Econ. 102.

Agricultural Finance and Cooperatives. A study of the organization, financing and management of various types of cooperatives. Buying, financing and marketing practices and methods.

XVII. Farm Management 201. — 3 hours
Required. Prerequisite Farm Management 101.

Record Keeping and Applications. The use of farm records to improve production, management and income of the farm.

XVIII. Elective.

Second Year - Second Term

XIX. Agricultural English 202. — 3 hours
Required. Prerequisite Ag. English 101, 102, 201.

Agricultural English: Report Writing and Media Skills. A course designed to enable the student to disseminate to farming population the information he acquires in agricultural study and work. The emphasis is on report writing, journalism and program production for the news media.

XX. Agricultural Engineering 202
Lab. 1 hour. Required. Prerequisite Ag. Engineering 102

Small Technology Ag Machines and Power. A study of machine design, use and maintenance for farm use in cultivation, power supply, irrigation, transport and pest control.

XXI. Agricultural Extension Service 202. — 3 hours
Required. Prerequisite Ag Extension Service 101.

Extension Service Problems and Applications. Classroom lectures and practices on nearby farms, practicing extension service methods.

XXII. Animal Science 202. — 3 hours
Required. Prerequisite Animal Science 101.

Poultry Science. Principles of poultry production; including breeding, feeding, housing and diseases of poultry. Some attention to turkeys, quineas and rabbits.

XXIII. Elective — 3 hours

XXIV. Elective — 3 hours

ELECTIVES

1. Soil Science 203. — 3 hours
Lab. 1 hour. Prerequisite Soil Science 101, 102.

Soil Utilization. Soil classification, survey and testing. A study of the chemical structure, fertilizer needs, effects of erosion, leaching, sunlight, herbicides and cultivation.

2. Soil Science 204. — 3 hours
Lab. 1 hour. Prerequisite Soil Science 101, 102, 201.

Practical Soils and Management. Field work surveys and planning for plant and tree production.

3. Agricultural Engineering 203. — 3 hours
Lab. 1 hour. Prerequisite Ag. Engineering 102.

Water Management. Planning and design of water control, drainage and irrigation systems with emphasis on swamp rice.

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4. Agricultural Engineering 204 — 3 hours
Lab. 1 hour. Prerequisite Ag. Engineering 102, and 201.

Agricultural Construction and Surveying. A study of construction materials, design of structures, construction methods and instruments. Attention to building, dams, terracing and bunding.

5. Plant Science 203. — 3 hours
Lab. 1 hour. Prerequisite Plant Science 102.

Legumes and Grasses. Adaptation, requirements, utilization and maintenance of grasses, legumes and grass-legume mixtures with regard to soil improvement and animal production.

6. Animal Science 203. — 3 hours
Lab. 1 hour. Prerequisite Animal Science 101.

Swine Production. Principles of breeding, feeding and management of swine for economic production and preparation for marketing. Some attention to fish and bees also.

7. Animal Science 204. — 3 hours
Lab 1 hour. Prerequisite Animal Science 101.

Ruminants. Basic principles of ruminant production and management with special emphasis on cattle, sheep and goats (meat and milk).

Agricultural Economics 203. — 3 hours
Prerequisite Ag. Economics 102.

Bookkeeping. Fundamentals of financial records for farm and cooperative operations.

APPLICATION TO PROGRAM

Application forms for possible selection to the Institute may be obtained by writing to:

Director of Admissions
Rural Development Institute
Cuttington University College
P. O. Box 277
Monrovia, Liberia

or by applying in person at the Cuttington office on Randall Street in Monrovia, or at the Rural Development Institute office on the Cuttington campus at Suakoko. An application fee of $5.00 is charged for these forms.

An examination will be conducted in January each year to be used in selecting candidates for admission.

All candidates must present evidence of graduation from high school, good health, good moral character, the ability and desire to work, a statement of experience in agriculture and a statement of the reasons for wanting to be enrolled in such an agricultural program. Primary importance is attached to this statement and, along with a personal interview with each candidate, will be a major factor in selecting or rejecting an applicant. While academic ability is important and the applicant must be capable of handling technical subjects, the Institute is interested in obtaining students who want to start careers in agriculture or want to improve their knowledge and technical ability (if they have been previously engaged in agricultural activity or study).

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