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REORGANIZING AGRICULTURAL ECONOMICS PROGRAMME AT THE BANGLADESH AGRICULTURAL UNIVERSITY

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ABSTRACT

The faculty of Agricultural Economics and Rural Sociology was established at the Bangladesh Agricultural University more than twenty years ago in 1963. The main objectives were teaching and Research. The achievement of these objectives is less than satisfactory, because quality of research and training is not very rich. The poor quality of training may be attributed to narrow curricula and outdated syllabuses but the ultimate problem is the defective institution which has resolved into a crisis of leadership. TA this paper, alternative institutional arrangements and curricula axe suggested to improve ft quality of research and training in this faculty.

I. INTRODUCTION

The faculty of Agricultural Economics and Rural Sociology at the Bangladesh Agricultural University (BAU) was established more than twenty years ago. The first and foremost objective of the faculty was to train personnel who might be hired by private and public agencies involved with agricultural research and extension. The second is to create research facilities for studying the economic problems of Bangladesh agriculture: This has two aspects. On the one hand, the faculty being the only academic centre for agricultural economics education in the country, it is expected that highly trained workers will devote a part of their time to research on the problems of agriculture. On the other hand, this is absolutely necessary to improve the quality of those involved in teaching. Finally, the faculty members will undertake extension work. Nowadays, the extent of the achievement of these objectives is being questioned. Socioeconomic research carried out at the faculty lacks sophistication in methodology, problem

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identification and policy recommendations. Additionally, curricula and syllabuses are considered to be narrow and outdated, which have terminated in poor training.

With a view to evaluating the agricultural economics programme and formulating some guidelines for its reorganization, a seminar was organized on May 3rd, 1984 at BAU. In all, eight papers were presented which have appeared in the Bangladesh Journal of Agricultural Economics, VII, 1 (June 1984). The purpose of this paper is to add more ideas with this stream of thoughts.

The paper has been organized as follows. In the next section, the agricultural economics programme at BAU is described. The discussion includes curricula and syllabuses for Bachelor and Masters degrees and the administration of the programme. Section III critically examines the programme with a view to pinpointing the major dificiencies. Some suggestions are made in Section IV for reorganizing the programme. Finally, conclusions are given in the last section.

II. A DESCRIPTION OF THE AGRICULTURAL ECONOMICS PROGRAMME AT THE BANGLADESH AGRICULTURAL UNIVERSITY

Administration of the Programme

The Bangladesh Agricultural University was established in 1961 at Mymensingh, seventy six miles north of Dhaka. It is a technical university that trains personnel in various fields of agriculture and facilitates research on problems related to agriculture. It has six faculties which encompass all spheres of agriculture : crop sciences, fisheries, animal science, veterinary medicine, agricultural engineering, and agricultural economics and rural sociology. Each faculty consists of a number of departments which are based upon major branches of the area represented by the faculty. The university confers only six Bachelors' degrees from six faculties, but at the graduate level, there are as many Masters' degrees as the number of departments and even more.

The faculty of Agricultural Economics and Rural Sociology has five departments : Rural Sociology, Agricultural Statistics, Agricultural Economics, Agricultural Finance, and Cooperation and Marketing. The latter three departments obviously belong to the discipline of agricultural economics. The faculty and the department are, respectively, administered by a Dean and a head, who are appointed for a two-year period by the Vice-Chancellor, the executive chief of the university. Under the current system, the appointments of the Dean and head are rotated among the senior members of the faculty and department, respectively.

The Head and Dean are vested with the most important responsibility for improving the academic programmes at the faculty. Each department offers a number of courses (Table 1). The Department of Agricultural Economics offers courses in production

nomics and farm management, both at undergraduate and graduate levels, and in velopment economics. In addition to these courses, it offers two courses in quantitative methods, two courses in social science and six courses in economics. The Department of Agricultural Finance offers five courses related to agricultural credit and policy and two courses in economics. Finally, the Department of Cooperation and Marketing fers courses related to cooperation and marketing.

The head is responsible for recommending changes and improvements in courses fered from his department. This is done in conjunction with a board of studies which nsists of all members of the department and one external member. The Dean is responsible for initiating broad changes in the programme such as curriculum.

Undergraduate and Graduate Curricula[a]

dergraduate Curriculum

The faculty of Agricultural Economics and Rural Sociology confers one Bachelor gree and eight Masters' degrees in agricultural economics. The Bachelor degree which called B. Sc. Ag. Econ. (Hons.) is a four-year programme. In the curriculum, there full and half courses depending upon marks allocated and which again may be theory practical courses. Practical courses are mainly complementary courses for theory offered when computing are important for explaining theoretical concepts.

A grade of 100-marks implies that the course is a full course. Both full and half urses are taught throughout the year in accordance with the annual system of examination smaller number of lecture hours are allocated to a half course. The Bachelors' degree riculum consists of thirty-eight courses containing 3,150 marks (see Table 2). There twenty-six full and four half courses on theory representing 2,800 marks. Additionally, there are eight practical courses worth 350 marks. Since practical courses are ant for teaching advanced topics in the course, they will be left out of the examination of the curriculum. Thus, B. Sc. Ag. Econ. degree may be considered as consisting twenty-eight yearly courses.

The distribution of courses among major academic areas in the Bachelors' degree riculum shows that there are three courses in quantitative methods, including two urses in statistics and one course in mathematical techniques for economists. hough there are six courses in technical science, four of them are half courses. In the lection of technical science courses, greater emphasis has been placed on crop production. There are five courses in social science from three disciplines, viz. Political Science,

a. Henceforth the discussion concerns mainly with the three departments in the faculty of Agricultural Economics and Rural Sociology : Agricultural Economics, Agricultural Finance, and Cooperation and Marketing.

TABLE 1. COURSES OFFERED BY MAJOR DEPARTMENTS IN THE FACULTY OF AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

Department of Agricultural Economics

Mathematics for Economists
Econometrics

Government and Public Administration
Political History of Bangladesh

Principles of Economics
Microeconomics
Macroeconomics
Economy of Bangladesh
Patterns of Economic Development
Principles of Agricultural Economics (for other faculties)

Production Economics
Farm Management
Economics of Agricultural, Development*
Production Economics*
Farm Management*

Department of Agricultural Finance

Money and Banking
Public Finance and International Trade

Agricultural Finance
Land Economics
Agricultural Policy
Structure and Organization of Capital in Developing Countries*
Capital Market in Agriculture*

Department of Cooperation and Marketing

Accountancy

Principles of Cooperation
Agricultural Marketing
Agricultural Prices
Research Methodology

Organization and Management of Cooperatives*
Cooperatives in Different Countries*
Market Structure*
Agricultural Price Analysis*

*Refers to courses offered at the graduate level.

TABLE 2. CURRICULUM FOR B. SC. AG. ECON. (HONS.)

	Title of Course	Marks	
		Theory	Practical
	1st Year		
1.	Principles of Economics	100	—
2.	Accountancy	100	—
3.	Government and Public Administration	100	—
4.	Agronomy	100	50
5.	Horticulture	50	25
6.	Animal Science	50	25
7.	Agricultural Engineering	50	—
8.	Fisheries	50	—
		600	100
	2nd Year		
9.	Mathematics for Economists	100	—
10.	Statistics I	100	50
11.	Rural Sociology I	100	—
12.	Political History of Bangladesh	100	—
13.	Money and Banking	100	—
14.	Public Finance and International Trade	100	—
15.	Microeconomics	100	—
		700	50
	3rd Year		
16.	Macroeconomics	100	—
17.	Statistics II	100	50
18.	Rural Sociology II	100	—
19.	Economy of Bangladesh	100	—
20.	Principles of Cooperation	100	—
21.	Agricultural Marketing	100	—
23.	Production Economics	100	—
23.	Land Economics	100	—
		850	50

Contd.

	Title of Course	Marks	
		Theory	Practical
	4th Year		
24.	Farm Management	100	50
25.	Agricultural Prices	100	50
26.	Agricultural Finance	100	—
27.	Agricultural Policy	100	—
28.	Patterns of Economic Development	100	—
29.	Research Methodology	75	75
30.	Agricultural Extension	100	—
		675	175

Sociology and Accounting. While technical science courses are offered by other faculties, social science courses are offered by the faculty itself. In economics, seven courses are taught : Principles of Economics in the first year ; Money and Banking, Public Finance and International Trade, and Microeconomics in the second year ; Macroeconomics and Economy of Bangladesh in the third year ; and, finally, Patterns of Economic Development in the final year. There are nine agricultural economics courses in the curriculum which are taught in the third and the fourth years. In the traditional branches of agricultural economics, i.e. farm management, production economics, agricultural marketing, price analysis and agricultural finance, there is one course for each subject. Other courses in agricultural economics include : Land Economics, Principles of Cooperation, Agricultural Policy and Research Methodology.

The Bachelors' degree curriculum consists of 32% courses in agricultural economics, 25% courses in economics, 18% in other social sciences, 14% in technical sciences and 11% in quantitative methods. Thus, quantitative methods, one of the most important ingredients of agricultural economics education, has been least emphasized in the curriculum.

Graduate Curricula

The faculty offers eight Masters' degrees in agricultural economics from three departments (for details, see Jabbar 1984). The degrees are as follows :

Department of Agricultural Economics

1. M. Sc. Ag. Econ. in Production Economics and Farm Management.
2. M. Sc. Ag. Econ. (General) in Production Economics and Farm Management

Department of Agricultural Finance

3. M. Sc. Ag. Econ. in Agricultural Finance
4. M. Sc. Ag. Econ. (General) in Agricultural Finance

Department of Cooperation and Marketing

5. M. Sc. Ag. Econ. in Agricultural Marketing
6. M. Sc. Ag. Econ. (General) in Agricultural Marketing
7. M. Sc. Ag. Econ. in Cooperation
8. M. Sc. Ag. Econ. (General) in Cooperation.

The curricula for the Masters' degrees are given in Appendix A. The important features of the Masters' degree are described below.

1) From each department, two degrees are conferred which may be called a thesis degree and a non-thesis degree. For the thesis degree, students are required to complete three and one-half yearly courses and write a thesis. For the non-thesis degree, students are required to complete four yearly courses and write a term paper. The tenure for completing the degree is the same for both degrees which is one year, although additional three to six months are normally granted to complete the degree.

2) The graduate curricula have been very narrowly designed. For the thesis group, curricula contains three and one-half yearly courses, one course in agricultural development which is mandatory for all departments, two courses in the area of specialization, and a half course which is selected from three choices: Social Change, Social Demography or Econometrics. For the non-thesis group, there is a full course instead of the half course.

Syllabuses for the Undergraduate and Graduate Degree Courses

The syllabuses for undergraduate and graduate degree courses are provided in Appendices B and C, respectively. Instructors are expected to follow the prescribed syllabuses in offering the courses, although they have some degree of discrition in deciding about the amount of emphas to be given to different parts of the syllabus. New topics may also be taught without formally changing the syllabus.

III. A CRITICAL REVIEW OF THE AGRICULTURAL ECONOMICS PROGRAMME

The fundamental objectives of the agricultural economics programme at BAU, as mentioned before, are extension, research and teaching. The record of the faculty in extension works is not very impressive, because neither the university has created a suitable structure for such work nor the faculty members have shown much interest in extension works. The small amount of extension work done by the faculty members has mainly concentrated in the area of rural development such as cooperative farming projects, small farmers and landless labourers projects, training of village leaders, etc. Extension works in other areas of agricultural economics are fairly scanty.

Agricultural economics research at the faculty of Agricultural Economics and Rural Sociology is carried out at two levels. First, faculty members, as part of their moral and official duties, carry out research. Since the inception of the faculty in 1963, the number of research published by faculty members as monographs, research reports and journal articles is approximately 150, a large proportion of which has been published by 4-5 out of 19 members currently working in the three departments under discussion. These statistics are some indications of the interest and involvement of faculty members in academic research.

The other type of research is done by students as a part of the requirements for their graduate degree. Jabbar (1984) provides a good description of this type of research. Two features of this research are worth noting. First, faculty members generally consider students' research as a part of their training and feel that the selection of topics and empirical methodology is their job. Consequently students' research deals mostly with microproblems. Students take the major responsibility to select topics, prepare questionnaires, and then collect data by personal interview methods. These topics may not be on the current problems of agriculture which need research. Secondly, due to deficiencies in quantitative methods and economic theory, tabular methods are used to present the data and means and variances are the main parameters which are estimated. Thus, the quality of student research remains poor. The above deficiencies are smaller in case of those students who are allowed to write thesis out of materials gathered in connection with any research project procured by the supervising teacher.

Review of the Bachelors' Degree Curriculum

To judge the quality of training, the best method is to examine the curriculum and syllabuses of the programme. The Bachelors' degree curriculum has been given in Table 2. Out of twenty-eight courses, there are three courses on quantitative methods: one on mathematical techniques and two on statistics. But there is no course on econometrics or mathematical programming—the courses which demonstrate the application

of economic theory to solve practical problems. Although statistics courses may cover topics on multiple regression, etc., they are not substitutes for econometrics or mathematical programming.

Economics is the second most important area in the undergraduate curriculum, which is logical. Agricultural economics is defined as the application of economic principles in analyzing the economic problems of agriculture. Therefore, micro-and macro-economic theories form an important part of agricultural economics education. But the connection between agricultural economics and other branches of economics such as Public Finance, Money and Banking, etc., is a little bit remote. However, a good background in these areas is very important for agricultural economists, because they are basically economists who must know the ecomomy. For agricultural economists, some economic variables are just parameters. For example, a change in money supply may change interest rates. These variables generally do not enter into the research agenda of agricultural economists. However, this information alerts the agricultural economists that aggregate demad for agricultural credit may change which may affect production. It appears that the curriculum does not contain sufficient courses in economics to provide good background in economic theories.

There are nine courses on agricultural economics, of which five courses are on five conventional areas : Farm Management, Production Eonomics, Agricultural Marketing, Agricultural Price Analysis and Agricultural Finance. Specialization is conferred on these areas at the graduate programme. As there is only one course in these areas, only elementary and introductory topics are covered, the frontiers of these courses remain unrevealed and uncultivated. Therefore, the Bachelors' degree is not very effectual due to lack of courses on quantitative methods, economic theory and agricultural economics.

The three areas—quantitative methods, economics, and agricultural economics—are termed as the core areas of the agricultural economics programme. In addition to these areas, there are two areas in the Bachelors' programme : applied science and social science. The applied science includes seven courses, some of which are half courses, which encompass all areas of agriculture. Logically, more emphasis is placed on agriculture, i.e. Crop Production. But the issue which needs to be debated is whether the curriculum should include courses on particular branches of agriculture such as agronomy, or some general courses on agriculture. For an agricultural economist, it is less important to know how to cut open an insect and learn internal structures ; but it is more important to know different types of insects and which crops they attack, etc. Therefore, perhaps two general courses which cover major areas of agriculture may enrich the curriculum.

Social sciences other than economics is the third most important area in the Bachelors' degree programme. There are five courses—two on political science, two on sociology and one on accountancy. Agricultural economics is half way between applied

science and social science ; but it is alway considered as an applied science and that is why it is mostly taught in agricultural universities. Courses on social sciences are necessary in order to provide an understanding of the social and political context in which agricultural economists have to apply their knowledge. However, given the fact that the curriculum does not include a necessary number of courses on quantitative methods, economics and agricultural economics, it is unclear why so much importance has been placed on social sciences.

Review of the Masters' Degree Curricula

The Masters' degree programme (see Appendix A and discussion in the previous section) is apparently designed to offer specialized degrees in the major areas of agricultural economics. But the curricula and syllabuses indicate that they are too narrow to provide specialized degrees in the true sense of the term. First, a one-year programme consisting of both research and course work is insufficient to provide good training either in research or course work. The programme contains four courses, of which two are on the subject of specialization and one course is on developmental economics. Therefore, students do not have much exposure to other areas of agricultural economics, economic theories and quantitative methods. With this limited knowledge in theories and empirical methods, add the short duration of the programme, which act together for poor training in research.

Second, the division of major areas of agricultural economics into some watertight compartments, has effectively circumscribed the area of study of agricultural economics. Masters' degree is conferred on each major area of agricultural economics. Therefore, topics which do not belong to these areas are either not studied or studied where they do not belong. For example, one thesis was done in the Department of Agricultural Finance on man-land adjustments in Bangladesh. Does this topic belong to the field of agricultural finance ? If not, how can a degree on agricultural finance be given on the basis of this thesis ? Similar problems may be found in other areas of agricultural economics. But the major issue is that important research problems may not be undertaken since they do not belong to particular department.

Finally, the distinction between thesis and non-thesis degrees is very narrow, and is not respected in the job market, because, perhaps, the employers cannot rationalize the distinction. The tenure of both degrees is the same—one year. Both the curricula contain research. It should be noted that the distinction between a thesis and a term paper is subjective. Additionally, students in non-thesis degree do half a paper more course work than students in the thesis programme.

Review of Syllabuses

The syllabuses for graduate and undergraduate curricula (economics and agricultural economics syllabuses only) are given in Appendices B and C. Two aspects of syllabuses are worth noting. First, course objectives have not been stated and they cannot be figured out by looking at the syllabuses. By and large, all syllabuses have been prepared by consulting the contents of foreign books. The whole contents cannot be copied, only a few chapters and/or some sections of a chapter have been selected. Consequently, the syllabus portrays a narrow view of the course. It represents ideas of a particular author and additionally, these ideas are not presented properly.

Secondly, perhaps these syllabuses were prepared long ago. Therefore, most of the topics are outdated and the syllabus does not include topics dealing with new developments in the area or current problems of Bangladesh agriculture.

The above ideas will be illuminated by analyzing a few syllabuses. The selection of syllabuses is quite arbitrary and the above criticisms apply to most syllabuses.

The syllabus for Mathematics for Economists has been copied from "Mathematical Analysis for Economists" by R.G.D. Allen. In the forwarding of the book, Allen wrote: "This book...aims at providing a course on pure mathematics developed in the directions most useful to students of economics. At each stage mathematical models described are used in the elucidation of problems of economic theory". Therefore, the book presents mathematical theories first and then uses economic concepts as examples.

The syllabus includes two sections of Chapter One which has ten sections and the whole of Chapter Two. The rest of the syllabus contains topics on economic concepts and a few mathematical techniques. Consequently, the syllabus does not teach mathematical techniques which is the objective of Allen's book, nor does it teach mathematical economics (economic theories described by mathematical symbols). This criticisms remain valid even if it is accepted that an individual teacher may cover more than what is witten in the syllabus.

Agricultural finance is the economic study of the acquisition and use of financial capital in agriculture ; it relates to both the macrofinance and microfinance aspects of the agricultural sector of the economy (Nelson *et al.* 1973). The macrofinance mainly studies the policy and principles of lending institutions. But the microfinance, the most important part,studies the acquisition and use of financial resources at the farm level. In other words, the microfinance systematically studies farm business information such as balance sheets, income statements, etc., with a view to evaluating farm equity, sources and conditions of finance, prospects and risks of investment, etc.

Nowadays, the importance of agricultural finance is increasing because Bangladesh agriculture is undergoing important changes. First, private traders are playing a greater

role in determining the demand for and supply of agricultural inputs. Second, the use of financial capital and commercialization of the peasant agriculture are increasing at a faster rate as irrigation equipment is being owned by farmers, HYVs, and related inputs and non-crop activities, e.g. fish and poultry production are organised on commercial basis.

The syllabus for the agricultural finance course for the Bachelors' degree has been improved which provides the students a good introduction to the problems of agricultural finance. But there have been inadequate changes in the syllabuses for graduate courses. The Capital Market for Agriculture course is a study of microfinance. But the syllabus is not a good one. Neither have topics been arranged according to their vertical theoretical linkages, nor does the syllabus include all necessary topics. For example, it is a convention in economics to assume a perfect and certain world to examine uncertainty and risk among economic variables. Then uncertainty and risk are introduced to investigate how the relationship changes. This facilitates the understanding of theories. However, this convention has not been followed in the course—Capital Market for Agriculture—where topics on risk and uncertainty in financial management have been introduced at the beginning of the course.

The syllabus for the course—Structure and Organization of Capital in Developing Countries—has been prepared by consulting some foreign book. It appears that the course is more inclined to explore agricultural credit in the context of economic development. The course certainly does not explore the methodology of studying agricultural credit which should be the fundamental objective of a course on agricultural finance. Additionally, financial management is very closely related with farm management. But the Masters degree courses for Agricultural Finance contain few topics on farm management probably because farm management taken at the undergraduate level is assumed to provide sufficient background. This assumption may not always be true. Therefore, graduate courses in agricultural finance can not adequately cater to the students the knowledge to study the problems of financial aspects of Bangladesh agriculture.

Agricultural marketing may be defined as the performance of all business activities involved in the flow of goods and services from the point of initial agricultural production until they are in the hands of the ultimate consumers (Kohls 1967, p. 9). The primary objective of studying agricultural marketing is to improve this performance. The field has been divided into two sub-areas : price analysis and market analysis. Agricultural price analysis—often called applied microeconomics—basically examines the determination of demand, supply and prices in agricultural markets. It discusses in details the theories of demand and supply and the problems of their empirical estimation. A graduate course on agricultural market analysis, on the other hand, comprises topics on theoretical models of the agricultural market, i.e. how to model agricultural markets for empirical investigation, production and marketing risk, market structure and economic efficiency of marketing firms.

The masters degree curriculum at BAU consists of two courses on marketing : price analysis and market structure. The syllabuses clearly do not fulfill the objectives of graduate courses on agricultural marketing. Both the syllabuses are vague and unjustifiable. The price analysis syllabus contains a topic on Theory of Consumer Demand without giving any details and does not contain any topic on supply. Most of the syllabus concentrates on a few econometric topics. It is a very unclear and unjustifiable syllabus for a graduate course on price analysis. The course on agricultural market analysis is even worse. The whole course is on one topic—market structure. There are two problems with this syllabus. First, as discussed before, market structure should be only one topic in an agricultural market analysis course, and second, how important is this topic ? The study of market structure was popularized by the American economist, Joe S. Bain (1959) during the 1950's. His central thesis is this ; Market structure—number of sellers and buyers, product differentiation, etc.—determines market conduct—pricing behaviour, product strategy and advertising, etc.—which in turn influences market performance, production and allocative efficiency, equity, full employment, etc. Therefore, a course on market structure contains topics on determinants of market structure,theories of competition such as monopolistic, oligopoly, etc. It is desperately needed to evaluate : How important is it to offer a course on market structure in an agricultural economics programme in a peasant economy like Bangladesh ?

Review of the Administration of the Programme

From the above discussion, it may be concluded that narrow curricula and less relevant and outdated syllabuses have been impairing the agricultural economics education at BAU. Similar conclusions were drawn in the past and perhaps will be drawn on future occasions; the reason is that curricula and syllabuses are just symptoms but not causes of the problem. To speak the truth, the problem may be the institutional framework for the administration of the programme and the people. The faculty is a part of the University which in turn is a part of the education system prevailing in the country. Even after recognizing the importance of these external forces, it seems in general, all faculty members including heads and the Dean have to share the blame in various degrees. If syllabus has not improved, then the concerned instructor and the head should be blamed. There may be three reasons that a syllabus has not changed: (i) the instructor lacks willingness or incentive to suggest necessary changes, although he has the required training and experience ; (ii) the instructor does not have the required training and experience ; and (iii) the instructor has neither the willingness nor the incentive nor the experience and training.

Currently, there are nineteen teachers in three departments of agricultural economics, of which sixteen or 85% have some foreign training, while three or 15% are locally trained. Out of the sixteen, eight have Ph. D. degrees, five have M. Sc. degrees and

these have diploma degrees from foreign universities. If degrees from foreign universities are taken as a yardstick of the level of advanced training, then there is no lack of trained instructors in this faculty. This implies that teachers are either unwilling to bring about required changes or they are not properly trained. It is our responsibility to judge which are the real reasons. If there is to be any improvement in the faculty,we have to increase our commitments to accomplish that job.

Perhaps it will remain a mystery why we always downplay the role of leadership in our universities. We acknowledge the importance of leadership in every institution. We, as university teachers, provide moral and intellectual support for good political leadership. We can feel every day the importance and necessity of a good Vice-Chancellor in our university. However, we have never felt the importance of the leadership role of a dean and a head. Are these positions really less important than others ? Can there be any healthy growth and development of a faculty/department without an appropriate and able dean/head ? It is one thing to run a sick business,it is quite a different thing to cure the sickness of the business and help it to grow.

The regulations regarding appointing heads of departments in BAU have changed recently. Before 1983, the senior-most teacher was usually appointed head of the department on a permanent basis. After 1983 (new regulation), the office of the head rotates every two years among the senior teachers in the department. The regulation for appointing dean has not changed except that the qualification has been lowered to Associate Professorship. Previously the post of dean rotated every two years among the Professors of the faculty.

This system of appointing head and dean is defective and counterproductive. Under this system there is no way we can have good leaders to help healthy growth and development of the faculty. In the old system, there was hardly any justification to offer headship to senior-most teachers, particularly when seniority is measured by the years of service, not by quality or other appropriate criteria, e.g. relevance of the subject. Additionally, it is quite counter-productive to appoint head on a permanent basis. Can we ever imagine a life-long Vice-Chancellor ?

In the new system, every teacher in the department will become head if he/she survives until his/her turn arrives. We all know that all teachers do not have equal capabilities for teaching and research, so they do not have equal leadership quality. Besides, the tenure is only two years. Important changes can seldom be executed by this time. Similar conclusions may be drawn in the case of the post of dean.

IV. SOME SUGGESTIONS FOR REORGANIZING THE AGRICULTURAL ECONOMICS PROGRAMME

It may be inferred from the above discussion that agricultural economics at BAU has been suffering from two major problems : (i) narrow and underdeveloped curricula

and syllabuses, and (ii) a defective institutional framework. In this section, I shall provide token curricula and suggest an institutional framework for provoking debate and organize my own ideas for reorganizing the programme.

In developing the undergraduate and graduate curricula, I have taken a holistic view by vertically integrating both programmes. In the undergraduate programme, students will take introductory courses in quantitative methods, economics and agricultural economics. They will also take a few courses in the applied sciences related to agriculture and social science. The fundamental purpose of the programme is to train personnel who will involve themselves directly with the industry as self-employed entrepreneurs, bank officers and others. The major purpose of the graduate programme is to train scientific and professional workers who will be engaged in teaching and advanced research. Therefore, a graduate degree should be basically a research degree, but it should also include advanced courses on quantitative methods and theories of economics and agricultural economics. The rationale is that by learning advanced empirical methods and theories, students will be well equipped to specialize in any area of agricultural economics. This is exactly the connotation of the world "specialization". To execute the programme, a new institutional framework will be suggested which will not be in conflict with the current university regulations.

Undergraduate Curriculum

Table 3 shows the courses included in the B. Sc. Ag. Econ. (Hons.) curriculum, which have been arranged according to academic years. In the first year, there are three courses in economics. The purpose is to introduce students to the subject matter of economics and what social problems economists deal with. In the current curriculum, there is one course on economics. Obviously, the course is very theoretical and does not correspond to the expectations of students. Most students enter the agricultural economics programme with a high expectation that they are studying something very important. But, in the first year, they mostly study applied sciences. In the second year, they have to swallow the antidotes of economic theory which are no less bitter even to experienced students of economics. Consequently, students hardly develop any real interest in the subject.

But, for example, students debate a lot over the merits and demerits of socialist and capitalist societies, without knowing much about their economic institutions and what criteria should be used to judge them. If such topics are included, students will be very interested. Or, daily newspapers flash on many important economic problems, e.g, inflation, unemployment, exchange value of taka, etc. If students can explain what they really mean to their friends or families, they will be really proud. This psychological phenomenon is very important for students to learn the subject.

TABLE 3. SUGGESTED UNDRGRADUATE CURRICULUM*

1st Year	2nd Year
1. Introduction to Economics	1. Microeconomics
2. Introduction to Bangladesh Economy	2. Money and Banking
3. Introduction to Microeconomics	3. Public Finance
4. Mathematics for Economists I	4. International Economics
5. Agriculture I	5. Rural Sociology
6. Agriculture II	6. Political Science
7. Animal Husbandry (half paper)	7. Management Accounting
8. Fisheries (half paper)	8. Statistics
9. Agricultural Engineering (half paper)	
10. Reading, Writing and Speaking	

3rd Year	4th Year
1. Econometrics I	1. Mathematics for Economists II
2. Macroeconomics	2. Econometrics II
3. Principles of Cooperation	3. Agricultural Policy
4. Agri-business	4. Economics of Development
5. Agricultural Marketing	5. Land Economics or Resource Economics
6. Production Economics	6. Price Analysis
7. Farm Management	7. Agricultural Commodity Markets
8. Agricultural Finance	8. Farm and Financial Management

* Since the objective of practical courses is not to teach advanced topics, they have not been included in the curriculum. However, they may be included as required.

In the first year, minimum theories should be taught in economics courses. The Introduction to Economics course should put more emphasis on macroeconomics, since there is a microeconomics course. The Bangladesh Economy course should provide more emphasis on the agricultural sector.

The main purpose of the Mathematics for Economists course is to teach mathematical techniques which are required to teach theory and quantitative courses. It may be offered in the first year or the second year. But if microeconomic theories are treated more rigorously in the second year, then it should be offered in the first year.

I discussed earlier that inclusion of special courses in crop production does not fulfill the objectives of studying applied sciences by agricultural economists. Therefore, I have suggested two courses on agriculture which will encompass all of its important aspects.

Additionally, these courses should be taught in the same fashion as I have suggested for the introductory economics course.

Perhaps it is not inappropriate to state that the main objective of the university education is to train managerial personnel : people who will be involved in decision-making at various capacities. Most managerial jobs involve three activities—reading, writing and speaking. First, managers may be required to read extensively to develop their ideas or criticize other ideas. Second, they may be required to express their ideas in writing and often verbally. In our universities, we have not underlined the importance of reading, writing and speaking. Maybe we think these qualities are natural, but they are not. Like other subjects, they can be learned. Therefore, a course on reading, writing and speaking in the first year may be highly productive.

While the importance of the course spreads over the whole life of a university graduate, its importance in the student's life is probably more acute. Students confronted with deadlines in writing their theses/term papers, often complain about the references they have to read, their inability to express their ideas, etc. They would not have been so frustrated if they knew how to select the working bibliography, which reference to be skimmed or scanned, how to prepare an outline, etc.

The B. Sc. Ag. Econ. (Hons.) curriculum consists of 32.5 courses in all, of which 13 courses are on agricultural economics, 9 courses are on economics, 5 courses are on quantitative methods, 3.5 courses are on applied science and 2 courses are on social sciences. The important features of the curriculum are as follows. First, there are two courses on agri-business. The importance of this area is growing in Bangladesh as the government is giving away its traditional role of supplier of agricultural inputs to private traders. Second, in addition to introductory courses on production and marketing, there are two more courses entitled Farm and Financial Management and Problems of Agricultural Commodity Markets. These courses should deal with advanced topics in production and marketing. Third, courses on economics are meant for intermediate level treatment. Finally, there are five courses on quantitative methods. There are two courses on mathematics. The first course will deal with mathematical techniques, but the second course should be offered in the final year and is meant for mathematical programming. The Statistics course will mainly be concerned with descriptive statistics and probability theory. The first course on econometrics may deal with the classical model and the violations of classical assumptions. The second course will deal with more advanced topics such as simultaneous equations models.

Graduate Curriculum and the Suggested Institutional Framework

The fundamental objective of a graduate programme in agricultural economics is to train scientific and professional workers who will be engaged in research and teaching. Generally, two graduate degrees may be offered with this end : a Masters' degree and

a Ph. D. degree, respectively, of two and four years' duration. However, current academic environment at BAU is not favourable for such a curriculum. Therefore, the following graduate programme may be considered.

The graduate programme will consist of three degrees which are : (i) M. Sc. in Agricultural Economics, (ii) M. Phil. in Agricultural Economics, (iii) Ph. D. in Agricultural Economics, The tenures for M.Sc., M. Phil. and Ph. D. degrees in agricultural economics should be, respectively, one year, two years and four years.

The M.Sc. in Agricultural Economics will be the first degree in the heirarchy. The minimum requirement for admission into the degree should be a good Bachelors' degree (e.g. high second class) in agricultural economics. Students having a Masters' degree in Economics from other universities may be considered for admission only if they have good grades, say first class. This is because they do not have much background in agricultural economics and quantitative methods. Additionally, it should be remembered that the duration of the Masters' degree in economics in general universities is the same for the Bachelors' degree at BAU.

Table 4 provides a list of graduate courses. Courses are grouped into three major areas : quantitative methods, economics and agricultural economics. Agricultural economics is again divided into special areas such as agricultural marketing and agricultural production and finance. The Masters' degree students will be required to take six courses out of these three major areas. To ensure a balanced combination of courses, it may be made mandatory for students to choose at least one course from the first four categories. By the ninth month of the academic year, all course examinations should be completed. Performance in the examinations along with past performance will be assessed for completion of the Masters' degree and admission into M.Phil. or Ph.D. degrees. Admissions into M.Phil. and Ph. D. degrees should be strictly restricted to maintain the quality of higher education. Those students who do not qualify for higher degrees will write a major paper and complete the programme. They should not be considered for admission into M.Phil. or Ph. D. degrees later on.

Students who qualify for the M.Phil. degree will take two more courses and undertake their research. The course, Research Methodology, should be made mandatory for M.Phil. and Ph. D. students. The Ph. D. students will take six more courses. They should be required to take at least two courses from economics, agricultural marketing and agricultural production and finance. After completing the course requirements, they will write comprehensive examinations on these areas. When they complete their comprehensive examinations, they will be declared as the candidates for the Ph. D. degree and undertake Ph. D. research work.

The extent of reorganization of the agricultural economics programme suggested above is, beyond any shadow of a doubt, a dramatic one. Two questions arise. First, do we have the resources to execute such a programme ? It is true that, currently,

TABLE 4. LIST OF SUGGESTED GRADUATE COURSES

Quantitative Methods

1) Advanced Topics in Linear Programming
2) Econometrics

Economics

3) Microeconomics I
4) Microeconomics II or Welfare Economics
5) Macroeconomics
6) International Economics

Agricultural Economics

Marketing

7) Advanced Agricultural Market Analysis
8) Agricultural Price Analysis

Agricultural Production and Finance

9) Production Economics
10) Farm Management
11) Agricultural Finance
12) Production Functions : Theory and Estimations

Other Agricultural Economics Courses

13) Agricultural Policy and Trade
14) Economics of Agricultural Development
15) Principles of Cooperatives or Rural Development
16) Research Methodology

re do not have resources in the field of agricultural economics and quantitative methods, but hopefully, this paucity will be recouped soon. But in the field of economics, we need to appoint instructors with good Ph. D. degrees in economics. Thus, appointments should be made in the rank of assistant professor or higher ranks.

The second important question is to find out a suitable institutional arrangement to execute the programme which does not interfere with the current structure of the Faculty and the university regulations. The first thing to do for this purpose is to draw a clear-

out line of demarcation between academic and administrative functions of the head and dean. The head and dean should be relieved of their academic duties and these duties should be vested in a committee. The precise nature of such a committee should be worked out in a faculty meeting. However, the following notes may be taken. The committee should consist of members who belong to the three departments of agricultural economics. It may be elected for a period of four years. Conventionally, at least one member should be taken from each department, although this should not be made mandatory.

V. CONCLUSIONS

More than twenty years ago, in 1963, the faculty of Agricultural Economics and Rural Sociology was established at the Bangladesh Agricultural University. The objectives were to study the economic problems of Bangladesh agriculture and train personnel for public and private agencies. Achievement of these objectives have been less than satisfactory since the quality of research and training is less than desirable. J. M. Keynes said, "It is not so terrible to make a mistake. What is terrible is not to be found out." In order to improve the quality of education at the faculty, a good beginning has been made by organizing a seminar to discuss the problems and issues and publishing those papers. I have tried to add my ideas in the debate by pinpointing the dificiencies of the programme and suggesting some remedial measures. However, the immediate task is to appoint a committee which will prepare a report which will be debated in the faculty. It is suggested that the committee should collect a sufficient number of curricula and course outlines from European, North American and Asian universities. This will help to define the objectives of agricultural economics education and formulate necessary reform.

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APPENDIX A

CURRICULAR LAYOUT FOR MASTERS DEGREE COURSES IN AGRICULTURAL ECONOMICS

A. M.Sc. Ag. Econ. in Production Economics and Farm Management

1.	Economics of Agricultural Development	100 marks
2.	Production Economics	100 „
3.	Farm Management	100 „
4.	Econometrics or Social Change or Social Demography	50 „
5.	Viva Voice	50 „
6.	Thesis	Satisfactory

B. M. Sc. Ag. Econ. (General) in Production Economics and Farm Management

1.	Economics of Agricultural Development	100 marks
2.	Production Economics	100 „
3.	Farm Management	100 „
4.	Cooperatives in Different Countries or Agricultural Price Analysis or Any two of the following : Econometrics, Social Change, Social Demography	100 „
5.	Viva Voice	50 „
6.	Term Paper	Satisfactory

C. M. Sc. Ag. Econ. in Agricultural Marketing

1.	Economics of Agricultural Development	100 marks
2.	Agricultural Price Analysis	100 „
3.	Market Structure	100 „
4.	Econometrics or Social Change or Social Demography	50 „
5.	Viva Voce	50 „
6.	Thesis	Satisfactory

D. M. Sc. Ag. Econ. (General) in Agricultural Marketing

1.	Economics of Agricultural Development	100 marks
2.	Agricultural Price Analysis	100 „
3.	Market Structure	100 „
4.	Cooperatives in Different Countries or Consumer Economics and Marketing Research or Farm Management or Capital Market in Agriculture or Any two of the following : Econometrics, Social Change, Social Demography	100 „
5.	Viva Voce	50 „
6.	Term Paper	Satisfactory

E. M. Sc. Ag. Econ. in Agricultural Cooperation

1.	Economics of Agricultural Development ..	100 marks
2.	Organization and Management of Cooperatives	100 „
3.	Cooperatives in Different Countries ..	100 „
4.	Econometrics of Social Change or Social Demography	50 „
5.	Viva Voce	50 „
6.	Thesis	Satisfactory

F. M. Sc. Ag. Econ. (General) in Agricultural Cooperation

1.	Economics of Agricultural Development ..	100 marks
2.	Organization and Management of Cooperatives	100 „
3.	Cooperatives in Different Countries ..	100 „
4.	Market Structure or Farm Management or Structure and Organization of Capital in Underdeveloped Countries or Any two of the following : Social Change, Social Demography, Econometrics ..	100 „
5.	Viva Voce	50 „
6.	Term Paper	Satisfactory

G. M. Sc. Ag. Econ. in Agricultural Finance

1.	Economics of Agricultural Development ..	100 marks
2.	Capital Market in Agriculture ..	100 „
3.	Structure and Organization of Capital in Underdeveloped Countries	100 „
4.	Econometrics or Social Change or Social Demography	50 „
5.	Viva Voce	50 „
6.	Thesis	Satisfactory

H. M. Sc. Ag. Econ. (General) in Agricultural Finance

1.	Economics of Agricultural Development ..	100 marks
2.	Capital Market in Agriculture	100 „
3.	Structure and Organization of Capital in Underdeveloped Countries ..	100 „
4.	Organization and Management of Cooperatives or Cooperatives in Different Countries or Farm Management or Market Structure or Any two of the following : Econometrics, Social Change, Social Demography ..	100 „
5.	Viva Voce	50 „
6.	Term Paper	Satisfactory

APPENDIX B

SYLLABUSES FOR COURSES ON ECONOMICS AND AGRICULTURAL ECONOMICS INCLUDED IN THE B. SC. AG. ECON. (Hons.) CURRICULUM

FIRST YEAR

1. Principles of Economics : 100 marks

Definition and scope of economics—Micro and Macro-economic approaches. Concepts of National Income. The Theory of Utility and Demand—elasticity of demand and supply—consumer's surplus. Production function—laws of returns—population and labour supply—cost and revenue analysis—theory of distributon. Definition and functions of money—value of money—quantity theory of money—income determination—banking.

SECOND YEAR

1. Microeconomic Theory : 100 marks

Definition, Scope and Methodology of Economics. Utility and preference—modern theory of consumer behaviour—consumer equilibrium—substitution and income effects of normal and inferior goods—substitution and complementarity—applications of indifference curve analysis : characteristics of market demand—elasticities of demand—demand curve for a firm in perfect competition. Production with one variable input—The production function—Two variable inputs—Optimal combination of resources—Economies of scale—Theory of cost—Perfect competition—short run and long run equilibrium in perfectly competitive market—Theories of price under pure monopoly, monopolistic competition and oligopoly markets. Marginal productivity theory of distribution in perfectly competitive markets—Theory of price and employment in imperfectly competitive markets—monopoly and commodity market—monopsony.

2. Mathematics for Economists : 100 marks

Numbers and variables : The location of points in space ; variable points and their coordinates. Functions and their diagramatic representation : Definition and examples of functions. The graphs of functions ; functions and curves ; classification of functions, the symbolic representation of functions ; linear and other equations. Limit of elementary set theory, different shapes of curves.

Demand functions and curves ; cost functions and curves ; Production functions and curves ; other functions and curves in econometric theory. Totals, averages and marginals and their arithmetic relationships ; geometry of marginal analysis. Definition of a derivative ; Distinction between derivative and differentiation and differential. Successive differentiation ; Partial and cross-partial derivatives. First and Second-order conditions for maximization and minimization ; Convexity and concavity conditions ; point of inflection and its significance in economics. Maximization and minimization subject to constraint, solution by Lagrange multiplier and bordered Hessian-determinant. Production functins, Homogeneous function and the application of Euler's theorem in the Theory of Distribution ; Homogeneous functions of different degrees; Application of Euler's Theorem in the marginal productivity theory of distribution ; General production function ; Cobb-Douglas production function and its properties. Difference Equations ; Concepts of difference equations ; application of difference equations in dynamic model. The simple cobweb model. Concepts of Vectors and Matrices ; Solution of a determinant.

3.3 Public Finance and International Trade : 100 marks

Survey on the principles of public finance, revenue, objective and principles of taxation—public expenditures, forms and planning of public expenditure, its effects in debt situation—public debt, budget and fiscal policy in relation to inflation, employment and economic development—international trade, foreign exchange, and balance of payments, role of I.M.F.

4. Money and Banking: 100 marks

Study of nature and functions of money, monetary systems and monetary policy—the value of money and its theories, changes in value of money, its effects and measures—international institutions. Banking—kinds of banks, structure and functions and national policy—bank money, central banking and the other banks of the world.

THIRD YEAR

1. Macroeconomic Theory: 100 marks

I. Introduction : The meaning of macroeconomics—macroeconomics versus microeconomics—macroeconomic variables—functional relationships and economic models. **II. Measurement of Economic Activity :** The gross national product—conceptual problem in the estimation of gross national product. **III. The Classical Macro economics :** Say's law and the quantity theory of money—the classical theory of income and employment determination. **IV. The Control of Economic**

Activity : Income stabilization and financial policy—Income stabilization and monetary policy—contemporary stabilization. **V. Growth and Instability in Economic Activity:** Introduction to macro-economic dynamics—functional growth economics—inflation and business cycles.

2. Production Economics : 100 marks

I. Introduction: Nature, scope and importance of production—relationship of production economics to other disciplines. **II. Production with One Variable Input:** Fixed and variable inputs,the short and long runs —simple production function—total, average and marginal products—three stages of production—elasticity of production—economizing principle for optimum solution. **III. Production with Two Variable Inputs:** Product Contours—fixed and variable production—stages of production—Least cost combination—optimum combination of inputs. **IV. Enterprise Combination:** Production possibility curve—enterprise relationships—expansion path. **V. Cost Relationships in Production:** Cost of production—relationship of cost curves and production function curves—economies and diseconomies of scale. **VI. Agricultural Production Problems:** Leasing and tenure systems and farming efficiency—low returns in agriculture—the changing nature of stability problem.

3. Land Economics: 100 marks

Consideration of the relative productivity of land in urban, agricultural, recreational and other uses ; Factors affecting the economic supply of land resources; population pressure and the demand for land. Input relationship affecting land use; Factors affecting the economic value and economic returns to land resources; land development and investment costs along with conservation of land resources with implications for public policy ; and efficiency of land uses in Bangladesh.

4. Principles of Cooperation: 100 marks

Definition and Principles of Cooperation ; Types of Forms of Cooperatives ; Cooperative farming; Organizing Cooperatives; Financing, Management, Membership and Public Relations; Accounts of Cooperatives ; Books to be maintained, Nature of Transactions; Cooperative Law; Cooperatives and the State. Role of Cooperation in agricultural development. History of Cooperation in Bangladesh ; Analysis of the past movement and the future role of cooperatives in economic development of Bangladesh.

5. Agricultural Marketing: 100 marks

Definition-Efficiency of marketing—marketing channel. Functions of marketing. Wholesaling and retailing of agricultural products. The cost of marketing—marketing

margin—market structure—market research. Government and agricultural marketing. Cooperative marketing. Marketing of agricultural products in Bangladesh. International and Regional Markets.

6. Economy of Bangladesh : 100 marks

Bangladesh and Its Natural Resources : Soils—climate—rainfall—rivers in Bangladesh—forest resources—fisheries—marine fisheries—livestock resources—minerals, oils and gas—water resources—irrigation project. **Population:** Distribution of Population—Population growth and problem of population—control of "Population Explosion". **Agricultural Situations:** Dependence on nature—fragmentation—soil erosion—mechanisation—land tenure—land reform and its effects—the need and adequacy of rural credit—cooperative farming vs. collective farming—marketing of agricultural products. **Agricltural Production:** Comparative study of the rate of production in different countries—food and cash crop production—rice, jute, tobacco, cotton, sugarcane, tea, horticultural crops—jute pricing, trade and industry. **Industrial Development:** Problems of industrialisation—private and nationalized industries—case for foreign capital investment—small and cottage industries. **Transport and Communication:** Programmes for developing transport system—relative merits of different transport systems. **Banking, Credit and Foreign Trade :** A survey of the Banking Industry—foreign trade, commercial policy—fiscal and monetary policy. **Public Finance and Development Planning :** Sources of Public revenue—objectives and sectoral allocations of five-year plan—allocation for agriculture—a critical review.

FOURTH YEAR

1. Patterns of Economic Development : 100 marks

The meaning and the urgency of economic development—the economically developed and under developed areas. The cultural and historical background of economically developed countries. The problems in the developing areas with special reference to Bangladesh. Demography, capital formation, skilled labour—nation building and public process of development—models of development and their implications: Laissez-faire, the mixed economy and total planning. Planning policies and techniques—resources for development—doemestic and foreign—priorities in development. Planning in Bangladesh.

2. Agricultural Prices (Theory) : 100 marks

Functions of prices in economic development ; Consumer behaviour—utility function. Market demand and derived demand; pricing under imperfect and perfect competitions. Behaviour of agricultural prices. Objectives, use and method in price analysis.

Models used in price analysis. Index number, correlation and regression; Analysis of trends, Spatial price relationships. Government programmes in prices ; objectives, methods. Review of prices of major commodities in Bangladesh.

3. Agricultural Prices (Practical) : 50 marks

Functions and graphs, forms of equations ; regression analysis ; correlation; supply and demand elasticities; index numbers.

4. Agricultural Policy and Planning: 100 marks

Economic Policy—Objectives of public policy—freedom and control—scope of government functions, public policy under various social systems. Agricultural policy—objectives—action, conflicting ends. Agricutural Policy and Economic Development—Agricultural policies in surplus and deficit countries—Agricultural Planning and Policy Measures in Bangladesh.

5. Agricultural Finance : 100 marks

The nature and scope of Agricultural Finance—The need for Capital—Financial intermediation in agriculture. Information flows in financial management ; Income Statement, Balance Sheet, Cash Flow. Tools for Forward planning—analysis ot farm financial statements; Ratio analysis, comprative analysis, projections. Organization and growth of the farm, factors limiting growth. Time value of money and capital budgeting. Incorporation of risk into capital budgeting—strategies for reducing risk. The cost of capital and the optimal capital structure.

Farm credit system in Bangladesh—Bangladesh Bank and farm policy instruments—Commercial banks and farm lending—Bangladesh Krishi Bank—Bangladesh Jatiyo Samabaya Bank—Production credit system—The Comilla approach and the Bangladesh Rural Development Board (BRDB)—other special credit programmes—Evaluation of financial intermediation in agriculture in Bangladesh.

6. Farm Management (Theory) : 100 marks

I. **Introduction**—Farm management and its relation with other sciences—meaning, functions and requisites of management.

II. **Farm Records and Accounts :** Single entry book keeping—Double entry book keeping—Financial or cash analysis—Cost accounting—Farm surveys—business studies, enterprise studies—others.

III. Farm classification by size, tenure, resource ownership and use

IV. Measuring productivity and efficiency : Measuring total factor productivity and efficiency by using production function, linear programming, residual methods—Efficiency of the business and enterprises—Farm size, tenure and efficiency. Partial measures of efficiency—meaning assumption and limitations. Various partial efficiency measures—Land use efficiency, labour efficiency, capital efficiency, management efficiency. Measures apporopriate for crop, poultry and livestock.

V. Farm planning and budgeting techniques : Budgeting—complete and partial budgeting—Programme planning. Linear programming. Investment appraisal techniques.

7. Farm Management (Practical) : 50 marks

Problems to be selected on the basis of the topics taught in the theory paper.

APPENDIX C

SYLLABUS FOR MASTERS DEGREE COURSES IN AGRICULTURAL ECONOMICS

1. Economics of Agricultural Development: 100 marks

Economic development and growth. Role of agriculture in the process of economic development, economic transformation. Infrastructure for agricultural development. Food supplies, nutrition and population growth, an analysis of different rates of growth at different stages in various countries (U.K., U.S.A., U.S.S.R., Japan, India and Bangladesh). The farm in a traditional agriculture ; labour use and productivity. The process of modernization of agriculture. Economic incentive to production. Improved production possibilities, Supply of new forms of inputs, education, training and research. Institutional organization: Farm size, land tenure and land reforms, land tax in agricultural development, Capital formation. Market structure and marketing institutions in agricultural development. Role of state in agricultural development.

2. Farm Management: 100 marks

Introduction: Farms, farmers and management ; distribution of farms according to size, ecology and other characteristics, observation on present status of management. A critical review of all the analytical techniques. A critical review of all the planning techniques with special emphasis on linear programming. A critical review of the production function models and their applicability to peasant farm situation. Social cost/benefit analysis. Review of methods of farm management research. Introduction to irrigation economics.

3. Production Economics : 100 marks

Basic Concepts : Introduction to production economics—Functional relationships and Parameters—Economic Models. **Static Production Economics :** Assumption of static production economics— factor-product analysis, factor-factor analysis ; systems of equations ; product-product analysis ; costs and supply functions—cobweb model—Euler's theorem—evaluation of static production economics. **Application of Static Production :** Economic principles: Fitting a production function and estimating various economic relationships—Use of Linear Programming to determine optimal farm organization. **Dynamic Production Economics :** Relaxing the

assumptions of static model—risk and uncertainty—steps in the Management Process—Implications of dynamic production economics.

4. Organization and Management of Cooperatives : 100 marks

Cooperation and development of productive resources in different sectors of the economy—cooperative and distributive justice—cooperation and social welfare—agencies for development of cooperatives. Prerequisites for successful organization of cooperatives—types and forms of cooperatives—objectives. Functions and area of operation—integration. Methods and procedures of organization—organizational problems. Management: definition—importance—principles. Management of cooperatives managing committee, manager, members—composition, functions, rights, and privileges. Management problems relating to personnel management, supervision and funds.

5. Cooperatives in Different Countries: 100 marks

The philosophy of cooperation, origin and development of cooperation—modern cooperation—the Rochdale pioneers. Cooperation in U.K., U.S.A. Japan, West Germany and Bangladesh. Cooperation in Socialist Countries: U.S.S.R., China and East European countries. Comparative analysis of cooperatives under the two (major) economic systems—lessons for Bangladesh.

6. Market Structure: 100 marks

Introduction and basic concepts—Classification of market—Concept of market structure, conduct and performance—dimensions of competitive structure——vertical and horizontal integration—market structure with its conduct and performance. Brief analysis of conduct and performance under oligopolistic and monopolistic structure. Brief summary of prevailing structure of agricultural product markets in underdeveloped countries.

7. Agricultural Price Analysis: 100 marks

Importance and application of price analysis—Theory of consumer demand—price theories. Models in price analysis. Economic, statistical and econometric—Identification problem, selection of variables—endogenous, exogenous and random variables. Specification of models : Single equation, simultaneous and recursive system. Market statistics, family budget data. Statistical Tests. First difference and distributed lag. Time Series Data and Forecasting.

8. Structure and Organization of Capital in Developing Countries : 100 marks

Analysis of the role of capital and its requirement in farming and related business of the developing countries —Level and utilization of capital in developing countries—Aspects of capital formation in developing countries.

Conditions affecting the demand for agricultural credit—Characteristics of peasant societies—Static nature of credit.

Approaches to the agricultural credit problem in developing countries—Promotion of rural savings—Transfer of funds into agriculture—Conditions of loans—Role of the government and financial intermediaries.

The capital structure of agriculture in Bangladesh—Trends in capital formation and credit situation in Bangladesh—A critical appriasal of present agricultural credit policy in Bangladesh.

9. Capital Market in Agriculture : 100 marks

Concept of Capital—Financial structure and financing sources of agriculture sector—Credit in the production organization of the farm.

Risk and financial management—Expected utility functions and risk aversion—Risk efficiency criteria—Portfolio adjustment theory. Economic implications of time in financial analysis—Time value of money—Present value concept—Capital budgeting. Cost of capital—Farm growth, leverage and financial risk—Liquidity mangement. Allocation of capital—Flow of funds to financial intermediaries—Financial matters and intermediation.

10. Social Change: 50 marks

Introduction—Theories of social change—Technology and social change—Social change and modernization—Diffusion and change—Ideologies and social movement—Social prediction and social change.

11. Social Demography: 50 marks

Introduction—Theory and Methodology—Population Growth—Population Distribution—Population Composition—Population process (Fertility)—Population process (Mortality)—The population problems and the population policy—Population forecasts or projections.

12. Econometrics: 50 marks

The meaning and significance of Econometrics: Definition, objectives. Relationship between Econometrics and Mathematical Economics ; Econometrics and **Statistics.** Methods of Econometric research. Desirable properties of an econometric **model.**

Estimation of Econometric Model (1) : Two variable case—The Classical Linear **Regression** model ; least squares estimators ; properties of the estimators ; The coefficient of determination (r^2) and the coefficient of multiple determination (R^2).

Estimation of Econometric Model (2) : The classical General Linear Regression **Model**—The least squares estimators ; proof of the properties of estimators.

Some Single Equation Problems : Multicollinearity, Heteroscedasticity, Dummy **Variables. Anto-correlation :** Its sources, consequences and solutions. **Errors in Economic Variables :** Sources, consequences and solutions.

Identification: Problem of identification in Linear Models—Identification by "opprion" restrictions. Identification by Mathematical manipulation. Rank and order **conditions.**