COURSE GUIDE

CRD 206
ECONOMICS FOR CO-OPERATIVES

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INTRODUCTION

Economics for cooperatives (CRD 206) is a semester course of three credit units made available for two hundred (200) level students in the School of Science and Technology of the National Open University of Nigeria.

The course is made up of 23 Units featuring the Scope of Agricultural Economics, Agricultural Co-operation as an integral part of the Economy, Production and Supply: Producer decisions, Law of diminishing returns, Input and output analysis, Cost analysis, Time element analysis, Risk Analysis and Reduction of risk by insurance, Farm Management, Agricultural Marketing, Role of Technology and Agro-based Industries, Planning and projections, Macroeconomic considerations: Population, Inflation and Food Prices, Land Tenure System in Nigeria, Land Use Decree, Place of Agriculture in National Budgets, Agricultural Co-operation and Extension, carry out some studies on the food production strategies introduced by the Federal Government for example O.F.N, Green Revolution, Farm Settlement, NORCAP experiments etc.

COURSE AIMS

The aims of this course are to take you to the general broad areas of economics for cooperation in relation to agriculture. The scope of agricultural economics is wide and technical; it will equip you with the practical knowledge of how to apply the principles of economics as an Agricultural Economist.

COURSE OBJECTIVES

At the end of this course, you should be able to:

- Explain the meaning of Economics for Agriculture
- Discuss agricultural cooperation as an integral part of the economy
- Discuss production, supply and producer decisions
- State the different frameworks for decision making
- Explain the law of diminishing returns
- Discuss input and output analysis,
- Explain Marginal Products, Average Products analysis in agricultural production.

- Describe farm management, time element, risk analysis and reduction of risk by insurance.
- Explain conscription and demand effect on income
- Explain export trade
- Discuss agricultural marketing
- Economic progress and agriculture
- Discuss the role of technology and agro-based industries,
- Planning and projections.
- Macro-economic considerations: population, inflation and food prices,
- Land Tenure System in Nigeria.
- Explain the land use Decree
- Discuss the place of agriculture in national budgets.
- Describe agricultural cooperation and extension.
- Carry out some food production strategies in Nigeria for example OFN, green revolution, farm settlement, NORCAP experiments etc.

COURSE MATERIALS

The main features of the course materials are:

1. Course guide which is a blue print that explains the constituents of the course itself.
2. Study Unit: this provides an overview of the course contents and number of units covered.
3. Assignment files: These files contain challenging Self - Assessment Exercises and Tutor-Marked Assignment/s (TMAs) that will enable you evaluate your understanding of the course.

The total score you obtain in the TMAs will account for 30% of your overall course mark.

Assignments	30%
Examination	70%
Total	**100%**

FINAL EXAMINATION AND GRADING

At the end of the course, you will write the final examination. The examination will account for the remaining 70% of your overall course mark. The examination questions will test your ability to apply the information, knowledge and techniques you gained from the course.

You are advised to organize yourself properly for the examination as you will be tested on the general broad of the course.

4. Relevant text books have been recommended at end of each study unit.

STUDY UNITS

The study units are 20 in number as listed below:

Module 1

Unit 1 The Scope Of Agricultural Economics
Unit 2 Agricultural Cooperation as an Integral Part of the Economy
Unit 3 Production and Supply: Producer Decisions

Module 2

Unit 1 Farm Management
Unit 2 Framework for Decision Making
Unit 3 The Production Function

Module 3

Unit 1 Input, Output Analysis, Cost Analysis, Marginal Analysis, Cost Analysis in Agricultural Production
Unit 2 Time Element Analysis, Risk Analysis and Reduction of Risk by Insurance
Unit 3 Consumption and Demand: Effect on Non-Income

Module 4

Unit 1 Export trade
Unit 2 Agriculture Marketing
Unit 3 Economic Progress and Agriculture

Module 5

Unit 1 Role of Technology and Agro-Based Industries
Unit 2 Planning and Projections
Unit 3 Macro-economic Considerations: Population, Inflation and Food Prices

Module 6

Unit 1 Land Tenure System in Nigeria

Unit 2 The Land Use Decree
Unit 3 Place of Agriculture in National Budgets
Unit 4 Agricultural Co-Operation and Extension
Unit 5 A Study of some Food Production Strategies, E.G. O.F.N., The Green Revolution, Farm Settlements, NORCAP Experiment, Etc.

Each study unit has Self-Assessment Exercises and Tutor-Marked Assignment/s [TMAs]. The sources of information are given in the references and where further readings are required or you need to consult, are also indicated. All these would assist you to accomplish the learning objectives as expected.

TEXTBOOKS AND REFERENCES

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ASSIGNMENT AND MARKING SCHEME

Assignment	Marks
Assignments 1 – 5	Five assignments. Select the best four - 12.5% each 12.5 x 4 = 50%.
Final Examination	50% of the overall Course marks.
Total	100% of Course Marks.

COURSE OVERVIEW

Unit	Title of Work	Week's Activity	Assessment
	Course Guide	1	
	Module 1		
1	The Scope of Agricultural Economics	2	
2	Agricultural Cooperation as an integral part of the economy	2	
3	Production and Supply: Producer decisions	2	Assignment 1
	Module 2		
1	Farm Management	2	
2	Framework for decision making	1	
3	The Production function	2	
	Module 3		
1	Input, output analysis, cost analysis, marginal analysis, cost analysis in agricultural production	2	
2	Time element analysis, risk analysis and reduction of risk by Insurance	2	Assignment 3
3	Consumption and demand: effect on non-income	1	
	Module 4		
1	Export trade	1	
2	Agriculture Marketing	2	Assignment 4
3	Economic progress and agriculture	1	
	Module 5		
1	Role of technology and agro-based industries	1	
2	Planning and projections	2	Assignment 5

3	Macro-economic considerations: population, inflation and food prices.	2	
	Module 6		
1	Land tenure system in Nigeria	1	
2	The land use decree	1	
3	Place of agriculture in national budgets	1	Assignment 6
4	Agricultural co-operation and extension	1	
5	A study of some food production strategies, e.g. O.F.N., the Green Revolution, Farm settlements, NORCAP experiment, etc	1	
Total		**32**	

The above table gives the outline of CRD 206, the units, the number of weeks to dedicate to each unit and the associated assignments.

HOW TO GET THE MOST FROM THIS COURSE

In the National Open University of Nigeria (NOUN), there is no lecturer unlike the Conventional University. It counts on your maturity and initiatives. Your drive is the force that propels you and you are the major determinant on when and how to complete the B.Sc Programme in Economics for Co-operative Studies successfully. You should regard the reading of the study materials as if you are listening to lectures. Indeed you are listening to the lecturer indirectly. Every study unit has the same pattern. The introduction followed by the learning outcomes/objectives. Thereafter, you are given the course content. Conclusion is made, followed by the Self-Assessment exercises. You have to carefully go through the exercises as they assist you to recapitulate what you have learnt in the unit.

SUMMARY

Economics for co-operatives gives you the basic knowledge that will put you steadily on B. Sc. Co-operative and Rural Development. Having completed the course, you would have known what an economics for co-operative is and can separate it from other forms of business enterprises. You will also know how to manage a cooperative including how prices are fixed by a co-operative and how to manage them if you are a manager. If the need arises, you will know the procedure for the merger of two or more co-operatives.

You will also be able to identify productive co-operative and the reasons behind their success and failures.

MAIN CONTENT

CONTENTS PAGE

MODULE 1 SCOPE AND APPLICATION OF AGRICULTURAL ECONOMICS

UNIT 1 THE SCOPE OF AGRICULTURAL ECONOMICS

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the Scope of agricultural economics which brings you into a variety of topics and lessons of study, beginning with definition and invention of Agriculture, definition of Economics and its principles, the meaning of Agricultural Economics, Evolution of Agricultural Economics and how Economics is applied to Agriculture.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- define Agriculture and its invention
- define Economics
- explain the meaning of agricultural economics
- know the reason for the evolution of agricultural economics
- explain the application of economics to agriculture
- know the courses in agricultural economics.

3.0 MAIN CONTENT

3.1 Definitions and Invention of Agriculture

The word "agriculture" comes from the Latin words ager, referring to the soil and cultural, to its cultivation. Agriculture is a household name in our local environment which has to do with a broad range of activities that makes it difficult to define agriculture in a generally acceptable definition. This means agriculture can be defined in several ways according to peoples' understanding of the subject matter.

Agriculture is defined as the cultivation and/or production of crops, plants or livestock products. It is the same thing as farming.

It can be defined as a purposeful work through which the elements in nature are harnessed to produce plants and animals to meet human needs. It is a biological process which depends on the growth and development of selected plants and animals within the local environment.

Agriculture was invented by olden day's people after prolonged observations of plants and animal life in their natural habitats. People developed skills for planting and harvesting useful plants and taming some of the wild animals. The invention of agriculture is viewed as the most important historical human development because it came before other past human expansion such as land settlement, increases in human population and the development of arts and crafts.

3.2 Definition of Economics

Having known what agriculture is, let us know what economics is about. Every branch of knowledge is concerned with a particular subject. So also economists tried to define economics. By defining the subject matter of economics they have tried to state clearly the scope of economics to distinguish it from other branches of knowledge. And because economics has suffered a great controversy about its proper definition more than any other body of knowledge, J.N. Keynes described economics as "Political Economy that has strangled itself with definitions."

Economics has also been described as a science that is developed and grown therefore, some adequate and satisfactory definitions are provided thus:

Economics is the study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely

connected with the attainment and with the use of the material requisites of well-being.

Economics is the science that studies as to how people choose to use scarce productive resources to produce various goods and to distribute these goods to various members of society for their consumption.

3.3 The Meaning of Agricultural Economics

As we have defined agriculture and economics, we can now glance through the field of agricultural economics.

Agricultural economics is the study of production, processing, distribution, and consumption of food and fiber. Hence, agricultural economics is the social science dealing with the allocation of scarce resources among those competing alternative uses found in production, processing, distribution and consumption of food and fiber.

3.4 Evolution of Agricultural Economics

Similar to economics, agricultural economics seeks to find relevance between cause and effect, using the most advanced methods, i.e. production function and programming models. It uses theoretical concepts of economics to provide answers to the problems of agriculture and agricbusiness.

The subject of agricultural economics is enriched in many directions and fields, taking the relevant tools of sciences particularly mathematics and statistics.

Agricultural depression which occurred in the last quarter of 19^{th} century and middle of 20th century brought about increased attention and concern to find out plausible causes and solutions for world agricultural depression. Here in this context the contribution made by agronomists, economists, horticulturists, etc., is noteworthy.

Agriculture is the integral part of the world food system, having the foundation links between crops and animal production system. Agricultural economists here have to play a major role in understanding the intricacies involved in the foundation systems. The students of agricultural economics should have a clear insight and understanding of the influence of climatic conditions in determining as to how the commodities are produced and marketed in line with the consumption needs.

Knowledge regarding problems in production, finance marketing and government policies and their impact on production and distribution is very essential to find out suitable solutions for the farm problems. You have to key in properly as we go on.

3.5 How Economics is applied to Agriculture

Agricultural economics is a practical field of economics which makes use of choice in the face of scarce resources such as land, labour, capital and management in farming and other agricultural activities.

A rapidly changing economic environment and the introduction of new technological methods brought about the development in economics of agriculture. The changes in the economic environment started as an applied economics not as a new science and the economics of agriculture followed suit.

Economics was first applied to solving problems in land tenure, growing of crops and raising livestock but economics of agriculture has broadened in scope; people with training in agricultural economics now work in variety of careers such as farm entrepreneurs, economic analysts, professional farm managers, agricultural processing marketing firms, university workers, researchers, etc.

4.0 CONCLUSION

Agriculture is a household name in our society today. The invention of agriculture is viewed as the most important historical human development. The economic depression of 1920s brought increased attention to the study and expansion of agricultural economics. Economics is applied to solve human needs such as land, provision of labour in the cultivation of crops and investing and rearing of livestock in agriculture.

5.0 SUMMARY

This unit has explained the meaning of economics, agriculture, agricultural economics, evolution as well as the application of economics to agriculture. Application of economics to agriculture shows how economics principles are applied to agricultural production, agricultural marketing, finance, management decisions, processing of farm products and other agricultural activities.

6.0 TUTOR-MARKED ASSIGNMENT

1. Define agricultural economics

2. What inspired the evolution of agricultural economics?
3. How is economics applied to agriculture?

7.0 REFERENCES/FURTHER READINGS

S. Subba Reddy, P. Ragbu Ram, T.V NeelakantaSastry and I. Bhavani Devi, (2009): "Agricultural Economics"; Oxford & IBH Publishing Co. PVT LTD, New Delhi.

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UNIT 2 AGRICULTURAL CO-OPERATION AS AN INTEGRAL PART OF THE ECONOMY

CONTENTS

1.0 INTRODUCTION

In this second unit in Module 1, we shall discuss co-operation. We shall use the words "co-operation and co-operative" interchangeably as they mean the same thing. Here, we shall explain co-operation, types of co-operatives, guiding principles of co-operatives, role of co-operatives to agriculture and co-operative an integral part of the economy.

2.0 OBJECTIVES

At the end of this unit, you be able to:

- define co-operation
- explain how co-operative enhances economic development
- discuss types of co-operative societies
- examine the role of cooperatives to agriculture
- explain the guiding principles of cooperatives

3.0 MAIN CONTENT

3.1 What is Co-operation?

Co-operation is a form of organization wherein persons voluntarily associate together as human beings on the basis of equality for the promotion of common economic interest of themselves. It implies joint effort and coordinated action of all the members of the association. Thus, cooperative signifies protection of the weak, provision of equal

justice to all in the society and promotes societal welfare. Each for all and all for each is the motive of co-operation.

Co-operatives operate an open door for entry and exit of interested persons.

The co-operative societies are democratic in nature i.e. they have right to vote and to be voted for; accordingly, one man one vote.

Profits are shared to members according to their participation. Profits arising from the business activities of the members are shared according to each member's volume of business to avoid the feeling of being cheated.

Co-operatives are service oriented businesses and not for profit-making and therefore members enjoy the advantages of low prices.

Co-operatives aim at promoting high standards and unadulterated goods with regular prices and excellent services since they sell to members only. Cash and carry is their motto.

On the other hand, co-operative societies suffer from some of these deficiencies and problems: timely and capital inadequacies because they aim at helping the weaker sections and their capital contributions are hardly adequate to form a larger scale business.

They lack qualified managers. They have limited funds to hire and pay competent managers therefore are run by inexperienced workers.
Government regulations sometimes stiff the activities of the society's problems for the continued existence.

Co-operatives, most often, are individualistic; members struggle for their personal interest rather than the collective (society's) interest.

3.2 Types of Co-operative

Co-operatives are set up for different purposes and they derive their names accordingly, e.g.

- **Producer Co-operatives**

This is the association of producers of similar products that come together to promote the production and sale of their particular product. They pool their resources together most of the times, to procure modern technological equipment, buy raw materials relevant to the production of their goods, e.g. Cocoa Farmers' Association.

- **Consumer Co-operatives**

Consumer co-operatives, as the name implies, are consumers that pool their resources together to buy goods in bulk directly from the producers. They gain the advantage of bulk breaking because they link directly to the manufacturers by eliminating all the middlemen in the chain of distribution.

- **Credit and Thrift co-operatives**

This type of cooperation is very common among us today. Members pool their money together for the sole purpose of lending out to borrowing members as loans for which low interest is charged as agreed, e.g. Isusu (Credit and Thrift) Co-operative societies.

- **Marketing co-operatives**

This type of cooperation is formed solely to sale the products of their members or on the other hand to engage in buying and selling products of interest to assist members manage their resources and make profit, e.g. Palm Oil Sellers Co-operative Society.

3.3 Guiding Principles of Co-operatives

The following are the guiding principles for the establishment of co-operative societies:

1. **Membership is open to every person:** Nobody can prohibit any person willing to join or resign from the society.
2. **Democratic control:** Cooperatives are democratic in nature, every person has an equal say not minding how small or big his/her financial contribution is to the society.
3. **Limited interest paid on capital contributed:** Interest are paid to members according to their financial contributed
4. **Political and Religious Neutrality**: Co-operation has no political and religious motives.

3.4 How is Co-operation an Integral Part of the Economy?

In Nigeria, efforts are being made by both the federal and state governments to reduce or remove the burden of many Nigeria families from unemployment, insecurity, crimes, through the encouragement and establishment of agricultural co-operation schemes. These schemes have helped to reduce crime and unemployment thereby enhancing economic growth and development.

Co-operatives offer great hope for the poor, the down-trodden and struggling masses. Joint efforts and self-help activities tend to provide satisfactory results and governments often encourage and support the formation of co-operatives. Development assistance can be passed to large numbers of people if they are members of cooperative. For example, technical information about crops and livestock production is easier to transmit to groups than individual farmers. Fertilizers, chemicals and improved farming technology can be demonstrated to groups with less effort and lower cost to government.

Co-operative organizations help to increase the level of production of their members, reduce operating costs and generally raise the income level of participants. Co-operatives are allowed to merge from society level to unions, to top entities and hence gain negotiating power to speak with one voice on any issue concerning their welfare.

3.5 Role of Co-operatives in Agriculture

Co-operatives play the following roles in agriculture:

- Agriculture has greatly benefitted from the assistance of co-operatives through the procurement of farm inputs like fertilizers, chemicals, seedling, machinery and supply of credits to members for quick agricultural production.
- They boost agriculture by grouping themselves into sub-sections of co-operation such as fishing, cocoa, rice, etc. thereby incorporating and assisting rural farmers.
- Co-operatives assist in the distribution of agricultural products from where they are lacking to where they are in abundance through organized marketing activities.
- They assist agriculture by attracting government grants and training schemes that facilitate production, marketing, transportation and warehousing of agricultural products.

4.0 CONCLUSION

The essence of co-operation is to assist members in particular and the economy at large. Co-operation is an integral part of the Nigeria's economy. So many lives and businesses have been saved and given meaning through co-operative activities. There are many types of co-operative societies such as consumer co-operative, producer co-operative, credit and thrift cooperatives and marketing co-operatives. Co-operative societies are led by laid down principles.

5.0 SUMMARY

Co-operation is an organization formed by a group of people to help them solve their problems. It is an integral part of the economy. Through the formation of co-operatives, unemployment, insecurity, crimes, etc. are reduced to a controllable rate. Cooperatives help members to survive through pooling their resources together. Cooperatives are formed for many purposes such as large scale production advantage, marketing and sale of products, bulk buying, credit and thrift. Cooperatives are guided by principles: democratic, control, profit to be shared according to members' participation, limited interest to be paid to on capital contributed, political and religious neutrality, etc.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain Agricultural Co-operative
2. How is Agricultural Co-operative an integral part of the economy.

7.0 REFERENCES/FURTHER READINGS

Williams S.K.T. (1980), Rural Development in Nigeria; Ife University Press.

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UNIT 3 PRODUCTION AND SUPPLY: PRODUCER DECISIONS

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the meaning of production, the types of production, factors of production, producer decisions in production, the definition of supply and factors that influence a producer supply decision.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- define production
- discuss the types of production
- explain factors of production
- examine producer decisions in production
- define supply
- explain factors that influence a producer supply decision.

3.0 MAIN CONTENT

3.1 What is Production?

Production is the process of combining and converting basic raw materials, human and man-made resources into goods and services to satisfy human wants.

Production can be said to be the creation of utilities of form, place and time but this does not always involve a change in the physical nature of the product. This definition though broad indicates that production involves a wide range of activities and not only production of goods.

Thus, production consists of the manufacture of goods, performance of some ancillary services, participation in agriculture and the distribution of goods. Production is complete only when the goods and services produced reach the final consumer. For instance, the manufacturer who produces cement out of limestone and other chemicals creates the utility form as he changes the physical nature of the limestone into cement. So also the transporter who conveys the cement from Port-Harcourt, where it is manufactured, to Maiduguri, where it is needed is a producer creating the utility of place while the wholesaler who buys the cement in bulk and stores it until it is needed by the consumer is also a producer creating time utility.

The economy is like a giant production line. At one end, raw materials and other factors of production are combined in the required proportion for production while at the other end; the finished products are rolled out and yet not completed. They have to be packaged, insured, advertised distributed, transported and stored. All those who take part in these processes are producers.

3.2 Types of Production and Factors of Production

3.2.1 Types of Production

Production can be classified under three headings, namely; Primary, Secondary and tertiary production.

- **Primary production**

This involves the production of unprocessed commodities in their natural state and the exploitation of the resources made available by nature. Examples are the production of palm oil or kernel and the production of industrial raw materials such as iron, ore, coal cotton, timber, etc.

- **Secondary production**

This consists of the processing and manufacturing of the primary products into various products capable of satisfying human wants. Producers of textile materials, shoes, cars, Milo etc are examples of secondary products.

- **Tertiary production**

The distribution of the commodities produced so that they get to the final consumer and the provision of services constitute tertiary production. Examples of such services are manufacturers' representatives, wholesalers, warehousing services, transportation systems, etc.

3.2.2 Factors of Production

Factors of production are classified into four: land, labour, capital and entrepreneur.

- **Land**

Land consists of not only the physical tertiary but also the natural resources such as crude oil, rivers, sun and wind. It includes all resources in their natural states. They may be limited or surplus in supply, easy or difficult to obtain. Some of these natural resources are replenishable while others cannot be replaced. Land, though, is a free gift of nature; it has different values in different areas. All resources are scarce relative to their demand for example in areas where there is abundance of land relative to other factors of production; the market value of land is usually low and vice versa.

In Nigeria today, for instance, parcel of land that is considered suitable for residential buildings attract higher market prices than land for agricultural purposes. This is because residential houses yield higher income than agricultural products. The location of a piece of land in a given area also determines the market value of that land. Nearness to large population areas means that the products of land are marketed with ease and perhaps at low cost so that land nearer urban centers attracts a higher value than those at the rural areas.

- **Labour**

Labour consists of human efforts both physical and mental efforts used in the production of goods and services. Education and training in skills influence the performance rate of any labour force.

Labour is regarded as a special factor of production because of the nature of human beings while land and capital are inactive and can be manipulated anyhow, labour is active and cannot be treated so. For instance, when land and capital are left unused, there is only a loss in economic efficiency but social problems are treated in addition to the economic waste, when labour is left unused or unemployed.

- **Capital**

Capital consists of that community's wealth that is used up in the production of additional wealth. This implies that all wealth cannot be described as capital. Wealth in the form of goods for immediate consumption such as expensive private cars or very attractive residential houses cannot be regarded as capital. Capital include all kinds of man-made resources such as tools, factory building, machinery, industrial plants and raw materials which are not produced for their own sake but for use in the production of additional goods and services.

Capital can be classified into producer or capital goods, human capital and social capital.

Producer or capital goods consist of those goods desired not for their own sake but only to aid in the production of other commodities for future consumption.

Human capital refers to investment in the education and technical training of an individual while social capital refers to productive wealth jointly owned by the members of the community. Examples of social capital include; hospitals, libraries, pipe-borne water, electricity, good road network, etc.

- **Entrepreneur**

This is the person who coordinates the activities of other factors of production for the realization of the motive of profit maximization. He determines what to produce how to produce, method of production and the quantity to produce. We can take a farmer who produces livestock for commercial purposes as an entrepreneur. He undertakes the risk and loss of the enterprise alone as well as enjoys the profit alone. He is also known and called the producer.

3.2.3 Producer Decisions in Production

In the course of production of goods and services several decisions have to be made by the producer before embarking on such investment. Those decisions which involve less investment but are made more frequently are called operational producer decisions.

These decisions can be reversed without incurring a cost or with less cost. These decisions are what, how and how much to produce. The essence of decisions by a producer is to avert risk and maximize profit but if after production, the revenue obtained is not enough to cover the costs incurred then the producer suffers the loss alone.

Suppose, for example, that a producer undertakes the production of *semovita* with hope that *semovita* will be sold. He not only decides where to produce it, but what price to charge and then makes contractual arrangements with owners of capital, land and labour for sale of the *semovita*.

The producer makes decisions on how to buy and sale the products and with profit. The decision is called marketing decision- and are very crucial to a producer because of changing marketing conditions.
The producer makes administrative and strategic decisions which involve financing the firm business, supervision, accounting, and adjusting the production programmes in case of government price policies.

SELF-ASSESSMENT EXERCISE

i. What is production and when is it said to be complete?
ii. Discuss the factors of production and explain why the entrepreneur is regarded as a factor of production.

3.3 Supply: Producer Decisions

Supply is defined as the different quantities of commodity which producers are willing and able to offer for sale at a specified price and at a particular time. Supply is a function of scarcity just as demand is a function of utility. The higher the price of a commodity, the higher the rate of profitability, if the costs of production remain constant consequently, the greater the quantity that producers are willing to supply, the more the supply curve slopes upward from left to right.

3.3.1 Quantity Supplied and Price

- **Supply schedule**

The supply schedule for a commodity is a table which shows the various quantities of a commodity that producers offer for sale at different prices over a period of time.

The supply schedule can be derived by adding together the various quantities of the commodity which each producer offers for sale at the different prices and at a particular time.

Table 1: Individual and Market Supply Schedules for Palm Oil per Week.

Price of One liter of Palm Oil	Producer A	Producer B	Total Market Supply
350	55	45	100
300	50	40	90
250	45	35	80
200	40	30	70
150	35	25	60
100	30	20	50
50	25	15	40

The information contained in supply schedule above can be plotted on a graph known as supply curve.

Supply Curve

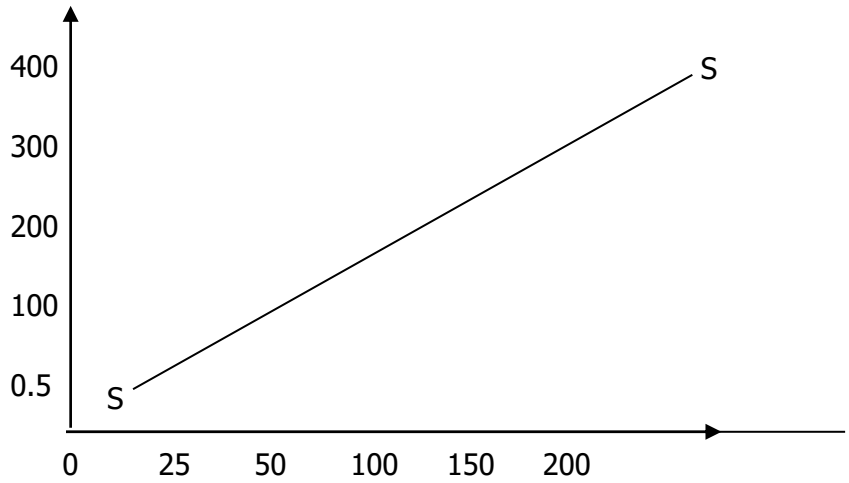

Figure 1. Quantity Market supply curve for Palm Oil

The price level is shown on the vertical axis while the quantity supplied is shown on the horizontal axis above.

It is observed in figure 1 that the supply curve moves upwards from left to right indicating that the quantity supplied of any commodity increases with increase in the price of the commodity and vice versa. This is in agreement with the law of supply which states that the quantity supplied of any commodity varies directly with its price. When we do this we assume that all other things are held constant, i.e. ceteris paribus.

$$Qs = F(P)$$

Where

Qs = quantity supplied

F(P) = function of price

Only in very few cases will the supply curve move in the opposite direction and even then only for a very few portion of its total length. Such an exceptional supply curve is known as aggressive supply curve and it shows that a rise in price calls for a smaller quantity to be supplied instead of a larger quantity.

The producer supply decisions

The producer supply decisions of a commodity are influenced by the following factors though these factors are not exhaustive but considerable:

- **Price:** It is already known from the law of supply that the higher the price of a given commodity the higher the quantity produced and supplied.
- **Technology:** Technology is another factor that affects the supply of a commodity. In other words, the higher the level of technology, the higher the quantity of goods and services produced and vice-versa.
- **The Price of other Commodities:** The price of other commodities also affect the supply of a commodity, if the price of a commodity rises, the production of such commodity will be less profitable. This will cause resources to be shifted to the production of those commodities whose price have risen thereby causing in full in the supply of that commodity. On the other a decrease in the prices of other commodities will make resources to be shifted to the production of the commodity whose price has not changed thereby increasing the production and supply of the commodity.
- **Government Policies:** The supply of a commodity is also influenced by government policies. Other factors that can affect supply include indirect taxes on commodities that raise the costs of production thereby reduce the supply. Government subsidies on the hand decrease production costs and increase supply.
- **Cost of Production:** Changes in the costs of production affect changes in the supply of a commodity. If the prices of factors of production rise, the cost of production will be high and this will reduce the quantity of a commodity that producers are able to produce and supply at the rating price. On the other hand, if the cost of production falls more of the commodities will be produced and offered for sale.

- **Weather Condition:** Change resulting from nature affects the supply of a commodity. Good weather and the absence of natural disaster such as flood, drought and pests lead to increase in supply while bad weather and natural disasters lead to a fall in supply especially agricultural products.

Supply function can be therefore expressed thus:

$Qs = F (x_1, x_2, x_3 \ldots\ldots\ldots\ldots Xn)$

Where Qs represent the quantity supplied and $x_1, x_2, x_3 \ldots\ldots x_n$ represent the factors that influence supply.

Increase and decrease in supply (Shift in Supply)

Increase in supply implies more supply at the same time and decrease in supply means less supply at the same time. The change in supply (increase and decrease) results in a shift of the supply curve. An increase in supply results in the shift of the supply curve to the right side of the initial supply curve as shown in figure 2 below.

The new supply curve is S_2S_2. Origin OQ quantity is supplied at OP price but due to the changes in supply conditions at the same price, OP,o4, quantity of commodity is supplied indicating increase in supply. On the other hand, OQ supply is decrease as a result of influence of changes in the supply condition at the same time.

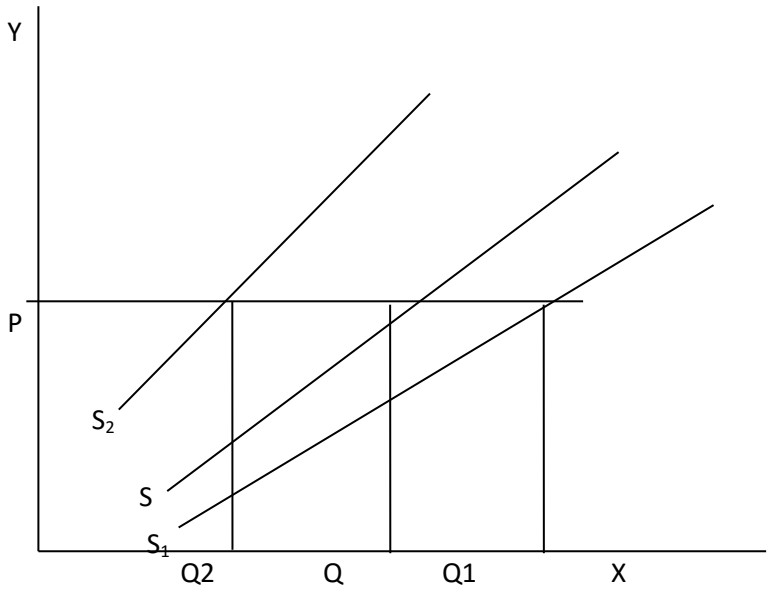

Figure 2. Increase and decrease in supply for Producers decision

4.0 CONCLUSION

The producer takes the four main management decisions i.e operational, strategic, marketing and administrative. This he does in order to ensure the success of the business enterprise.

5.0 SUMMARY

Production consists of the manufacture of goods, performance of some ancillary services, participation in agriculture and the distribution of goods. Production is complete only when the goods and services produced reach the final consumer. Production can be classified under three headings, namely; Primary, Secondary and tertiary production. Factors of production are classified into four: land, labour, capital and entrepreneur.

The producer makes administrative and strategic decisions which involve financing the firm business, supervision, accounting, and adjusting the production programmes in case of government price policies in addition to mapping out investment, marketing and operational strategies.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain the four stages of production.

7.0 REFERENCES/FURTHER READINGS

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MODULE 2 FARM MANAGEMENT

UNIT 1 FARM MANAGEMENT

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the Farm ManagementDefinitions, Scope of Farm Management, the role of farm management, relationship between Farm Management and other sciences, the differences between farm management and agricultural production economics.

2.0 OBJECTIVES

At the end of this unit, you will be able to:

- define farm management
- explain the scope of farm management
- examine relationship between farm management and other sciences.
- differentiate between farm management and agricultural production economics.

3.0 MAIN CONTENT

3.1 Farm Management Definitions

Before we define farm management, let us understand what a farm is.
A farm is a socio- economic and also a decision making unit. It is a socio economic unit because it provides income to the farmer and also forms a source of livelihood to the family. It is a decision making unit because it assists the farmer to choose from many available resources such as different crops and livestock enterprises.

Each farm unit has the capacity to produce a given quality of crop and livestock products in our nation. The contribution of each farm unit when combined represents the total agricultural production of the nation. The wellbeing of the nation rests on the performance of the several millions of these small units.

Farm management is a branch of agricultural economics which deals with wealth earning and spending activities of a farmer in relation to the organization and operation of the individual farm unit for securing the maximum possible net income.

Farm management is a sub-division of economics which considers the allocation of limited resources within the individual farm. It is a science of choice and decision making and thus a field requiring calculated judgment.

3.2 Scope of Farm Management

The scope of farm management deals with the areas of coverage of the farm unit. It falls under the microeconomics field. Farm management embraces the allocation of resources at the individual unit level, the type of crops or livestock enterprise and their combinations to cultivate. It explains the amount of resources to invest and the expected profit to be realized. It also treats how each farm activity is performed and how individual challenges are handled. All these are important aspects of farm management.

3.3 The Role of Farm Management

The role of farm management in the control and coordination of farm resources (both material and human resources) cannot be over emphasized. Many decisions need to be made by the manager in the organization of farm business.

Farm management should understand the principles of the forces of demand and supply because they determine the outcome of the farm resources applied.

The farmer cannot control the complex economic factors which may affect the output of the farm without adequate knowledge of the price mechanisms. He has to understand new government policies which may be to the advantage or disadvantage of the farm business.

For example, higher prices announced by government for grain will be advantageous to the grain farmers whilst the lifting of import restrictions on frozen chicken will adversely affect producers in the poultry business whose chickens are almost ready for sale.

It is therefore, necessary for the farmer to be familiar with the prevailing market situations, weather conditions, seasonal crops and livestock production and take appropriate decisions.

3.4 Relationship between Farm Management and other Sciences

The relationship that exists between farm management and other sciences is discussed under the following headings:

1. Economic Theory

Theories applied to farm management are usually drawn from economic theories which are assumptions or speculations on economic subject matters such as demand and supply, the law of diminishing returns, law of factor substitution. Farm management or agricultural economics makes use of these theories to function effectively.

2. Statistics and Farm Management

Statistics provides the methodology in the collection and analysis of data for the assessment of the farm management performance.

3. Biological Sciences and Farm Management

Biological sciences supply information relationships for various businesses which facilitates for the entrepreneur. The Farm manager needs such information to enable him take necessary action for production efficiency.

4. Social Sciences

The farm managers' attitudes towards decision making are sometimes influenced psychologically by their belief, religion, and culture. The ability to take or avert risks by the farmers is dependent on the psychological and/or sociological disposition of the individual farmer. e.g. the decision of a farmer to cultivate narcotics because of its high profit potentials and the ethical implication require sociological consideration.

Through the above fields of study farm management enjoys relationships that enable it to take cost-effective business decisions.

3.5 The Differences between Farm Management and Agricultural Production Economics

We state as follows the differences that exist between farm management and agricultural production economics:

- Agricultural production economics is a science in which principles of choice are applied to the use of the factors of production (land, labour, capital and entrepreneur) in the farm business; while farm management is organized and operated at farm level with a view to earn continuous profit.
- Agricultural production economics is a specialized branch of agricultural economics while farm management is an integral part of agricultural part of agricultural production economics.
- Agricultural production economics is a micro economic in its scope as it deals with the problem of farming business while farm management is micro economic in its scope as it is concerned with the problems of individual farm.
- Agricultural production economics deals with allocative efficiency of the use of resources in agriculture while farm management deals with economic efficiency at the farm level.
- Agricultural production economics is an inter-farm study while farm management is intra-farm study.

4.0 CONCLUSION

From the discussion, you discover that the wealth of the nation depends on the prosperity of farmers. Farm management is the decision making unit that attracts wealth to the farm business. The essence of farm management decisions is to avert risk and maximize profit.

5.0 SUMMARY

Farm management is a subsection of agricultural economics which attracts wealth into the organization through the application of business and scientific principles. It has various decision making units, such as organizational management decisions, administrative and marketing decision making units.

6.0 TUTOR-MARKED ASSIGNMENT

How do you think the farmer can control the complex economic factors which may affect the output of his farm?

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UNIT 2 FRAMEWORK FOR DECISION MAKING

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the framework for decision making in farm management. Farm management entails decision making process. Several decisions need to be made by the farmer as a manager in the organization of farm business. The management decisions are broadly classified into organizational management decisions, administrative management decision and marketing management decisions, etc. which are discussed below.

2.0 OBJECTIVES

At the end of this unit, you should be able to discuss the framework for management decision with understanding of the following decision making process:

- discuss organizational management decisions
- explain administrative management decision
- discuss marketing management decisions
- analysis principle of factor substitution.

3.0 MAIN CONTENT

3.1 Organizational Management Decisions

The organizational management decisions are further sub-divided into for better explanation and understanding:

- Operational management decisions and
- Strategic management decisions.

3.1.1 Operational Management Decisions

The operational management decisions are the day to day activities of the business which involve less investment but are made more often. These decisions are what, how and how much to produce in the farm business.

- **What to produce**

Here, every farmer has to decide at the beginning of every crop season about the type of farm commodities to produce with the resources available on the farm. It means whether to produce crops alone or livestock alone or the combination of both crops and livestock.

- **How to produce**

Upon taken the decision on what to produce by the organization, the next immediate operational management decision is how to produce. In the selection of resources and their combinations, the farmer is concerned with less cost but more profit.

- **How much to produce**

After the decision on what and how to produce, the next decision confronting the farmer is taking decision on how much to produce. This implies deciding upon the quantities of various inputs to be used in the production as the level of production depends on the amount of input used.

3.1.2 Strategic Management Decisions

Strategic management decisions involve high intensive investments which are made less frequently by the organization. Under strategic management decision making, decisions are not easily reversible. The organization takes strategic management decisions about the size of the farm, type of machinery needed, labour employed, construction of the farm building, and permanent improvement on the farm such as development of irrigation facilities, soil conservation renovation programmes, etc.

3.2 Administrative Management Decisions

In addition to the organizational management, administrative decisions such as financing the farm business, supervision, accounting and adjusting farm business according to government policies are some of the decisions the farmer takes.

1. Financing Farm Business

Most Nigeria farmers are capital starved, hence they depend on borrowed capital which requires administrative management decisions, they have to decide whether or not to borrow, on whom to borrow, when to borrow and how much to borrow.

2. Supervision:

To achieve the desired goals on the farm, farmers keep a close watch on all the activities performed in the production of crop and livestock enterprise.

3. Accounting

Farmers make decisions about the time and money to be allocated for the maintenance of farm business activities.

4. Marketing Management Decisions

Marketing decisions here mean the buying and selling decisions, logistics the farmers take.

- **Buying:** Every farmer makes an attempt to purchase necessary input from the least cost source. In buying resources, a farmer has to decide the agency, the timing and the quantity to be purchased.
- **Selling:** What to sell, where to sell, who to sell, when and how to sell are the important selling decisions before the farmer.

3.3 Principle of Factor Substitution

The farmer as a manager has to make an important operational management decision i.e. how to produce. It implies the methods of production or the type of combination of resources.

The principle of factor substitution guides the farmer to choose the most appropriate method of production or technology that produces a small piece level of output with least cost; there are many alternative ways of producing farm commodities. The choice of method of production depends on the availability of resources.

The principle of factor substitution says that it is economical to substitute one resource (added resource) with other resources (replaced resources), as long as the reduction in the cost, resulting from decreased use of replaced resource is more than the increase in the cost due to increase use of added resource. The two cost aspects are compared with the help of the principle of factor substitute, to find out least cost combination of resources.

Decrease in cost > increase in cost

Quantity of replaced resource	Quantity of added resource
Multiplied by price per unit >	multiplied by price per unit
Of replaced resource	of added resource

Quantity of replaced resource >	Price per unit of added resource
Quantity of added resource	Price per unit of replaced resource

MRTs > PR

In the process of substitution, we shift from one input combination to another input combination, as a result of which there is an increase in the use of one resource and decrease in the use of another resource. As we move on from combination A to combination B, e.g the quantity of grains (X_1) is increased by 50 units, while the quantity of corn (X_2) is reduced by 125 units. Given the prices of X_1 at N4 per unit and X_2 at N1.90 per unit, the amount saved from reduction of 125 of X_2 is N237.50 and the increase in the cost of X_1 due to increase of 50units of X_1 is N200. The saving thus arrived at exceeds the increased costs indicating the rationality of substituting X_1 for X_2. The process of substituting grains X_1 for corn X_2 continues till the saving in the amount from corn is equal to increase in the cost of grains.

4.0 CONCLUSION

Management decisions are very important to the farm manager. The manager is severally confronted with the decisions on what to produce, how to produce, where to produce and how much to produce. He takes such decisions in order to produce at least cost but maximum profit.

5.0 SUMMARY

The management of farm settlement is a decision making unit that decides on issues concerning the day to day operational activities of the farm, involving high intensive investments which are made less frequently by the organization. Administrative management, on the other hand, takes decisions such as financing the farm business, supervision, accounting and adjusting farm business according to government policies as they affect the farm. Management also takes

Marketing decisions on the buying and selling, distribution and other marketing strategies.

The management in addition, applies the principle of factor substitution to get the least option that will give him the best result.

6.0 TUTOR-MARKED ASSIGNMENT

Explain the various management decision strategies.

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UNIT 3 THE PRODUCTION FUNCTION

CONTENTS

1.0 INTRODUCTION

This unit introduces you to production function, the nature of Production function, total products, average products, marginal products, Law of Diminishing returns

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- discuss production function
- explain nature of production function
- identify total products
- discuss average products
- analyze marginal products
- explain Law of diminishing returns.

3.0 MAIN CONTENT

3.1 The Nature ofProduction Function

A production function gives the total quantity of output of a given commodity that can be produced from a specified combination of factor inputs. A production function contains all the method of production that yield the same output level.

It can also be described as a schedule or table which gives the maximum amount of output of a commodity that can be produced from any specified combination of factor inputs, given the level of technology.
It is usually given as Q = f(L, K) in a two input model.

Where

Q = quantity of output
L = labour input
K = capital input.

Other productive variables like land and raw materials which are not specified in the function can also be included in a generalized production function thus:

$Q = f(x_1, x_2, x_3 \ldots x_n)$

Where

Q = output

Xs = various inputs

A production function indicates the level of technology of a firm, an industry or the entire economy. While production is a technical and mathematical relationship describing the manner and the extent to which a particular product depends upon the quantities of inputs or services of inputs, used at a given level of technology and at a given period of time. It shows the quantity of output that can be produced using different levels of inputs.

Here, we discuss the concept relationship which exists amongst various products: total product, average product and marginal product by using different units of inputs, measuring in physical units like kilogramme, quintals, etc.

In the process of production, some factors of production are held constant in the short-run (fixed inputs) while other variables are altered (variable inputs) to produce given output levels. The quantity of output that is obtained from each combination of the fixed inputs and the variable inputs is referred to as the total product. The total product which a producer obtains from combining a given quantity of a fixed input with different quantities of the variable input are given in column 3 of table 2 below.

Table 2 Total, Average and Marginal Products

Fixed input (1)	Variable input (2)	Total product (3)	Marginal product (4)	Average product (5)
3	0	0	-	-
3	1	10	10	10
3	2	24	14	12
3	3	39	15	13
3	4	52	13	13
3	5	63	11	12.6
3	6	68	5	11.33
3	7	68	0	9.71
3	8	66	-2	8.25

The information contained in columns 2 and 3 of table 2 is shown graphically in figure 4. The units of output are shown on the vertical axis while the variable input, the number of farm workers, is shown on horizontal axis. Joining the points, we obtain the total product curve which is the locus of the quantities of output which are obtained as the producer varies the quantity of the variable input.

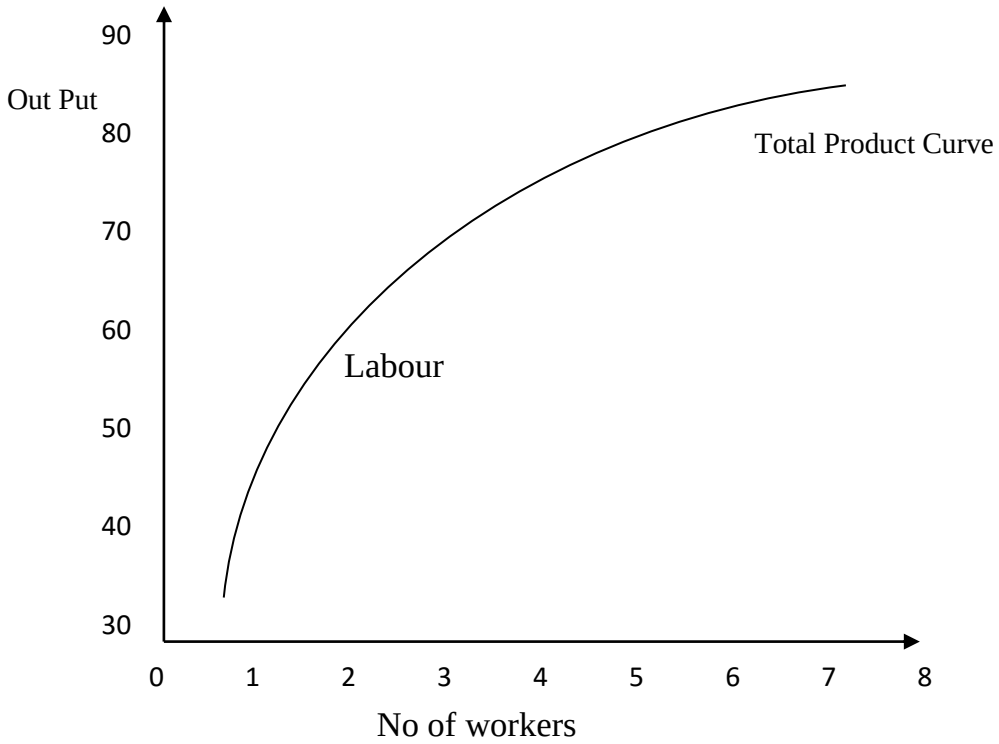

Figure 4. Total Product Curve

It is observed in figure 4 that the total product curve, first rises, reaches a maximum point and then begins to fall. This nature of the total product curve is explained by the principles of diminishing marginal physical returns, otherwise known as the law of diminishing returns.

3.2 Average Product

The average product of a factor is the total output divided by the number of units of that factor used in producing the output. It is usually derived by dividing the total output by the quantity of the variable input used in its production. In table 2 above for example the average product when 2 farm workers are employed to produce 24 units of output is 12 units which is given by 24 divide by 2.

The average products for the different levels of output are given in column 5 of table 2. The average product is usually expressed as:

$$AP = \frac{Q}{L}$$

AP = Average Product

Q = Quantity of output

L = Units of the variable input

3.3 Marginal Product

The marginal product of a factor is defined as the change in total output resulting from a change in the quantity of the variable factor, the fixed factor remaining unchanged. It is calculated by subtracting the preceding total output level from the succeeding output level. In table 2 for example, the marginal product for the fourth unit of the variable input is obtained by subtracting the total output level of three workers from the total output level of four workers, representing 52 – 39 = 13.

The marginal product is usually given as MPn = TPn – Tpn-1.

Where

MPn = Marginal product of the nth unit
TPn = Total output level of the nth unit
TPn -1 = Total output level of the (n-1)th unit.

The marginal products for the different output levels in table 2 are given in column 4. The marginal product of a factor may be positive, zero or negative using the information in columns 2, 4 and 5 of table 2, the average and marginal product curves are plotted in figure 5 below:

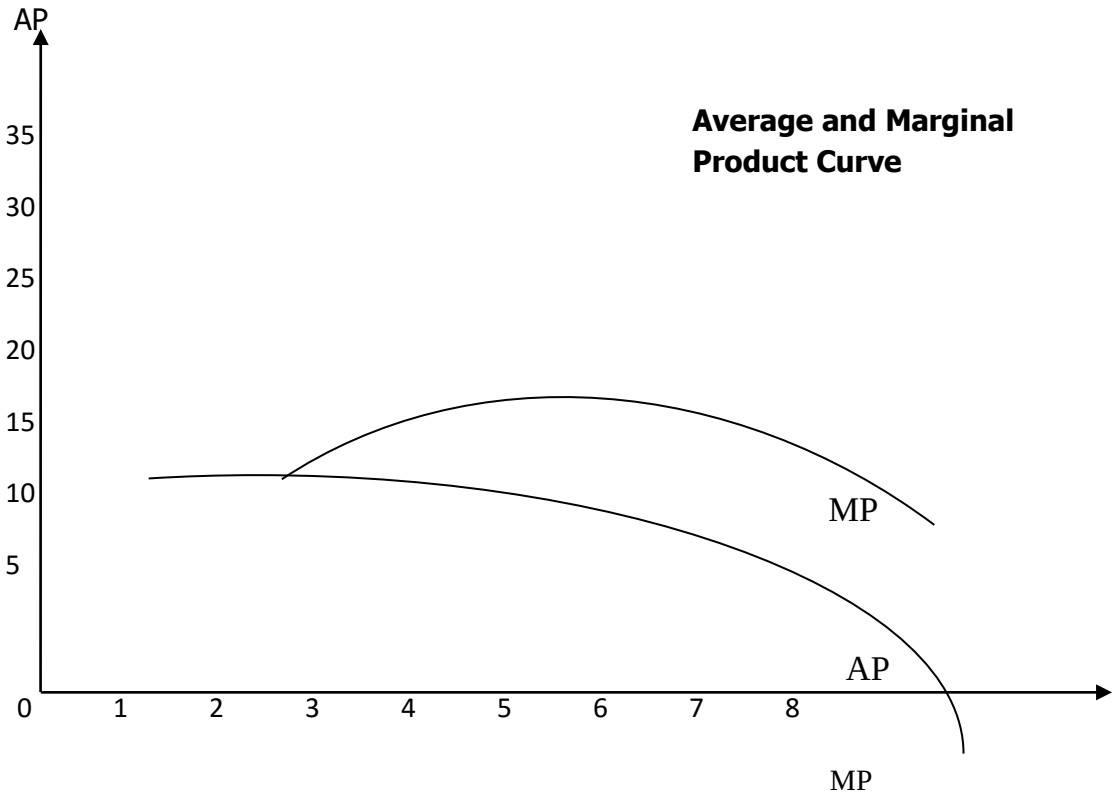

Fig 5. Above shows Average and Marginal Products Curve

It is observed in figure 5 that both average and marginal product curves first rise, reach a maximum and then falls gradually. The average product curve falls to zero only when the total product falls to zero, meaning that the average product curve cannot fall to zero unless total product is zero. The marginal product curve can fall to zero only when changes in output resulting from unit changes in the variable factor become zero. It can fall below zero when changes in output resulting from unit changes in the variable factor become negative.

3.4 Law of Diminishing Returns

The law of diminishing returns tells us how total output changes as additional units of the variable input are applied to a specified quantity of the fixed input. This law indicates the relationship between a variable input and output level it helps to produce.

The law states that if increasing quantities of a variable factor are successively added to a fixed quantity of other factors, total output increases, until a point is reached, beyond which total output declines as each successive unit of the variable factor adds a smaller and smaller amount to the total output. In table 2 above when one unit of the variable factor is applied to the fixed factor, 10 units of the commodity are produced. When 2 workers were hired total output increases to 24

indicating that the second worker has contributed 14 units to the total output.

When the number of workers increased to 3, total output is further increased to 39 units, resulting in a marginal product of 15 units. Beyond this level of employment, additions to total output resulting from successive increases in the number of workers employed began to fall. The employment of more or less than 3 workers led to a lower marginal product because at this level the addition to total output by the last worker is at its maximum. However, the producer is guided in his employment exercise by the equality of the marginal and average products.

3.4.1 Reasons for the Application of Law of Diminishing Returns

- **Excessive dependence on agriculture:** a farmer, however good he is in management of the farm may not get the expected yields as he has little control over the weather.
- **Less scope for division of labour:** there is no possibility of division of labour in farming because the farmer alone does the work: labour, manager and entrepreneur, therefore, the advantage of division of labour is not a possibility. As a result, the law of diminishing returns sets in rapidly in farming.
- **Cultivation of inferior farm lands:** to meet the food requirement of the teeming millions of population, even inferior farm lands are frequently cultivated productivity of which in general is low. This continuous cultivation of the farm land drains out the fertility of the soil.

4.0 CONCLUSION

A production function contains all the method of production that yield the same output level. It indicates the level of technology of a firm, an industry or the entire economy. We discuss the concept relationship which exists amongst various products: total product, average product and marginal product by using different units of inputs, measuring in physical units like kilogramme, quintals, etc.

The law of diminishing returns tells us how total output changes as additional units of the variable input are applied to a specified quantity of the fixed input. This law indicates the relationship between a variable input and output level it helps to produce.

5.0 SUMMARY

In the process of production, some factors of production are held constant in the short-run (fixed inputs) while other variables are altered (variable inputs) to produce given output levels. The total product curve, first rises, reaches a maximum point and then begins to fall. This nature of the total product curve is explained by the principles of diminishing marginal physical returns, otherwise known as the law of diminishing returns. We apply the principles of law of diminishing returns in the case excessive dependence on agriculture, less scope for division of labour and cultivation of inferior farm lands.

6.0 TUTOR-MARKED ASSIGNMENT

Explain the law of diminishing returns.

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MODULE 3 COSTS ANALYSIS IN AGRICULTURAL PRODUCTION

UNIT 1 INPUT, OUTPUT ANALYSIS, COST ANALYSIS, MARGINAL ANALYSIS, COST ANALYSIS IN AGRICULTURAL PRODUCTION

CONTENTS

1.0 INTRODUCTION

We begin our study of the costs of production with the theory of short run costs, which is followed by the analysis of long-run costs. The cost of production for a given output level in the short-run is determined by the physical conditions of production and the unit prices of the inputs used in the production process. The total cost may be broken into two component parts fixed and variable costs.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- discuss costs variables
- input, output analysis
- average total cost
- short run analysis

- marginal cost analysis
- relationships between average cost and marginal cost
- long run analysis.

3.0 MAIN CONTENTS

3.1 Cost Analysis

We begin out study of the costs of production with the theory of short run costs, which is followed by the analysis of long run costs. The cost of production for given output level, in the short run is determined by the physical conditions of production and unit prices of the inputs utilized in the production process.

- **Total Fixed Costs (TFC)**

Inputs are classified as either fixed or variable depending on the planning structure. Corresponding to fixed inputs are short-run fixed costs. Fixed costs are contractual commitments which must be adhered to whether a firm produces any output they remain unaffected by either an increase decrease in the quantity of output produced. In other words, fixed costs are constant at all levels of production.

In table 3, the fixed cost for all levels of output is ₦35000.00 and is in column 2.

Example of fixed costs for agricultural production includes cost of buildings, fixtures and fittings, plants and machinery, equipments, etc. It is also known as overhead or operational costs.

- **Fixed Variable Costs (FVC)**

A variable cost is the one that changes with the level of output, increasing or decreasing as output is increased or decreased variable costs vary with the quantity of variable inputs used, just as variable inputs vary with the output level. In table 3, the third column given the variable costs for the various output increase with output but the rate of increase is not constant.

At first, it increases at a decreasing rate up to the 4^{th} unit of the output. Beyond this level, the variable cost increases at an increasing rate. Interest on borrowed capital, rent on land, salaries and wages, maintenance costs, depreciation on plants and machinery are examples of variable costs. This phenomenon is explained by the law of diminishing returns.

- **Fixed Total Cost (FTC)**

The addition of the fixed and the variable costs at each level of output gives the total costs as in column 4 of table 3. Total costs are the sum or total of all production costs which consists of all expenditures incurred to produce a given output.

Table 3 Total Fixed Cost, Total Variable Cost and Total Costs

(1) Out put	(2) TFC	(3) TVC	(4) TC
0	35,000	0	35,000
1	35,000	35,000	70,000
2	35,000	65,000	100,000
3	35,000	90,000	125,000
4	35,000	110,000	145,000
5	35,000	135,000	170,000
6	35,000	165,000	200,000
7	35,000	200,000	235,000
8	35,000	240,000	275,000

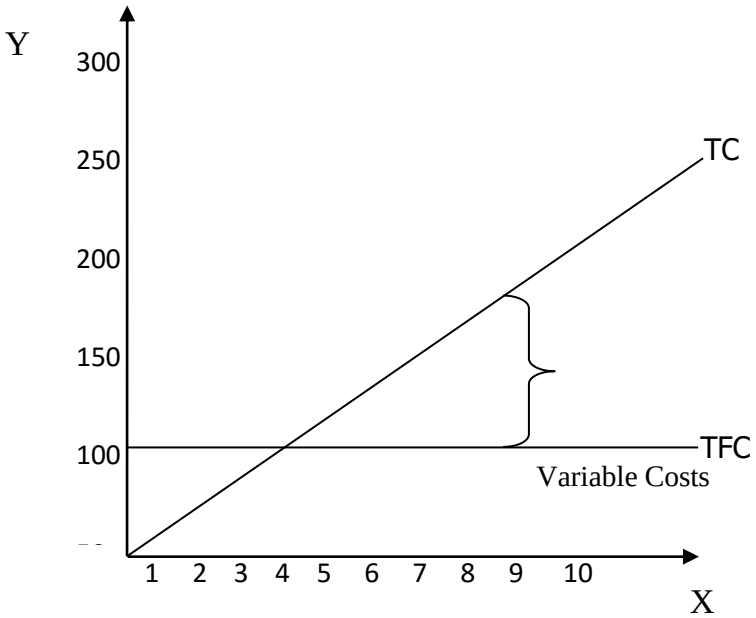

Figure 6: Total, fixed and variable cost curve

1. Average Total Cost

This is the total fixed cost divided by the number of units of output. It is mathematically represented as: $\frac{TFC}{Q}$

While total fixed cost is a constant, average fixed cost declines as output increases, since the constant fixed cost is being spread over larger and

larger outputs. Column 6 of Table 3 gives the figures for average fixed cost for the different output levels.

Average variable cost is equal to the total variable cost divided by the corresponding output level. It is given as:

$$AVC = \frac{TVC}{Q}$$

Average variable cost first declines, but after a point, it rises, being subject to the law of diminishing returns. The AVC is mathematically given in column 7 of Table 6.

Average Total Cost (ATC)

This is the cost of producing a single unit of an output. It is computed by dividing total cost by the number of units output produced. i.e.

$$ATC = \frac{TC}{Q}$$

It can be arrived at by adding the Average Fixed Cost (AFC in column 6) and the average variable cost (AVC in column 7). In this case, ATC = AFC + AVC. In Table 2 the values for average total costs for the different output levels are given in column 8. The average total cost (ATC) falls as output is increased. This tendency is explained in the short-run by the fact that at the initial stage of production, factor inputs may not be optimally combined or that some factors of production are under-utilized. This may lead the firm to produce below its expected capacity at increase cost with the result that an increase in output has the effect of spreading cost, especially fixed cost, over a greater volume of output, thereby reducing the average total cost per unit of output. This is usually the case in businesses where fixed cost comprises a high proportion of total costs.

The tendency for average cost per unit to fall, in the long-run, as output is increased is explained by the fact that as soon as a firm begins to enjoy the advantages of large scale production costs are reduced with the attendant decline in average cost per unit of output.

2. Marginal cost Analysis

This is the extra-cost of production one additional unit of the production. It is the increase (or decrease) in total cost resulting from one unit increase (or decrease) in the level of output. Simply put, it is the amount by which a firm's total cost increases when the firm raises its output by

one unit. Marginal cost is given by the partial derivative of the total cost function (variable cost) with respect to change in output. This is so because fixed cost is a constant and its derivative is zero and this shows that marginal cost is just marginal variable cost.

Given that:

$$TC = TFC + TVC$$

$$MC = \frac{\Delta TC}{\Delta Q}$$

$$= \frac{\Delta - TFC}{\Delta Q} + \frac{\Delta TVC}{\Delta Q}$$

$$= Q + \frac{\Delta TVC}{\Delta Q}$$

i.e. $$MC = \frac{\Delta TVC}{\Delta Q}$$

Where

ΔTC = change in total cost
ΔTVC = change in total variable cost
ΔTFC = change in total fixed cost
ΔQ = change in output.

Marginal cost is also computed by successive subtraction of the entries in the total variable cost columns in Table 4. Thus, the marginal cost of the second unit of output is given by:

$$MC_2 = TC_2 - TC_1$$

or

$$MC_2 = TVC_2 - TVC_1$$

The marginal costs of the different output levels are given in column 5 of Table 4. It is observed that marginal cost first declines, reaches a minimum and rises thereafter. This is because variable cost (hence total cost) increases first at a decreasing rate and then at an increasing rate. This implies that the marginal cost first declines, reaches a minimum and then rises.

Marginal cost is of great important to the producer because this is the cost he can directly control by either expanding or contracting output.

The producer uses marginal cost analysis to examine the bottom-line of the business either to expand or contract output.

- **Short-Run Total Costs (STC) Analysis**

Short-run total costs consist of all the farmer's economic costs of the enterprise in the short-run. It is obtained by simply adding a constant (TFC) to Total Variable Costs (TVC).

Short-run Total Costs (STC) = (TVC) + (TFC).

Table 4 Short-Run Total Costs Schedule

(1) output	(2) TFC	(3) TVC	(4) TC	(5) MC	(6) AFC	(7) AVC	(8) ATC
0	30	0	30	-	infinity	0	infinity
1	30	30	60	40	30	30	60
2	30	60	90	35	15	30	45
3	30	90	120	25	10	30	40
4	30	110	140	20	7.5	27.5	35
5	30	135	165	25	6	27	33
6	30	165	195	35	5	27.5	32.5
7	30	200	230	40	4.3	28.6	32.9
8	30	240	270	50	3.75	30	33.75

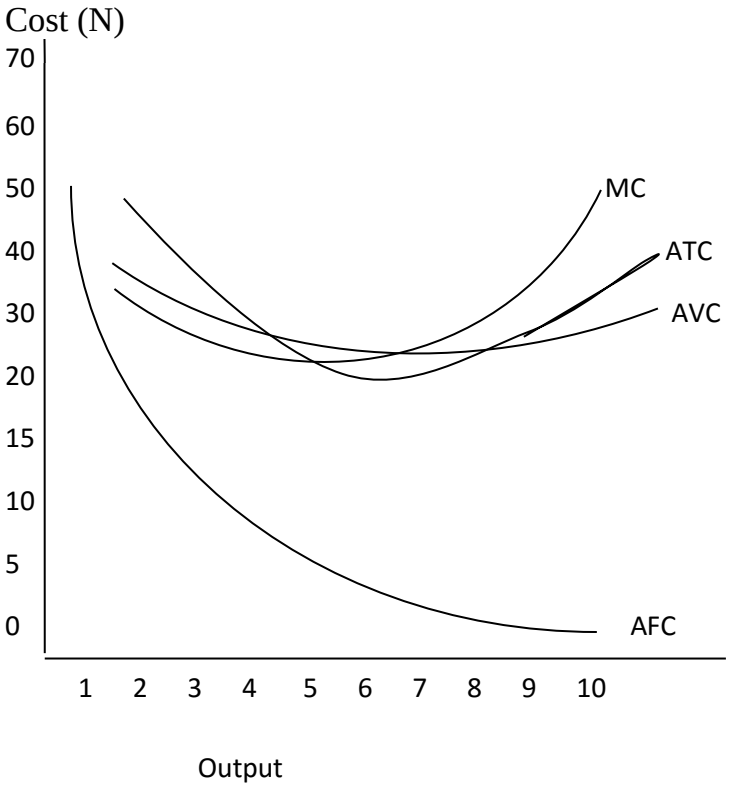

Figure 7.

It is observed figure 7 above that the average fixed cost (AVC) curve declines steadily or has a negative slope throughout its entire range. This shape of AFC curve is explained by the fact that fixed cost is constant, the ratio of fixed cost to output declines continuously as output increases. The AVC curve, reaches a minimum and rises thereafter because of the law of diminishing returns. The net effect is that the AVC curve is 'U'-shaped. The average total cost (ATC) curve is also somewhat 'U'.

Recall that ATC = AFC + AVC. The ATC curve declines at first when both AFC and AVC are falling. The ATC continues to decline even when ATC starts rising. This is so as long as AFC falls faster than AVC rises. Ultimately, however, AVC rises faster than the rate at which AFC is falling so that the ATC curve begins to rise.

Marginal cost curve first declines, reaches a minimum, and rises thereafter. The explanation for the nature of the MC curve is found in the relationship between marginal cost and marginal product. The relationship is derived in the following way.

$$MC = \frac{TVC}{Q}$$

But TVC is given by the number of units of the variable input multiplied by the unit price of the input, i.e.

$$TVC = PV$$

Then $$(TVC) = P(V)$$

Using these relations, we get

$$MC = P \times \frac{\Delta V}{\Delta Q}$$

We should remember that we have earlier defined marginal product as

$$\Delta MP = \frac{\Delta Q}{\Delta V}$$

Hence $$MC = \frac{\Delta P}{\Delta MP} \quad \text{or } \Delta P \times \frac{\Delta 1}{\Delta MP}$$

i.e. Marginal cost is the same as price multiplied by the reciprocal of the marginal product. Since marginal product normally rises, reaches a maximum, and falls afterwards, marginal cost accordingly declines,

reaches a minimum and rises afterwards. It is worthy to note that the marginal cost curve cuts both AVC and ATC curves at their lowest points respectively.

Relationship between average cost and marginal cost

When average cost is declining marginal cost although rising lies below the average cost.
When the average cost is raising marginal cost lies above average cost. Average cost and marginal cost are equal when average cost is at a minimum.

Let us consider the following costs schedule of a firm:

Table 5 Average Cost and Marginal Cost of farm Firm

Output	TC (N)	AC (N)	MC (N)
1	120	120	-
2	250	125	130
3	320	107	0.70
4	400	100	0.80
5	500	100	100
6	630	105	130
7	790	113	160
8	980	123	190

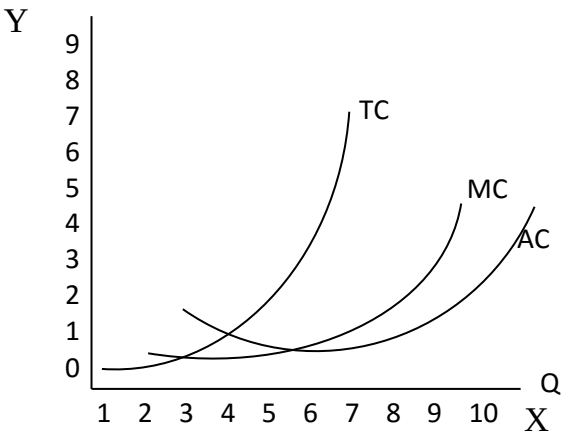

Figure 8. Marginal and Average Cost Curve

- **Long-run production costs analysis**

No cost of production is fixed in the long-run costs plan and the firm can vary all inputs. Though, all costs are variable in the long-run, the firm cannot operate without regard to the short-run average cost curves (SAC). The long-run only offers the firm the opportunity to vary its

scale of operation in the future. The firm is, therefore, enabled to achieve lowest costs through adapting and varying the size of the plant, in the long-run. The firm can operate completely different cost curves, each with a different level of cost put where average cost is at the minimum. The long-run average cost curve (LAC) is, thus, composed of a series of short-run 'U' shaped average cost curves from which the firm selects the plant size that yields the lowest costs.

3.2 Production Input and Output Analysis

Production

The farmer as a producer has a given target clearly cut out with the inputs or resources at his disposal. These resources are put into a process called production. Through the production process all the inputs get transformed into an output or product. The production process may entail using the inputs as seed, fertilizer, irrigation, human labour, etc. to produce a given quantity of output such as cassava, wheat, cotton, sugarcane etc.

Having identified the necessary inputs which facilitate the production process, the question now is, whether the farmer possesses the required knowledge of the production activity that will relate the physical relationship between the resources and the expected output. This knowledge is important because the response of output to input application is at variance.

Therefore, the farmer has to decide on how much input to use and how much output to produce. This understanding is confined to a single variable input and output model:

$Y = F(X_1, X_2, X_3, X_4 \ldots\ldots\ldots Xn)$

Where

Y = output from a particular farm enterprise
X_1 = variable resources
$X_2 \ldots X_n$ = Fixed resources

3.3 Production In-Put Analysis

Inputs are classified as fixed and variable. A fixed input is one which quantity is use in the process of production does not change as the output level is changed, while a variable input changes as the level of output is varied.

3.3.1 Output Analysis

In the process of production some factors of production are held constant in the short run (fixed input) while others are altered to produce given output levels. The quantity of output obtained from each combination of the fixed inputs and variable inputs is referred to as total products.

4.0 CONCLUSION

The cost of production for given output level, in the short run is determined by the physical conditions of production and unit prices of the inputs utilized in the production process. The production process may entail using the inputs as seed, fertilizer, irrigation, human labour, etc. to produce a given quantity of output such as cassava, wheat, cotton, sugarcane etc.

5.0 SUMMARY

An analysis of input and output costs of production is important because it enables the farmer to estimate his profit level, to provide a basis for the pricing of his goods and to guide him in his investment decisions. The study of costs enables us to measure the real resources that are being used up in the production process.

6.0 TUTOR-MARKED ASSIGNMENT

Explain why the marginal cost curve cuts both the average variable and average total costs curves at their minimum costs.

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UNIT 2 TIME ELEMENT ANALYSIS, RISK ANALYSIS AND REDUCTION OF RISK BY INSURANCE

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the study of time element analysis, time element models, Risk analysis, Categories of Risk, Reduction of risk by Insurance.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- discuss time element analysis
- analysis time element models
- analysis risks
- identify categories of risk
- discuss reduction of risk by insurance

3.0 MAIN CONTENTS

3.1 Time Element Analysis

To analyze the nature and behavour of prices, we require time series data on prices for various agricultural commodities over time and space. The time series data may belong to a particular period of time say week,

month, year, season and decade. The time series data on prices can be expressed in four workings, under the following headings: Trend (T), Cyclical (C), Season (S), and Irregular factor (I).

In the case of time-series data obtained for a year prices, we have do not have seasonal component. There are two hypotheses regarding the estimate of these time series components. They are multiplicative model and additional model.

Multiplicative model is specified thus:

Monthly data:

$P_t = T.C.S.I$
P_t=Price of commodity in t^{th} period i.e. month of the year

Yearly data:

$P_t = T.C.I$
P_t = Price of commodity in t^{th} period

- Additive Model

$P_t = T + C + S + I$
P_t = monthly data on the prices of the commodity in t^{th} period

Yearly data:

$P_t = T + C + S + I$
P_t = Price of commodity in the t^{th} year

Here, T = trend factor
C = cyclical factor
S = seasonal factor
I = irregular factor

Trend factors

These are the factors that reflect the movement in the economic variables over time. If the time series data is collected over different years, then using this data, we can analyze the trend factor and measure the growth or recession of the variable over several years. If time series data are available over several years, the price of commodities, production of goods and services, population and other economic variables can be analyzed and measured easily.

Cyclical factors

Cyclical factors are the long-term rise and fall of macro-economic indices. We require data on the time series variables for a minimum period of 30 years to analyze the cyclical factors. Cyclical factors measure macro-economic activities like gross domestic products (GDP), rainfall, unemployment, inflation, gross national products (GNP).

Seasonal factors

Seasonal factors refer to specific period of the year, month, week or times of study. With appropriate information (time series data) for seasons of the period being analyzed, we can separate seasonal factor and measure the seasonal component of time-series data for appropriate farm decision making regarding seasonal variations. For instant, time series data on prices of agricultural products recorded over different periods can be employed to analyze the seasonal effects. The whole essence is to help in drawing relevant farm management decisions for problem solving on the seasonal factors.

Irregular factors

Irregular factors comprise all those other factors not captured by trend, cyclical nor seasonal factors, that can manipulate the value and magnitude of economic variables. Such factors like preferences, changes in tastes, advertising expenses and life-style, which do not directly relate to passage of time are called irregular or random factors.

3.2 Time Element Models

The prices of agricultural products follow the pattern of cycles indicated in the Cobweb theories. According to this theory the effect of price change on the production of commodity is felt with one time lag. However, the length of the lag varies from commodity to commodity, depending on the technology underlining the production.

In agriculture the essence of time lag is due to inherent characteristics of crops. Production of the crop can be affected even before the commencement of the planting season because of changes in the area under crops due to changes in the price.

For dry land agriculture, the time lag is one year, while for irrigation crop it may be for a season, for livestock and orchards the length of time lag is still longer.

The supply function in the Cobweb model is specified as:

$S_1 = f(p_{t-1})$

Where

S_1 = supply or production of the crop in the assume year
p_{t-2} = price in the previous year
f = supply function

Forms of cobweb cycle	price elasticity of demand and supply
Convergent	$E_d > E_s$
Divergent or explosive	$E_d < E_s$
Regular or uniform	$E_d = E_s$

In cobweb cycle, if price elasticity of demand is less than that of supply, we get the divergent or explosive type of cobweb cycle. If elasticity of demand is greater than elasticity of supply, we get convergent type of cobweb. In case the elasticity of demand and supply are equal, there are regular oscillations between quantities and price levels.

3.3 Risk Analysis

In the course of agricultural production, farmers are most often confronted with risks and uncertainty conditions. Farmers are generally concerned with decisions on crops to be planted, seed rates, fertilizer application, use of machinery, application of other crucial inputs etc. These decisions are subjected to change depending on the nature of risk. A livestock farmer for instance has to take a number of decisions to boost his cattle and to exercise patience and wait for several years to benefit from the investment. Changes in the weather conditions, prices and other socio-economic factors occur between time periods in which investment decisions are made with a view to maximize profit. As a result, farmers have to consider various management styles to overcome some of these risks.

3.3.1 Risks and Uncertainty Distinguished

Economists have come up with a clear cut distinction between risk and uncertainty. Accordingly, risk shows how possible outcomes associated with management decisions are known. Risk can be measured through probability concepts. But uncertainty takes place when the possible outcomes are unknown. Uncertainty cannot be measured.

3.4 Categories of Risk

Risk is categorized into three, namely

- Production risk
- Marketing risk and
- Financial risk

- **Production risks**

Weather and technical risks are the most important risks associated with production. The outcome of crops and livestock is subject to change because of weather conditions, weeds, pests, disease and technical risks. Also the level of technology in a given place affects the output in that area.

Though technology brings high level of profit maximization, the famers sometimes find it difficult to accept or adapt to the technology as it would alter their original product outcome.

- **Marketing risks**

Marketing Risks are also called price risks. Prices are determined through the interaction of the forces of demand and supply in the market. Production of agricultural products is highly influenced and determined by the existing price in the market. Farmers and buyers do not determine or fix prices. Prices are determined by what the economists call invisible hand or automatic mechanism, achieved through the interaction of the forces of demand and supply of commodities. Hence if the price of livestock or any other agricultural product is low, it will be high risk for the farmer to produce much.

- **Financial risks**

Financial Risks are associated with the level of borrowing to fund the farm business. According to the principle of borrowing, if debt increases, the rate of risks increases also and this imposes the danger of forfeiting the equity capital in the event of losses in the farm business.

3.5 Reduction of Risk by Insurance

3.5.1 Insurance

- **What is insurance?**

Insurance is a contract between the policyholder (a farmer/individual) and an insurance company. This contract provides that the insurance company covers some portion of a policyholder's loss as long as the policyholder meets certain conditions stipulated in the insurance contract. The policyholder pays a premium to obtain insurance coverage. If the policyholder experiences a loss, such as a livestock accident or a farm fire, the policyholder files a claim for reimbursement of the value of the loss with the insurance company. The policyholder pays a deductible sum to cover part of the loss, and the insurance company pays the rest.

For example, suppose you have an agric insurance policy, you pay ₦1,000 per month in premiums for a policy with a face value of ₦200,000, which is what the insurance company estimates it would cost to completely rebuild your farm settlement in the event of a total loss. One day, huge wildfire envelopes your neighborhood and your farm settlement burnt to the ground. You file a claim for ₦200,000 with your insurance company. The company approves the claim. You pay your ₦1,000 deductible, and the insurance company covers the remaining ₦199,000 of your loss. You then take that money and use it to hire contractors to rebuild your farm house.

- **Classification of insurance**

Insurance can be classified base on the risk coverage that is in use; it is classified into two groups: Life assurance and General insurance.

- **Life assurance policy**

Individual life assurance

Corporate (group) assurance policy.

- **General insurance policies**

- burglary and thievery
- accident
- fire
- motor vehicle: comprehensive and third party policies

- Work-man compensation
- Goods-in-transit
- marine and aviation
- oil and gas
- credit insurance bond and guarantee
- other general insurance policies on weather, natural disaster

Several types of farm insurance exist to reduce the level of production and financial risks. Farmers are encouraged to join crop and livestock insurance schemes as they provide safety against the fatal disease of livestock. Farm assets are ensured against theft, fire disaster, natural disaster, etc.

The decision whether to join the insurance scheme is determined by the following equation:

$\pi = f(o-r) - p$

Where

π	=	profit obtained by going for insurance
F	=	financial reserved required
O	=	Opportunity cost for financial resource in terms of Percentage
R	=	rate of interest earned on financial reserves
P	=	insurance premium paid by the farmer

If $\pi > O$, it is advisable for the farmer to join the scheme, in which case, the returns from the insurance policy are more than the cost and if on the other hand, $\pi < O$, it is not encouraging to take up the scheme.

3.5.2 Diversification

Through diversification process, the farmer produces several products rather than single product with the hope that when the returns from crop A are low, he may be compensated by the higher returns from crop 'B' or 'C'. In other words, the farmer should not confine himself to one line of crop or livestock product.

3.5.3 Avoid Distress Sale

Sometimes, farmers sell their products immediately after harvest so as to meet up with some financial obligations and such sales are made at a very low rate because a lot of products are available for sale. If the farmers avoid such immediate sales, they will opt for sale at a higher price of a reasonable profit margin later on.

Again, agricultural farmers should be acquainted with adequate information about prevailing commodity prices especially concerning perishable commodities, storage facilities, processing and freezing facilities and new government policies affecting them.

4.0 CONCLUSION

Time element analysis is used to evaluate the nature and intertemporal of prices. Time series data is required for various agricultural commodities over time period. Time series has four components: trend, cyclical, irregular and seasonal.

5.0 SUMMARY

The time series data on prices can be expressed in four workings, under the following headings: Trend (T), Cyclical (C), Season (S), and Irregular factor (I).

In the course of agricultural production, farmers are most often confronted with risks and uncertainty conditions. Farmers are generally concerned with decisions on crops to be planted, seed rates, fertilizer application, use of machinery, application of other crucial inputs, etc.
Insurance is a contract between the policyholder (a farmer/ individual) and an insurance company. This contract provides that the insurance company covers some portion of a policyholder's loss as long as the policyholder meets certain conditions stipulated in the insurance contract.

6.0 TUTOR-MARKED ASSIGNMENT

How does an insurance company identify a farmer whose farm estate was engulfed by fire?

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UNIT 3 CONSUMPTION AND DEMAND: EFFECT ON NON-INCOME

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the study of Consumption and demand: effect on non-income: types of demand, consumer behaviour, indifference curves, budget line, maximization of consumer satisfaction, Producer's behaviour, Utility concepts,

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- define demand
- discuss types of demand
- explain consumer behaviour
- explain producer's behaviour
- discuss Utility concepts

3.0 MAIN CONTENTS

3.1 Consumption and Demand: Effect on Non-Income

Because human wants are numerous and the means of satisfying them are limited, all units of the economic system tend to optimize one function or the other. In this case, the consumer has to rank his wants in the order of importance he places on them, and by so doing he draws his budget line beyond which he cannot cross.

The theory of demand begins with the analysis of the behaviour of a consumer. Since resources are scarce relative to human needs, all the

units of the economic system tend to optimize one function or the other. The consumer tries to obtain maximum utility for spending his resources on goods and services. The producer on his own side attempts to maximize profit or to minimize loss. The government may aim at maximizing the welfare of the people.

3.2 What is Demand?

Demand refers to the quantity or amount of a commodity which consumers are willing and able to buy at a given price in a stated period of time. But in economics simple desire or willingness for a good alone may not represent demand. Apart from the desire or willingness, consume should be able to buy the good. Demand is therefore an effective desire. Thus, desire and ability to buy are the key components of demand. More specifically, demand is defined as a schedule that shows the amount of a product or service the consumers are willing and able to buy at a particular time, price and at a specified market.

Demand schedule and demand curve

- **Demand Schedule**

A demand schedule is a table indicating the different quantities of a good or service consumers are willing and able to purchase at the various prices over a period of time.

Table 4 Individual demand schedule

Price Per Unit Orange	Consumer A	Consumer B	Consumer C	Total Market Demand
30	10	12	8	30
25	11	17	12	40
20	13	21	16	50
15	16	25	19	60
10	20	28	22	70
5	25	30	25	80

Demand schedule above shows the quantity of orange a particular consumer is willing and able to buy at different prices in a week.

The information contained in the demand schedule can be plotted on a graph otherwise known as a demand curve.

The Demand Curve shows a graphical representation of the quantity demanded by a consumer at different prices. It expresses the functional relationship between price and quantity demanded.

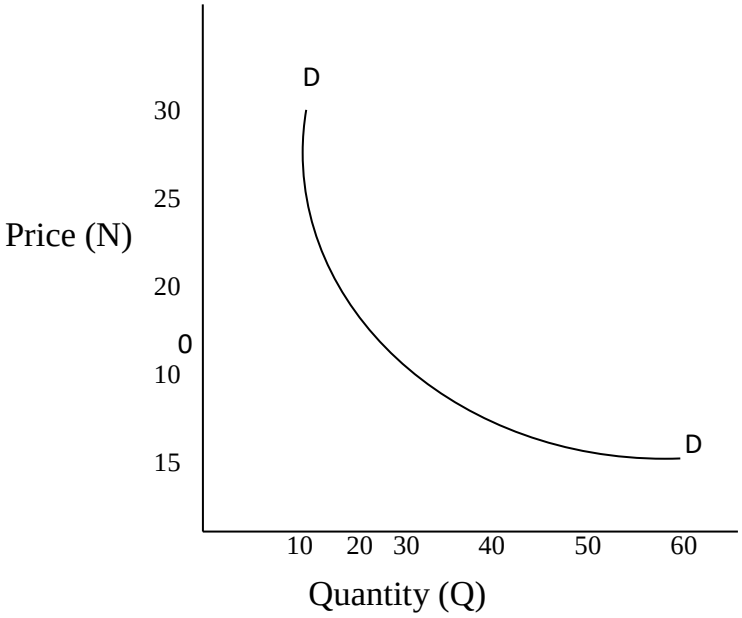


Figure 9

Both the table and the graph show that at higher prices less quantity is demanded. Every point on the graph i.e. on the demand curve represents quantity demanded and a price that corresponds to that quantity demanded.

Types of demand

- **Joint/complementary demand**

Two or more commodities are jointly demanded – meaning that the demand for one commodity involves the demand for the other. Such goods that are consumed together are referred as complementary goods e.g. tooth brush and paste. A fall in price of tooth brush following the law of demand, will in increase its demand, thus, leading to an increase in the demand for tooth paste.

- **Derived demand**

Things demanded not for direct consumption but for what they can help to produce e.g. factors of production; fertilizer.

- **Composite demand**

Demand for a commodity for different purposes. Demand for a commodity that can be used for more than one purpose. e.g. wood for furniture and roofing.

- **Competitive demand**

Demand for goods which are fairly close substitutes for one another, e.g. Bournvita and Ovaltine.

Law of demand

The lower the price of a commodity the greater will be the quantity demanded. Also the higher the price of a commodity the fewer the quantity demanded of it.

This is called a law because it is a universally verifiable truth. There is a possibility of falsification too.

3.3 Utility Concept

Utility is the power of every commodity to satisfy the demand of an individual. Hence, utility is the want satisfying power of a commodity. Every commodity possesses utility. A commodity is desired because of its utility.

If an individual who is presented with two commodities say orange and apple, chooses the orange or apple, he does so for him the apple has more utility than orange. We then can say that for him the satisfaction he derives from the apple is greater than the satisfaction from the orange. It does not suggest that apple is greater than orange. If an individual has a choice between two commodities, he chooses one and leaves the other. It is just his choice, not that the commodity is better than the other. Another individual may choose the commodity the first person left and leave the one he selected when presented with the same commodities. The same person may choose the commodities when presented with the same option next time.

Measurement of utility

Utility is measured in utils. Util tells us how much satisfaction is derived from consuming different units of a commodity. The two basic approaches to the comparison of utility are:

- **The Cardinal approach =CA**

Marshall showed systematically that utility is quantifiable/measurable; this gave birth to the Cardinal Approach.

This approach says that utility can be measured in numbers like one util, two utils, ten utils etc. By this method you can determine by how much

the satisfaction derived from the consumption of one commodity is greater or smaller than the satisfaction derived from the consumption of another commodity.

- **Ordinal approach**

Hicks and others do not feel that utility is quantifiable/measurable, but that consumer can say he prefers one commodity to another but cannot say how much utility they derive from it. Indifference curve is derived from this view.

This approach says that utility cannot be measured with numbers like five units, two units etc. But that it is enough to rank or order utility such that the consumer can say that he derives more utility from one commodity than from another. And so that he prefers one commodity to another.

Since no number value is attached to utility one cannot say by how much the utility a consumer derives from one commodity is bigger or smaller than the utility he derives from another commodity. Here it is enough to rank utility that is to say that you derive more utility from one commodity than from another. But cannot say by how much the utility they derive from one commodity is smaller or greater than the utility they derive from another.

Utility function

U = f (X, Y, Z). This says that the utility derived from a commodity depends on variables like the taste of the individual X, the quantity of the commodity consumed Y and some other factors Z.

Total utility and marginal utility

Total utility

The total utility of the commodities is the sum of the utility derived from consuming the commodities. Although it is true that the utility derived from one commodity is not quite independent of the utility derived from another commodity. For example if a thirsty person drinks some water he may not take as much soft drink as he would have taken if he did not take water. And so the satisfaction (utility) he derives from the soft drink may be reduced by the water he has taken.

Jevons first law

Jevon postulates that as the quantity of a commodity consumed by an individual increases, the total utility yielded by that commodity increases but at a decreasing rate until a point is reached where total utility begins to decrease. Thus although total utility would rise as a consumer took more and more of a good, the additional utility derived from one more unit of consumption would fall. This is Jevon's first law.

Marginal utility

The value the consumer derives by consuming successive units of a particular commodity will diminish steadily as he consumes more and more of the commodity given that his consumption of all other commodities is held constant.

Marginal utility is the additional utility derived by consuming one additional unit of the commodity.

It is calculated by subtracting the total utility obtained before the next unit is added from total utility obtained after it had been added. It is given by $MU_n = TU_n – TU_n\text{-}1$.

The law of diminishing marginal Utility states that the more an individual consumes of a particular commodity, additional (incremental) of that commodity gives the individual less and less utility (satisfaction)
Illustration of Total Utility and Marginal Utility Derived from the Consumption of Oranges.
Table 5

Units of Oranges	Total utility Units	Marginal Utility Units
1	5	-
2	12	7
3	18	6
4	23	5
5	27	4
6	30	3
7	32	2
8	32	0

Relationship between Total and marginal utility

Marginal utility is the additional utility derived by consuming one additional unit of the commodity.

Indifference curves

As a rational consumer, it is assumed that the consumer always prefers more of a commodity to less. For example, if one big basket contains 10 oranges and 5 apples, whilst another big basket contains 10 oranges and 2 apples, we assume that the first basket, which unambiguously contains much more commodities, is preferred. Also we assume that by adding a certain amount of oranges to the second basket we assume, we can make it equally desirable in the eyes of the consumer to the first basket. i.e. we can make the consumer indifferent between them.

Budget line

This curve takes the consumer's income into account. And this will constrain preference. The budget line shows purchasing relative to the prices of the commodities. The curve draws a line between the consumer's achievable and unachievable desires. Now, assuming a farm attendant earns N10,000 a month and needs to buy chicken at N100 per kilo, and rice at N200 per kilogram. If the farm attendant is willing to spend all his N10,000 on chicken, he buy 1,000 kilograms and if he is willing to spend all his income on rice he can buy 500 kilograms. In figure 10 these figures are plotted to give the budget line: the line joining 500 kilograms of rice and 1000 kilograms of chicken.

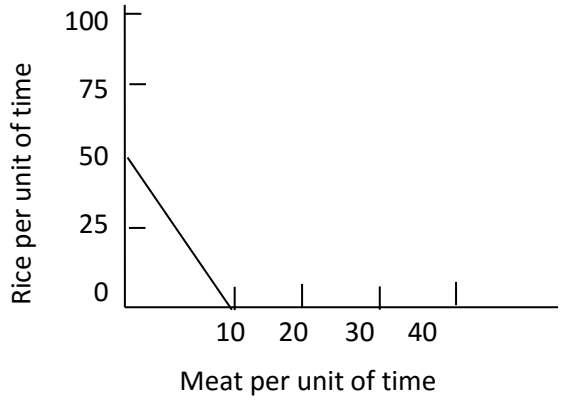


Figure10. The Budget Line

Maximization of consumer satisfaction

The consumer wants maximum satisfaction within the limits of his income, i.e. budget line. The points where the indifference curve touches (or is tangent to) the budget line gives the best combination to achieve result.

In figure11 curves i, ii and iii represent indifference curves while BC is the budget line. Observe that the point of maximum satisfaction is A where the budget line BC just touches the indifference curve ii., though higher and prefer to ii is ruled out because the consumer's income cannot meet it. Indifference curve i is not preferred because it is lower.

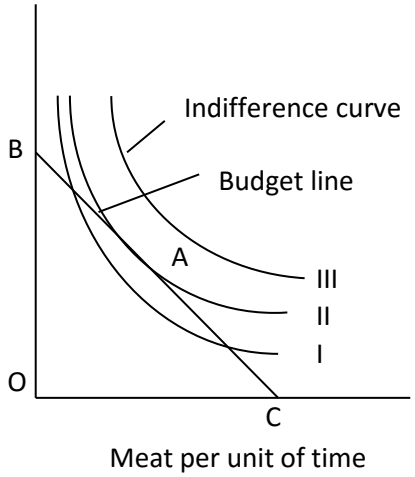


Figure11. Consumer's utility maximization

Producer's behaviour

A producer purchases resources at a cost and converses them to products desired by producers with the aim of achieving maximum profit. The total revenue obtained by the producer is the total physical product multiplied by unit price of the product. Total costs consist of the total fixed cost plus total variable cost. Profit is maximum at the output level (X) where total revenue exceeds total costs by the greatest amount.

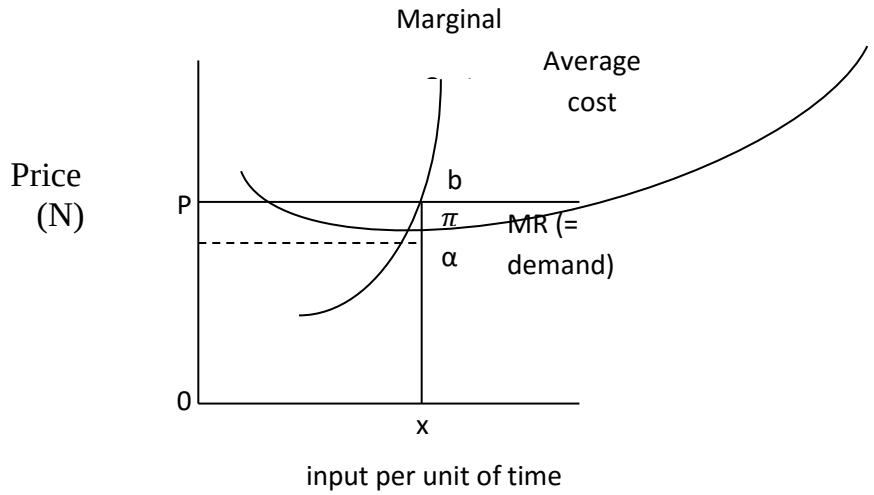


Figure 12: Producer behaviour

The level of output at which profit is at maximum can be determined through marginal analysis. Marginal revenue (MR) is the addition to

total revenue (TR) brought about by the sale of one extra unit of the product. Under conditions of perfect competition, product price is given by the market so that MR equals product price. In these conditions the total revenue (TR) plotted against output gives a straight line and the gradient of this line is MR (or price).

Similarly, marginal cost (MC) is the extra to total cost (TC) due to the production of one additional unit of product. MC is also equal to the extra unit of the product. MC is also equal to the slope of the TC curve. Profit is maximized at the level of output where MC equals MR, i.e. when the slopes of the total cost and total revenue are equal. Above this output total revenue rises, but total cost raises more. So that it is now worth producing the extra output.

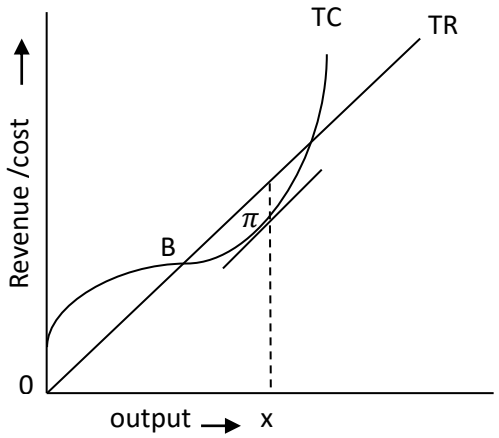
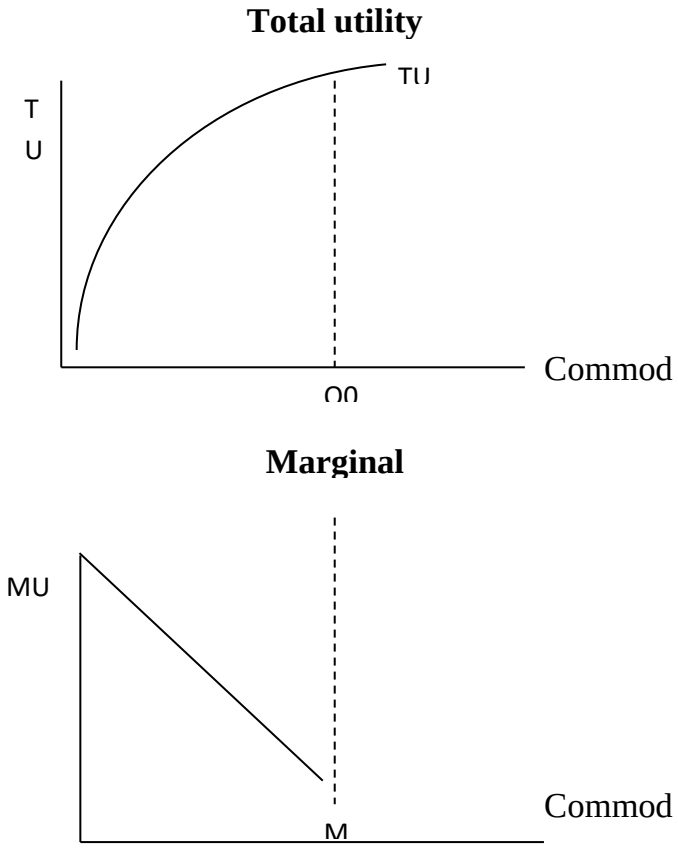


Figure 13 Profit maximization with TR and TC curves
Relationship between Total and marginal utility



As more of the commodities are consumed total utility rises until it reaches maximum after which he does not want any more oranges. The curve of marginal utility shows the addition to total utility. The curve is falling; it shows that additional consumption of the commodity produces less and less satisfaction. That is also shown in the graph between the vertical lines on the curve.

Marginal utility is a derivative of total utility curve.

Can marginal utility reach zero

With many commodities there is some maximum consumption after which additional units would confer no additional utility, and if the individual were forced to consume more this would actually reduce his total utility.

In the example above, when the consumer consumes Qo he does not want more. Any additional then is a disutility. That is it gives zero satisfaction.

NB: When total utility is highest, marginal utility is zero – see the graphical or tabular illustration.

Marginal utility is negative after the point of maximum total utility.

Jevon's second law

The consumer will allocate his expenditure so that the last unit of money spent on any particular commodity yields the same marginal utility as the last unit of money spent on any other.

Imagine that the house hold is in a position in which the utility of the last kobo spent on oranges yields three times the utility of the last kobo spent on banana.

In this situation total utility can be increased by switching a kobo of expenditure from banana to oranges and gaining the difference between the utilities of a kobo spent on each. This switching will continue until the marginal utility per kobo spent on each good is equal for all goods consumed. Hence if the consumer consumes two goods X and Y

$$\frac{MU_X}{P_X} = \frac{MU_y}{P_y} = MU_y \ldots\ldots\ldots (1)$$

$$\rightarrow \frac{MU_X}{MU_X} = \frac{P_y}{P_y} = MU_y \ldots\ldots\ldots (2)$$

$$If \quad \frac{MU_X}{P_X} > \frac{MU_y}{P_y}$$

More x will be bought and its MU will fall until $\frac{MU_X}{P_X} > \frac{MU_y}{P_y}$ is correct

Take a hypothetical consumer who consumes commodities A and B as shown in the table below.

Table 6 How an ideal consumer will make this choice

No	Price A	MU A	MUA/PA	No.	Price PB	MU B	MUB PB
1	2	250	125	1	4	400	100
2	2	190	95	2	4	360	90
3	2	120	60	3	4	300	75
4	2	40	20	4	4	200	50
5	2	0	0	5	4	80	20

The first unit of his money will earn him highest utility if he consumes

A because $\frac{MUA}{PA} = 125 > \frac{MU_B}{P_B} = 100$

Then B, A, B, B, A etc

If we introduce money budget constraint to the model the consumer will continue to select until he exhausts his budge or money. This then determines the quantity he can consume.

Most of the commodities are consumed total utility rises until it reaches maximum after which he does not want any more oranges. The curve of marginal utility shows the addition to total utility. The curve is falling, it shows that additional consumption of the commodity produces less and less satisfaction. That is also shown in the graph between the vertical lines on the curve.

HOW THE CONSUMER REACHES EQUILIBRIUM BY CARDINAL APPROACH

The basic assumption is that individuals and households seek to maximize their total utility.

1. And so the consumption of any free goodwill be pushed to the point at which its marginal utility is zero. A free good is one for which no price needs to be paid.
2. So long as additional unit confers a positive marginal utility, total utility can be increased by consuming more of the commodity.
3. In our example if the good is free the consumer will consume Q0. Making total utility as large as possible. Beyond this point, further of the commodity has a negative marginal utility.
4. Because resources are scarce it is not possible to produce the amounts of all commodities that people would wish to consume if commodities were free.
5. Therefore marginal utilities will remain positive for at least some goods. That is households would get additional utility from consuming more of them.
6. How then will a house hold adjust its expenditure so as to maximize its total utility when it has to pay for the goods it consumes?
7. Should it go to the point at which the marginal utility of all commodities is the same? This would make sense only if each commodity had the same price per unit.
8. The house hold maximizing its utility will allocate its expenditure among commodities so that the utility of the last kobo spent on each is equal.

4.0 CONCLUSION

Human wants are numerous relative to their demand. The consumer tries to obtain maximum satisfaction for spending his resources. The producer on the other hand, tries to maximize profit while the government tries to maximize the welfare of the people.

Demand is said to be effective when the consumer is willing to buy and has resources to back it up at a particular time and price.

Utility has the power to satisfy human wants. It tells how much satisfaction one drivers from the consumption of a particular commodity.

5.0 SUMMARY

Specifically, demand is defined as a schedule that shows the amount of a product or service the consumers are willing and able to buy at a particular time, price and at a specified market.

Utility is the power of every commodity to satisfy the demand of an individual. Hence, utility is the want satisfying power of a commodity. Every commodity possesses utility. A commodity is desired because of its utility.

The law of diminishing marginal Utility states that the more an individual consumes of a particular commodity, additional (incremental) of that commodity gives the individual less and less utility (satisfaction).

6.0 TUTOR-MARKED ASSIGNMENT

With a well labeled diagram, distinguish between consumer's behaviour and producer's behaviour.

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MODULE 4 AGRICULTURAL ECONOMICS AND MARKETING

Unit 1 Export trade
Unit 2 Agricultural Marketing
Unit 3 Economic progress and agriculture

UNIT 1 EXPORT TRADE

CONTENTS

2.0 INTRODUCTION

This unit introduces you to export trade: meaning of exports, trend in agricultural exports and imports, balance of trade, terms of trade, measurement of terms of trade, types of export trade and balance of payments.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain export trade: meaning of exports
- discuss trend in agricultural exports and imports
- discuss balance of trade
- explain terms of trade
- discuss measurement of terms of trade
- identify types of export trade
- explain balance of payments

3.0 MAIN CONTENTS

3.1 Export Trade

3.2 Meaning of Exports

Exports are the goods and services which a country sends to other countries (abroad) in return for some payments made in foreign exchange. We have two types export:

- Visible exports
- Invisible exports

Visible exports refer to exports of goods i.e. tangible products like grains and other products.
Invisible exports are exports of services provided to other countries e.g. advertisement.

Our nation's major export today is crude oil. Other exports include food and livestock, crude agricultural materials like cocoa, groundnut, palm produce, etc.

In the 1950's, Nigeria's exports were mainly agricultural products. Agricultural exports accounted for more than 95% of the exports earnings in that decade. The 1960's witnessed a slight shift in the structure of exports with agriculture accounting for just about half of total export earnings by 1969. This was due to the discovery, exploitation and exportation of crude oil in the late 1960s and through the 1970s and 1980s. Thus, the percentage contribution of agriculture declined from about 40% in 1970 to less than 30% in 1980. Since the early 70's, petroleum constituted the main source of foreign exchange earnings (about 90%) and about the federal government revenue.

Exports of manufactured goods have remained almost insignificant in the nation's external transactions today. Nigeria's strongest trade links are with the western industrialized countries, e.g. USA, Italy, France, Britain, Germany and Chain.

3.3 Trend in Agricultural Exports and Imports

Using a broad classification, the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS) documents the import and export agricultural products in the following categories – live animals and animal products; vegetable products; animal and vegetable fats and oil; foodstuff, beverages, spirit and vinegar, tobacco; and raw hides and skins leather, foreskins, and saddler. The agricultural exports of

significance include cocoa beans and products, rubber, fish/shrimp, cotton, processed skin, etc. these agricultural products account for about 39.7% of the total non-oil exports in 2007 (CBN, 2007).

1. Balance of Trade (BOT)

Balance of trade shows a country's receipts and payments for goods and service exported or imported, such as crude oil, crops and livestock, machines, banking and insurance services. BOT deals with exports and imports of goods and services which may be visible or invisible.

3.3.1 Terms of Trade (TOT)

Terms of trade (TOT) is the rate at which one country's products exchange with those of another country and this depends on the country's prices of exports and imports. This is a rate at which nations' exports exchange with its imports.

There are two types of the terms of trade:

- Favourable terms of trade: When we say that the terms of trade of a country is favourable, we mean that the prices of its exports are higher in relation to prices its imports.
- Unfavourable terms of trade: This is a situation where the prices of imports are higher when compared with the prices of exports.

3.3.2 Measurement of Terms of Trade

Terms of trade can be measured to determine a nations' trade position. It is calculated thus:

$$TOT = \frac{\text{index of Export Prices}}{\text{Index of import duties}} \times \frac{100}{1}$$

3.4 Types of Export Trade

There are two types of export trade relationships available internationally:

- Bilateral Trade: This is business transactions between two countries. Trade bilateral agreements are usually entered into by the two countries involved.

- Multilateral Trade: This trade relationship (export/imports) involving more than two countries. Their binding agreement is called multilateral trade agreement.

3.5 Balance of Payments (BOP)

Balance of payments of a country refers to systemic records of all economic transaction between the residents of a reporting country and residents of the foreign countries during a given period of time usually one year. An economic transaction is an exchange of value, naturally an act in which there are transfer of title to an economic good, the rendering of services or the transfer of title to assets from one country's residents to another. Thus, the BOP is a statistical record which summarizes all the transactions which take place between the residents of a country and the rest of the world.

4.0 CONCLUSION

Exports are the goods and services which a trading country sends to another country. Terms of trade shows a country's receipts for exporting goods or services and payments she made for importations.

5.0 SUMMARY

We have been able to explain that export trade is the goods and services which a particular country is able to send to another country in exchange for receipt payments.

Nigeria's major export trade are crude oil, livestock, groundnut, cocoa, palm oil, etc. in the 1950's Nigeria's agricultural exports accounted for about 95% earnings but declined in the 60s till date a result of the discovery, exploitation and exportation of crude oil. Balance of payments of a country is a systemic record of all economic transactions between the residents of a reporting country and residents of the foreign countries during a given period of time usually one year.

6.0 TUTOR-MARKED ASSIGNMENT

Define Export trade and state why agricultural products decline in export trade.

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UNIT 2 AGRICULTURAL MARKETING

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the agricultural marketing featuring: meaning of agricultural marketing, objective of agricultural marketing, scope of agricultural marketing, significance of agricultural marketing, process of agricultural marketing and marketing functions.

2.0 OBJECTIVES

At the end of this unit, you should be to:

- know what agricultural marketing implies
- examine roles of marketing
- explain scope of agricultural marketing
- explain the significance of agricultural marketing

3.0 Main Contents

3.1 Meaning of Agricultural Marketing

What is a market: This is a place where goods and services are exchanged. Market consists of buyers and sellers with facilities to communicate with each other for transactions of goods and services.

What is marketing: This is an economic process by which goods and services are exchanged between the producers and the consumers and their values determined in terms of money prices.

What is Agricultural marketing: Agricultural marketing is the study of the activities, agencies and policies involved in the procurement of farm inputs by the farmers and the movement of agricultural products from the farmers to the consumers. Thus, marketing provides a link between farm and non-farm sectors. The various aspects of organizations supplying raw materials to the processing industries, analyzing, assessing and revamping the marketing policies for farm products and farm inputs are studied under agricultural marketing.

3.2 Scope of Agricultural Marketing

The scope of agricultural marketing can be appraised from the economic principles applied to agriculture from the points of view of the producers, to the consumer and the national economy at large:

- **Farmers' interest**

Farmers' expect to benefit from their agricultural marketing efforts and therefore applies healthy and rewarding marketing strategies. A healthy marketing system acts as an incentive for the farmers to use the resources well.

- **Consumer interest**

Marketing provides capacity to the consumers to choose farm commodities of their choice so as to satisfy their needs. Consumers' welfare is brought about through increased marketing output by adopting efficient marketing styles.

- **Societal interest**

When effective marketing strategy is adopted it brings about consumer satisfaction, the society at large benefits. This will mean that the society's resources are distributed evenly and efficiently.

An efficient marketing system also brings about price stabilization.

- **Traders' interest**

Marketing middlemen may through the process of agricultural marketing fulfill the needs of the producers and consumers and also secure their own livelihood.

3.3 Significance of Agricultural Marketing

With the assistance of agricultural schemes through government subsidies, provision of farm machines and enabling environment, farmers now produce cash crops for export in the international market. Import marketing is growing at a rapid rate. The use of fertilizer and pesticides as new techniques in farming, are fast increasing. There is a growing importance for improved seedlings, machinery, irrigation, etc. now in agricultural sector.

3.3.1 Process of Agricultural Marketing

The marketing process is not complete until the commodities in question get to the final consumer. This process takes three stages:

Assemblage

The process of concentrating or gathering the commodities to designated places is called assemblage. This assemblage takes two forms.

- Primary assemblage and
- secondary assemblage

1. Primary Assemblage

Here, the produce is gathered in the villages for convenient sake. The farmers at this level are handicapped because of funds, means of transportation and they lack information on the prevailing market prices.

2. Secondary Assemblage

This is the level of greater concentration otherwise called the wholesale market. At this level, commission agents join to facilitate distribution of the products.

3.3.2 Dispersion

The produce so collected from the producing areas is made available to the millions of consumers through dispersion. Dispersion which means distribution starts at the wholesale level where the processed products are channeled to ultimate consumer.

3.3.3 Equivalisation

This is the stage where the products are temporarily stored until they are required. Storage plays important role at this stage. Certain agricultural

commodities are area specific and there are certain areas with abundant production and some other areas with deficit production. Through the process of equivalisation the products are moved from surplus area to deficit areas.

3.4 Marketing Functions

Marketing functions comprises the broad functions of concentration and dispersion. Marketing functions vary for different commodities. Marketing function can be identified as a single activity which facilitates the movement of the product from the point of its production till it gets to the final consumer.

Marketing function is categorized in three main functions:

3.4.1 Function of Transfer of Ownership

- Selling
- Buying
- Demand creation and
- Price determination.

1. Function of Physical Movement

- transportation
- Storage
- Changing the form of the product
- Standardization and grading
- Packaging

3.4.2 Facilitating Function

- market financing
- Risk bearing
- Market information

3.5 Producer's Surplus

This is the quantity of produce which is actually made available to the non-farm population of the country. The marketing activity is in reality looking into the ways and means of moving the surpluses to the nonfarm population.

The producer's surplus is further classified into two:

- Marketable surplus
- Marketed surplus

- **Marketable surplus**

This is the actual quantity of a commodity that is available with the farmer after meeting up with his marketing desires i.e. after paying for the services rendered to him, taking care of family problems, procuring seedlings and other expenses.

- **Marketed surplus**

Marketed surplus is the quantity of the commodity which the farmer actually brought for sell in the market. The relationship between marketable surplus and marketed surplus is that marketed surplus may remain more or less or equal to the marketable surplus. The situation of marketed surplus being more than marketable surplus arises when the farmer cannot really afford to keep aside genuine quantity of the commodity for various purposes before disposing the products. This is otherwise termed a distress sale which comes about as a result of small scale level of the farmer.

4.0 CONCLUSION

The consumption of fertilizer and pesticides is fast increasing. There is growing importance for improved seedlings, machinery, irrigation, etc in agricultural marketing. Modern agriculture production is continuously searching for new technology. Consumers get maximum welfare satisfaction through marketing activities. Agricultural marketing has assisted in the export and import of agricultural potentials.

When commodities are transferred from one person to another in marketing channel through buying and selling activities, possession utility is imparted. Through various functions of marketing, utilities are created to the commodities at each level of the marketing function, involving marketing costs and margins to the middlemen. Agricultural marketing involves various functions such as assemblage, transportation, storage, buying, selling, standardization, grading, processing and promoting of agricultural products.

5.0 SUMMARY

This unit examined agricultural marketing as that aspect of agricultural economics that handles the buying and selling of agricultural products

by farmers and merchants. It plays important roles in assembling, transportation, storage, grading, processing and promotion of agricultural products.

Through agricultural marketing, goods are made available from where they are surplus to where they are lacking. A healthy marketing system acts as an incentive for the farmers to use the resources prudently.

With marketing, the economy is now involved in international trade to export those products for which we have comparative advantages over other countries and in turn import those products for which we are lacking.

Marketing is further examined under producers' interest, consumers' interest, societal interest and traders' interest.

6.0 TUTOR-MARKED ASSIGNMENT

Agricultural marketing involves various functions such as assemblage, transportation, storage, processing and promotion. Discuss

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UNIT 3 ECONOMIC PROGRESS AND AGRICULTURE

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the study of food production, expansion of employment opportunities, reduction of poverty and improvement of income distribution, assistance in speeding up industrialization, educational and training.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- discuss the following as components of Agriculture in economic progress:

- food production
- expansion of employment opportunities
- reduction of poverty and improvement of income distribution
- assistance in speeding up industrialization
- educational and training.

3.0 MAIN CONTENT

3.1 Economic Progress and Agriculture

Agriculture constitutes one of the most important sectors of Nigeria's economy. Nigeria's agricultural potentials are large and its development

is one of the central tenets of the poverty reduction strategy of all levels of government.

Nigeria's agricultural economy is divided into four sub-sectors. These are crops, livestock, forestry and fisheries. The crop subsector has been and remains the dominant component of the nation's agriculture. In 2007, crops contributed some 37.65% of GDP, livestock another 2.65%, forestry accounted for 0.53% and fishing 1.37%.

3.1.1 Food Production

Nigeria's wide range of climate variations allows it to produce a variety of food: crops and livestock. The staple food crops include cassava, yam, corn, coco-yam, beans, sweet potatoes, millet, plantains, bananas, rice, sorghum, and a variety of fruits and vegetables. The leading cash crops are cocoa, citrus, cotton, groundnuts (peanuts), palm oil, palm kernel, and rubber. They were also Nigeria's major exports in the 1960s and early 1970s until petroleum surpassed them in the 1970s. Chief among the export destinations for Nigerian agricultural exports are Britain, the United States, Canada, France, and Germany.
A significant portion of the agricultural sector in Nigeria involves cattle herding, fishing, poultry, and lumbering.

3.2 Expansion of Employment Opportunities

Today, over 70 percent of the population engages in agricultural production at a subsistence level in Nigeria. Agricultural industries engage more people as farmers, crop processors, traders, middlemen and transporters. Agriculture also provides for employment to the corporate bodies, researchers in the field of science, administrators, marketers, bankers and politicians.

3.3 Reduction of Poverty and Improvement of Income Distribution

Agricultural products provide foreign exchange earnings from exports and increases supply of domestic savings for the government and people of a nation. Agricultural products are sources of wealth creation for many farmers who become rich and pay taxes progressively. Agricultural sector in international export trade provides producing countries with the foreign exchange they need to ease up pressure on balance of payments.

3.4 Assistance in Speeding up Industrialization

Agriculture is a source of food and raw materials for the industrial sector. Many industrial products are raw materials from agriculture, for

example vegetable oils, rubber, textile, canning and soap manufacturing industries use agricultural products as raw materials. It is estimated that the ratio of agricultural raw materials to non-agricultural raw materials used in industrial production is 4:1.

3.5 Educational and Training

Through agricultural sector, many educational institutions are established to educate and train people in the science of agriculture. Young people in tropical countries receive formal education and training as entrepreneurs through agricultural educational programmes available for them.

4.0 CONCLUSION

The nature of Nigeria's climate permits the production of variety of agricultural products such as crops, livestock, etc. It also provides job opportunities for the teeming population of the Nigeria citizens. It provides foreign exchange earnings, industrialization and favourable balance of payment.

5.0 SUMMARY

The role of agriculture in transforming both the social and economic framework of our economy cannot be over-emphasized. It is a source of food and raw materials for industrial sector. It is also essential for expansion of employment opportunities, for reduction of poverty and improvement of income distribution, for speeding up industrialization and easing the pressure on balance of payment and providing formal education and training for tropical countries.

6.0 TUTOR-MARKED ASSIGNMENT

Explain the place of agriculture in nation building.

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MODULE 5 AGRICULTURAL MACR-OECONOMICS

Unit 1 Role of Technology and Agro-Based Industries
Unit 2 Planning and Projections
Unit 3 Macro-Economic Considerations: Population, Inflation and Food Prices

UNIT 1 ROLE OF TECHNOLOGY AND AGRO-BASED INDUSTRIES

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the meaning of technology, the role of technology and agro-based industrial development: Water Management Technology, Agricultural Engineering, Agro-based industrial development, Challenges of the Agro-based industrial development.

2.0 OBJECTIVES

At the end of this unit you should be able to:

- answer what is technology?
- discuss the role of technology and agro-based industrial: development
- explain water management technology

- discuss agricultural engineering
- discuss agro-based industrial development
- discuss challenges of the Agro-based industrial development

3.0 MAIN CONTENTS

3.1 The Role of Technology and Agro-Based Industrial Development

3.2 What is Technology?

Technology is the knowledge applied by man to improve production or marketing process. It is seen in hybrid seeds, improved crops varieties, pesticides, machinery and fertilizers. The objective of technology is to provide more output from a given bundle of production inputs. Technology is related to a specific activity. It connotes a way completing a particular task, this is the reason why it is sufficient to the activity to which it is related, e.g crops production technology.

In other words, technology in farming is "simply the way things are done". A given technology implies a given set of inputs used in a production process.

3.3 Water Management Technology

Water being a scarce resource various techniques has been developed to increase efficient water use. Water-shade management is the approach in the irrigation development in this country.

3.3.1 Agricultural Engineering

This deals with agricultural mechanization through efficient use of inputs to increase farm productivity, conserving natural resources, reduce crop losses, and improve quality of agro-produce.

3.3.2Nutrient Management

The availability of nutrient responsive high yielding varieties of crops led to intensive nutrient application and improved farm management to drive full benefits from such crops.

3.4 Agro-Based Industrial Development

Agro-industrial development provides supports to agric-business development projects, assists enterprises and associations involved in

expanding the processing and industrialization of the cassava and maize sub-sector, in the aquaculture industry and in the privatization and development of the country's abattoirs.

3.4.1 Agricultural Research and Agro-Allied Industries

Agro-allied industries process materials of plant or animal origin by transformation and preservation through altering their physical and chemical characteristics and packaging.

They transform raw materials into finished goods for consumption and constitute a significant proportion of the developing countries' manufacturing system that provides the nutrients critical for the well-being of the expanding population.

The demand for agro-processing increases as agricultural production rises. Equally, new processing activities can open up opportunities to farmers. There should also be the development of modern market centres. This implies value added in agricultural production which aims at improving the quality of agricultural products.

Agricultural research generates technologies that ensure food sufficiency and security. These technologies range from: planting, harvesting and preservation/storage technologies to enhancing the delivery of these technologies to the farmers who would use them directly in their activities to boost their productivity.

Agricultural research plays an important role of linking farmers to the markets and through this the products get to the agro-allied industries for processing.

3.5 Challenges of the Agro-Based Industrial Development

Nigeria, no doubt, has potential competitive advantage in several agricultural commodities including roots and tuber crops, cereals and legumes, tree crops and livestock products. The sources of potential competitive advantage include the favourable agro-ecological and natural conditions for a wide variety of crops, large domestic and regional markets, relatively low labour costs and the unique opportunity to massively invest oil revenue for rapid agricultural growth and transformation.

Unfortunately, according to these economic and market potentials have been undermined by inappropriate and unstable macroeconomic and structural policies, inconsistent and poorly implemented sector strategies and programmes, grossly inefficient and disoriented public sector, weak

private sector involvement in agriculture, non-competitive input-end subsidy administration system, poor technology and service delivery environment, absence of long-term finance window for agriculture, weak market base, and distorting incentive systems linked to the rent/patronage-dominated enclave oil sector. The dominance of the oil sector has over the years crowded out agriculture and other sectors, leaving a skewed non-diversified economic structure unable to generate incomes, jobs and attract non-oil private sector investments.

Some of these government programmes and policies encouraged practices that are inconsistent with sustainable agriculture. Specifically, smallholder farmers are constrained by many problems including those of poor access to modern inputs and credits, poor infrastructure, inadequate access to markets, land and environmental degradation including climate change, inadequate and unused research and extension services and so on. These challenges, on the other hand, are exacerbated by rural poverty which is found to be the bane confronting smallholder farmers. It is estimated that Nigeria's Global Hunger Index (GHI) decreased by 5.3 from her GHI of 23.7 (1990) to 18.4 (2008), she has remained in the category of countries with serious hunger problems.

4.0 CONCLUSION

The role of technology and agro-based industrial develop lies in the way and manner in which technology has assisted the growth of agriculture and agro-based industries in Nigeria. Through technology, agriculture has diversified into water management technology, nutrient management, agricultural engineering, agricultural research and agro-allied industries.

5.0 SUMMARY

Technology is the knowledge applied by man to improve production or marketing process. It is seen in hybrid seeds, improved crops varieties, pesticides, machinery and fertilizers. Agro-based industrial development provides supports to agric-business development projects, assists enterprises and associations involved in expanding the processing and industrialization of the cassava and maize sub-sector, in the aquaculture industry and in the privatization and development of the country's abattoirs.

The Role of Technology and Agro-based industrial development include:water management technology,nutrient management, agricultural engineering, agricultural research and agro-allied industries andchallenges of the agro-based industrial development.

6.0 TUTOR-MARKED ASSIGNMENT

Explain the role of technology and agro-based industrial development in Nigeria?

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UNIT 2 PLANNING AND PROJECTIONS

CONTENTS

1.0 INTRODUCTION

This unit introductions you to planning and projections featuring: farm planning, characteristics of good farm plan, reason for farm planning, types of farm plan and projections, types of projections and objectives of projection

2.0 OBJECTIVES

At the end of this unit, you should be to:

- know the meaning of planning and projections
- define farm planning
- discuss the characteristics of good farm plan
- identify reasons for farm planning
- discuss types of farm plan
- explain projections

3.0 MAIN CONTENT

3.1 Planning and Projections

Planning and projection can be defined as a way of protecting our intentions, i.e. a method of deciding what we want to accomplish. It means to plan, project, forecast, design or make a chart our course. From the foregoing we can say that planning refers to the act of deciding in advance what is to be done, how and when to do it, where and who is to do it in order to achieve the goals or objectives of the system. For instance, when arrangements are made as to how many seedlings or chicks a farmer needs to buy for the next planting season.

3.2 Farm Planning

Farm planning is the determination of a course of action to achieve the desired goals. It is the ability to decide on time the production and management problems of what to produce, how best to produce, when to produce, financial management problem of how to borrow, how much to borrow, when to borrow and the reason to borrow and marketing management problems of where to buy and where to sell, when to buy and when to sell, how to buy and how to sell etc. farm planning governs the survival and prosperity of farm organization in a competitive and dynamic environment. Every farmer, whether successful of not, whether literate or illiterate, plan his farming business at the begging of every farming season so as to know what crops or livestock enterprise to produce, what amount of resources to be used how the various operations are to be organized, the amount of credit facilities to borrow and so on.

3.3 Characteristics of a Good Farm Plan

a. A good farm plan should be simply and easy to understand.
b. A good farm should be able to adapt to changing environmental conditions.
c. Should aim at efficient and effective utilization of all available resources to ensure good result.
d. Should be able to strategize on how best to dispose the products without delay.
e. Should ensure balanced production programme to ensure continuity.

3.3.1 Reasons for farm Planning

- To look into the future to ascertain suitable way of approaching the family season.

- To be able to decide whether to invest on livestock or crops
- To avoid wastage likely to occur in resource use.
- To provide allocation of resources for producing the required products for marketing and household use.

3.4 Types of farm Plan

We have two types of farm plan namely simple farm plan and complete farm plan.

- Simple farm plan involves planning for short run changes in the farm i.e. changes likely to take place within a short period, say 3 months.
- complete farm plan entails long term changes. This type of farm plan is not done most often. It takes time to embark on complete farm plan.

3.4.1 Farm (Budget)

Farm budget is a method of examining the profitability of alternative farm plans. Farm budgets are classified into three namely enterprise budget, partial budget and complete budget.

Farm enterprise budget is the estimation of expected income, costs and profits for an enterprise. Farm enterprise budgets are arranged in units i.e. acre, hectare, a head of livestock, a crop etc. A commodity produced on the farm is referred to as enterprise.

Table 8

Toby & Sons Farm Estate, Lobi, P-H 2017 Livestock Farm Budget

Items	**Fixed Costs ₦'000**	**Variable costs ₦'000**	**Total costs ₦'000**
Human labour	120	500	620
Chickens		300	300
Rabbits		150	150
Pens and Chemicals		90	90
Electricity & water		60	60
Bank interest		50	50
Rent on land	120		120
Depreciation on machinery	30		30
	250	1,150	1,400
	Expected income & Profit		
Expected farm	2,000		

proceeds			
Share of profit from coop	150		
Total revenue		2150	
Expected profit		2,150 – 1,400	750

From the hypothetical farm enterprise schedule of Toby & sons for 2017, you can see that the farm projected to spend a total sum of ₦250,000 on fixed costs, ₦1,150,000 on variable costs. A total costs of ₦1,400,000 was budgeted for spending on both fixed and variables as can be seen from the last column on table. While a sum of ₦2,000,000 was projected to be realized as the total proceeds from the farm. The farm expects to receive a share profit of ₦150,000 from its investment in the farmers' cooperative society within the year; this brought a total budget of ₦2,150,000 as expected revenue for the 2017 farm year. An estimated profit for the farm is the total revenue less total costs, mathematically expressed thus (2,150,000 – 1,400,000 = 750,000). So, the farm projected that all things being equal, at the of 2017 fiscal year it should have a profit of N750, 000).

- **Supplementary budget**

When a farmer effects a minor changes in his already existing farm business, especially as it affects costs, returns and profitability, it is said to be supplementary budgeting.

- **Complete farm budget**

This is a holistic budgeting. It has to do with overall modifications. This is necessary at the point when the farmer want to completely overhaul his farm.

3.5 Projections

Project planning is a systematic application of cost principles to the design process, so as to maintain in the first place, a sensible and economic relation between cost, quality, utility, appearance and in the second place have such overall control of proposed expenditure as circumstances might dictate.

Cost planning is generally seen as a method of providing cost advice which assists the designer in making design decision. It is a term used to describe any system of bringing cost advice to bear upon the design process.

3.5.1 Types of Projections

There are basically, two types of projection in planning. They are:

- **Elemental or target project planning**

An elemental or target project plan states the designer's design intentions in sums of money which represents the project design budget. After which, the designer (farmer) can then proceed to develop his design as he wishes within what he believes to be the correct economic frame work. The farm manager will continue to guide him through cost checks throughout the design period to enable him remain within the predetermined budget.

- **Comparative project planning**

A comparative plan sets out the estimated expenditure and revenue of individual sections of work or complete project and where appropriate, the estimated cost of alternative methods and materials which the designer may wish to consider. The designer selects the most suitable detail with complete awareness of the cost consequences of his decisions. It is usually based on the pricing of a specific design and specification; hence, it is very useful in cost-in-use studies that usually call for the choice of an optimal design among competing alternatives.

3.5.2Objectives of Projection

The aims and objectives of projections as a management technique are as follows:

- To ensure that the sum of money (cost/income limit set at the budgeting stage) which the farmer set out to spend is not exceeded and income not under-received.
- To ensure that the farmer obtains good value for his money in terms of cost, quality, performance (function), time and appearance (aesthetics).
- To ensure a balanced spread or rational distribution of expenditure (money) across all parts (elements) of the projects and opportunities for income captured.

3.5.3 Significance of Project Planning

All forms of planning require three basic processes to be carried out. These include:

- **Estimate**

This phase is where the decision to set limits and targets, on how much to spend and how to source funds is taken.

- **The Project Plan**

This is the budget proper, which deals with the decision on how to spend and where to source the money at a particular period of time.

- **The Project Check**

The check or monitoring (using approximate quantities) serves to confirm whether the articulated revenue and expenditure plans are implemented accordingly.

4.0 CONCLUSION

Planning and projection is a detailed and systematic process. Planning must have some basic elements like: it must be a forecast, with an assignment, strategic, standard, identify with procedures, etc.

A farm budget is a method of examining the profitability of alternative farm plans. Farm budgets are classified into three namely enterprise budget, partial budget and complete budget.

Projections as a management technique have specific aims and objectives to achieve.

5.0 SUMMARY

Planning and projection can be defined as a way of projecting our intentions, i.e. a method of deciding what we want to accomplish. It means to plan, project, forecast, design or make a chart our course.

Farm planning is the determination of a course of action to achieve the desired goals. It is the ability to decide on time the production and management problems of what to produce, how best to produce, when to produce, financial management problem of how to borrow, how much to borrow, when to borrow and the reason to borrow and marketing management problems of where to buy and where to sell, when to buy and when to sell, how to buy and how to sell etc.

6.0 TUTOR-MARKED ASSIGNMENT

Projections require some basic forms of processes, discuss?

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UNIT 3 MACRO-ECONOMICS CONSIDERATIONS: POPULATION, INFLATION AND FOOD PRICES

CONTENTS

1.0 INTRODUCTION

This unit introduces you these macroeconomics considerations: population, inflation, types of Inflation, causes of inflation and food prices.

2.0 OBJECTIVES

At the end of this unit, you will be able to:

- define population,
- discuss inflation
- explain types of inflation
- discuss causes of inflation

- discuss Food Prices

3.0 MAIN CONTENT

3.1 Macroeconomics Considerations

3.2 Population

Nigeria is one of the fastest growing countries in the world with an estimated population of one hundred and forty million (140,000,000) and an annual population growth rate of 2.9% (NPC, 2006).

Nigeria is the most populous nation in sub Saharan Africa and the tenth most populous in the world. However, the composition of this population is mainly in the youthful category with 49% being youths below the age of twenty-one (21) and a dependency ratio estimated at 89%. A large proportion of this population favours and is living in the rapidly expanding urban areas, presently estimated at over 45.2% and will likely hit 55.4% mark by the year 2015 (UNDP, 2007).

With this statistics however, the population dynamics show profound inequities and disproportions when analyzed with the development indicators, such as, twenty-one doctors per one hundred thousand people, infant mortality rate of 122 per 1000 live births, maternal mortality of over 980 per 100,000 live births, life expectancy at birth projected at 50:1 years (population growth and economic development in Nigeria, 2008).

The population of a place must be such that the available food can sustain it for a very long time. The question of population and population growth and the related food and growth in food population are serious concern to nations and their leaders. This is because increased population has direct consequence on food consumption in the most developing countries; population growth rate is close to crisis situation.

World population statistics tell a detailed story about how people and nations around the world are changing. The world's population is growing substantially every year, but the pace of growth varies dramatically from one region to another some countries have aging population and as a result, face future population decline while others still have young and rapidly growing populations. Each situation is associated with its own set of social, economic, environmental and political challenges.

The world population estimate by mid-2010 reached 6. 892 billion according to the population reference Bureau 2010 world population data sheet. Most future population growth will be in countries that have relatively large number of young people where large families are still the norm. Sub-Saharan Africa and Western Asia are the fastest growing regions of the world. In contrast, much of the industrialized world is experiencing much slower growth or even population decline. The United States is an exception in the industrialized world, mainly because of immigration and somewhat higher birth rates.

3.3 Inflation

Inflation is a sustained increase in an economy's average price level.
There are two kinds of indexes at which we can look to see if the price level has increased. One is called the consumer price index (CPI) and the other Producer Price Index (PPI).

3.3.1 The Consumer Price Index (CPI)

The consumer price index (CPI) tells us about average changes over time in the prices of a fixed group of goods and services that are bought by consumers. It is a situation in which either the prices or the supply of money are rising because in reality both will rise together.

In a Keynesian analysis, the inflation commences when the supply of goods and services are unresponsive to changes in the money supply. The consumer price index is the most widely used measure of inflation which is estimated based on prices of food items, clothing, shelter, fuel, Medicare, transportation and other commodities purchased for day-to-day living.

$$\text{Rate of inflation in } t^{th} \text{ period} = \frac{\text{Price level } (t^{th} \text{ year}) (= 1^{th} \text{ year})}{\text{Price level } (t - 1\text{th year})}$$

Let us consider a hypothetical budget survey in 2016 which reveals that consumers spent 50% of their income on food, 25% on shelter and 25% on clothing.

The year 2016 becomes the base year and the price of each item i.e. set at 100. The consumer price index for the year 2016, is therefore 100 (0.50 x 100) + (0.25 x 100) + 0.25 x 100).

Let us assume that the prices of food, shelter and clothing rose by 3, 5 and 6 percent respectively.

Indices for these 3 items are 103, 105 and 106. Now, CPI for 2017 is calculated thus:

CPI for 2016 = (0.50 x 103) + (0.25 x 105) + (0.25 x 106)

Making use of CPI in 2016 and 2017, we can work out the rate of inflation in 2017

$$\text{Rate of inflation} = \frac{104.25 - 100}{100} \times \frac{1}{100}$$

$$= 4.25\% \text{ per year.}$$

3.3.2 Producer Price Index (PPI)

This is another important guide for the evaluation of price for the producer price index. PPI reveals average change over time in the selling prices that domestic producers receive for their goods and services. It measures the level of prices of food items, manufactured products, mining products etc. usually at producer or wholesaler stage.

3.3.3 Other Forms of Inflation

- **Deflation**

Deflation is an opposite of inflation. It is a situation in which supply of money at a particular point of time is less than the demand. In other words, deflation is the state of falling price which occurs at the time when the output of goods and services increase more rapidly than the volume of money income in the economy.

- **Stagflation**

Stagflation **occurs** when an economy's output Real Gross Domestic Product (RGDP) decreases while its price level rises. Production stagnates usually during a recession while prices and unemployment go up. Stagflation is associated with high prices and high unemployment.

- **Disinflation**

Disinflation indicates the decline in the rate of inflation

- **Deflation**

Deflation indicates moderate degree of controlled inflation.

3.3.4 Types of Inflation

The following are the various types of inflation:

3.3.5 Demand Pull Inflation

Demand pull inflation is an inflation process that begins with an expression of aggregate demand. Any factor contributing to increased aggregate demand such as increase in money supply, consumer spending, investment, government expenditures, can initiate demand pull inflation.

However, for sustained price increase to occur there must be continuing increase in aggregate demand that can only be provided by a continuing increase in the money supply.

3.3.6 Cost–Push Inflation

The enforcement of wage increase by trade unions and increase of profits by farmers lead to cost–push inflation. Here money wage rises rapidly, moves rapidly than the productivity of labour, as a result of which the cost of production of commodities rises, farmers in turn increase the prices of their commodities.

Higher wages enable workers to buy more. On the other hand, trade unions demand higher wages in view of higher price of commodities. By so doing, the way cost spiral continues leading to cost–push inflation.

3.3.7 Suppressed Inflation

Sometimes, government adopts deliberate policies to prevent price rise but the impact of these policies is only temporary since prices rise as soon as these policies are relaxed. Suppressed inflation is a situation in which the government does not tackle the factors causing inflation, rather only imposes control to check the price rise.

3.3.8 Creeping Inflation

This type of inflation is not considered very inimical to the economy. It is the mildest type of inflation. Government can resort to creeping inflation so as to enable farmers or industries receive stimulus for the country to progress slowly and gradually.

3.3.9 Galloping or Hyperinflation

It is very high rate of inflation. Under hyperinflation, prices go up very rapidly; often more than 100% in a single year and money becomes a poor store of value. It is the most dangerous type of inflation. Galloping inflation should not be allowed to sustain.

3.4 Causes of Inflation

The causes of inflation can be grouped into two: factors causing increase in demand and factor causing decrease in supply.

3.4.1 Factors Causing Increase in Demand Include

- Increase in money supply
- Increase in disposable income
- Increase in salaries, wages
- Increase in population etc.

3.4.2 Factors Causing Decrease in Supply

- Deficiency of capital equipment
- Increase in sports
- Scarcity of other complementary factors of production
- Decrease in inputs
- Hoarding by farmer entrepreneurs
- Natural disaster (whether condition).

3.4.3 Food Prices

Price of a commodity refers to the value of the product in terms of the money unit. Before the evolution of money, goods were exchanged for goods otherwise known as barter or barbaric system. The barter system was replaced with the advent of money.

In agricultural based countries, prices of farm products undergo wide variations than the prices of industrial goods. They have profound effect on the growth, equity and stability of the economy. In the countries where consumers and producers enjoy more economic freedom, prices play a better role compared to the centrally planned economies where less freedom is given to the producers and middlemen.

3.5 Functions of Price

Prices play various roles on economic problems such as:

a. What and how to produce.
b. How to produce.
c. Proper allocation of resources.
d. Distribution of income among farmers.
e. High prices and inflation in the economy.
f. Capital formation in agriculture.

a. What and how to produce

Both producers and consumers are guided by price mechanism for the production and consumption of goods and services. However, the directions given by the prices vary according to the various groups of consumers. E.g in a situation of inflation, producers gets higher incentives to produce the required quantities at a higher magnitude. On the other hand, consumers with income have to cut down their consumption levels because of high prices.

b. How to produce

Prices play very crucial impact in deciding the method, quality and quantity of commodities to be produced. Every producer want to produce with efficient methods of production at least cost. The producer considers the cost of labour, raw materials and other inputs before deciding on the prices of the products.

c. Proper allocation of resources

Price helps consumers to properly allocate their resources in the purchase of goods and services. The low income earners spend higher proportion of their income on the basic necessities of life, such as food, shelter and clothing and spend less on luxurious goods like cars, electronic gadgets; but at the higher level of their income, the proportion of income spent on basic necessities will reduce giving room to luxuries.

d. Distribution of income among farmers

Price assists in the distribution of income among different groups of farmers. For instant, if there is price hike for some agricultural farmers, large scale farmers with substantial marketable surplus will gain benefit more by the price rise compare with small scale farmers with low marketable surplus.

e. High prices and inflation in the economy

A sustained increase in the price of a commodity leads to inflation trends in the economy and as such affect a number of economic variables such as employment, consumption, capital income, etc.

f. Capital formation in agriculture

Prices affect capital formation, agricultural industries, and allied sectors. Capital formation takes place through accelerator and multiplier effect. If farm workers demand higher wages when prices go up, it will in turn reduce farmers' profit.

4.0 CONCLUSION

In this unit we discussed the macroeconomic considerations featuring population, inflation and food prices. Population statistics tells us how peoples and nations are changing. Population explosion has direct consequence on food consumption. Over population is prone to political, religious and economic crises.

Inflation, on the other hand, is sustained increase in the general economy's price level usually measured with consumer price index (CPI) and producer price index (PPI). Price is used to determine the value of goods and services.

5.0 SUMMARY

Nigeria is one of the fastest growing countries in the world with an estimated population of one hundred and forty million (140,000,000) and an annual population growth rate of 2.9% (NPC, 2006).

Inflation is a sustained increase in an economy's average price level.

There are two kinds of indexes at which we can look to see if the price level has increased. One is called the consumer price index (CPI) and the other Producer Price Index (PPI).

Price of a commodity refers to the value of the product in terms of the money unit. Before the evolution of money, goods were exchanged for goods otherwise known as barter or barbaric system. The barter system was replaced with the advent of money.

6.0 TUTOR-MARKED ASSIGNMENT

How will the study of these macroeconomic indices help you practise agricultural economics?

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MODULE 6 LAND TENURE SYSTEM IN NIGERIA

Unit 1 Land tenure system in Nigeria
Unit 2 The land use decree
Unit 3 Place of agriculture in national budgets
Unit 4 Agricultural co-operation and extension
Unit 5 A Study of Some Food Production Strategies, E.G. O.F.N., The GreenRevolution, Farm Settlements, NORCAP Experiment, Etc.

UNIT 1 LANDS TENURE SYSTEM IN NIGERIA

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the land tenure system in Nigeria. We will study land, what land tenure mean, traditional land tenure, land reform and land administration.

2.0 OBJECTIVES

At the end this unit, you should be able to:

- discuss land
- explain what land tenure system mean
- discuss traditional land tenure
- explain land reform
- know land administration.

3.0 MAIN CONTENT

3.1 Land Tenure System

3.2 What Is Land

Land is the farmer's most important asset. All crop and livestock production requires land. Ownership of land often interferes with its use as an agricultural asset. The use of land is an economic activity while control is political. Rights of ownership and use of land involve emotions. Thus, people often guard their land jealously whether it is currently exploited or not. This can cause problems in primary agricultural production. Some people are landless while others own disproportionately large amounts of land. Some people who own land have no intention of farming while many who wish to farm have no access to land.

3.3 Land Tenure Systems

Land tenure is the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land. (For convenience, "land" is used here to include other natural resources such as water and trees.).

Land tenure is an institution, i.e., rules invented by societies to regulate behaviour. Rules of tenure describe how property rights to land are to be allocated within societies. They define how access is granted to rights to use, control, and transfer land, as well as associated responsibilities and restraints.

In simple terms, land tenure system determines who can use what resources for how long, and under what conditions.

Land tenure is an important part of social, political and economic structures. It is multi-dimensional, bringing into play social, technical, economic, institutional, legal and political aspects that are often ignored but must be taken into account. Land tenure relationships may be well-defined and enforceable in a formal court of law or through customary structures in a community. Alternatively, they may be relatively poorly defined with ambiguities open to exploitation.

3.4 Traditional Land Tenure Systems

Traditionally land is commonly owned by members of a family, a village or a clan. Individual rights do not traditionally permit outright sale of land. Under communal land tenure, the individual has absolute

right on any vacant land after consulting the head of the community who holds the land entrust for the community but the individual cannot dispose the land on outright sale. In fact, possession of the land can be confirmed only when the individual physically occupies it. If the land is vacated for some years, another person may take it up with consent of the village chief or head of the family. The tendency for family land to be shared among surviving children of a deceased parent leads to fragmentation and scattering of plots of land for the off-spring.

Traditional tenure system has the following demerits:

1. It denies willing farmers of good farm land.
2. A few powerful families control large tracts of land while a majority of the people remain landless and serve as labourers or tenants.
3. The land owners who may be traders or manufacturers sometimes operate as absentee farmers by hiring the landless villagers as labour or by practicing share cropping in which the landless worker utilizes the land and receives an agreed proportion of the proceeds.
4. The tenant may feel insecure and therefore refuse to improve or maintain the productive capacity of the soil.
5. The outcome is progressively lower yields and hence low returns to the farmer and the nation.

3.5 Land Reform System

Many governments have tried to reform the land tenure system in order to provide land for landless and to prevent exploitation by the land owning classes. Land reform is an explosive political problem and strong power base essential to affect any reform. Examples of land reforms can be seen in Northern Nigeria where land was held entrust for people by the government and administered through district or village heads and the emirs. The arrangement for acquiring land was less cumbersome and anyone who needed land could get it. But the north south division resulted in certain sections of the country being starved of land while other sections have surplus land.

The objectives of land reforms are to:

- remove impediments against agricultural production
- eliminate all forms of exploitation and social injustice within the agrarian system
- provide security to the farmer
- assure equality of status and opportunity for the Nigeria citizenry.

3.6 Land Administration

Land administration is the way in which the rules of land tenure are applied and made operational. Land administration, whether formal or informal, comprises an extensive range of systems and processes to administer:

- **Land rights:**The allocation of rights in land; the delimitation of boundaries of parcels for which the rights are allocated; the transfer from one party to another through sale, lease, loan, gift or inheritance; and the adjudication of doubts and disputes regarding rights and parcel boundaries.
- **Land-use regulation:**Land-use planning and enforcement and the adjudication of land use conflicts.
- **Land valuation and taxation:**The gathering of revenues through forms of land valuation and taxation, and the adjudication of land valuation and taxation disputes.
-

4.0 CONCLUSION

Land tenure is an institution i.e., rules invented by societies to regulate behavior on land. It is an important part of social, political and economic structures of a society. Traditionally land is commonly owned by members of a family, a village or the entire community. Because of the importance attached to land by the people and at various government levels, governments have tried to reform the land tenure system so as to provide land for all and to prevent exploitation by a privileged few.

5.0 SUMMARY

Land is the farmer's most important asset. All crop and livestock production requires land. Ownership of land often interferes with its use as an agricultural asset. The use of land is an economic activity while control is political. Rights of ownership and use of land involve emotions.

Land tenure is an institution, i.e., rules invented by societies to regulate behaviour. Rules of tenure describe how property rights to land are to be allocated within societies. They define how access is granted to rights to use, control, and transfer land, as well as associated responsibilities and restraints.

Traditionally land is commonly owned by members of a family, a village or a clan. Individual rights do not traditionally permit outright sale of land. Many governments have tried to reform the land tenure

system in order to provide land for landless and to prevent exploitation by the land owning classes.

Land administration is the way in which the rules of land tenure are applied and made operational. Land administration, whether formal or informal, comprises an extensive range of systems and processes to administer.

6.0 TUTOR-MARKED ASSIGNMENT

Explain the merits and demerits of land reform system in Nigeria.

7.0 REFERENCES/FURTHER READING

The Land Use Act of theLaws of the Federation of Nigeria 1990

UNIT 2 THE LAND USE DECREE

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the meaning of land use decree,features of the land use, implications of the land use act, problems inherent with non-uniformity with the laws governing the land use act and some controversies and problems of the land use act.

2.0 OBJECTIVES

At the end of this unit, you will be able to:

- define Land Use Decree in Nigeria
- discuss the features of the Land Use Act
- examine the implications of the Land Use Act
- Problems inherent with non-uniformity with the laws governing the land use act are
- some controversies and Problems of the Land Use Act

3.1 What is Land Use Decree in Nigeria

The Land use act (formerly called the Land Use Decree) was promulgated on 29th of March 1978.

According to Chapter 202 of the Laws of the Federation of Nigeria 1990, the Land Use Act is:

"An Act to Vest all Land compromised in the territory of each State (except land vested in the Federal government or its agencies) solely in

the Governor of the State , who would hold such Land in trust for the people and would henceforth be responsible for allocation of land in all urban areas to individuals resident in the State and to organizations for residential, agriculture, commercial and other purposes while similar powers will with respect to non-urban areas are conferred on Local Governments (27th March 1978) Commencement."

3.2 Features of the Land Use Act

The main objectives of the Land Use Act are to:

- effect structural change in the system of land tenure
- achieve fast economic and social transformation
- negate economic inequality caused by the appropriation of rising land values by land speculators and landholders and
- make land available easily and cheaply, to both the government and private individual developers.

3.3 Implications of the Land Use Act

Implications of the Land Use Act bother majorly on ownership rights. If you acquired a land without a Certificate of Occupancy, C of O, then the land is not yours all you have is a lease. You never have a freehold because the government can seize your land or property without any form of compensation. The power to do this rests within the Land Use Act, which reads: "All the rights formerly vested in the holder in respect of the excess of the land shall in the commencement of this Act be extinguished and the excess of the land shall be taken over by the Governor and administered as provided in this Act."

3.4 Problems Inherent with Non-Uniformity with the Laws Governing the Land Use Act Are

- the issue of uncontrolled speculation in urban land
- the question of access to land rights by Nigerians on equal legal basis
- the issue of fragmentation of rural lands arising from either the application of traditional principles of inheritance or population growth, and the consequent pressure on land.

Under the Land Use Act, the governor is responsible for allocation of land in all urban areas to individuals' resident in the state or to organizations for residential, agricultural, commercial and other purposes while similar powers with respect to non-urban areas are conferred on the Local Government.

The act altered the existing land laws in the Southern part of the country by removing corporate groups, families and chiefs from the trusteeship of land and replaced them with the state governors. This poses as both an advantage and disadvantage of the Land Use Act.

3.5 Some Controversies and Problems of the Land Use Act

One of the most contentious legislations in Nigeria remains the Land Use Act. Many of the stakeholders in the real estate industry have described it as monster crippling the housing development in the country. Experts have opined that the Act is overdue for a comprehensive review. They have also repeatedly called for the Act to be removed from the Constitution to make its amendment more realistic and less cumbersome.

4.0 CONCLUSION

The Land Use Act was promulgated on 29th of March 1978. It borders on ownership of rights, whether the land is that of the individual, the community or the government. The Land Use Act has been a contentious legislative issue in Nigeria; this is in view of the importance attached to land by all.

5.0 SUMMARY

The Land use act is a legal document that states and defines the use of land in Nigeria as:

"An Act to Vest all Land compromised in the territory of each State (except land vested in the Federal government or its agencies) solely in the Governor of the State , who would hold such Land in trust for the people and would henceforth be responsible for allocation of land in all urban areas to individuals resident in the State and to organizations for residential, agriculture, commercial and other purposes while similar powers will with respect to non-urban areas are conferred on Local Governments (27th March 1978) Commencement."

Implications of the Land Use Act bother majorly on ownership rights. If you acquired a land without a Certificate of Occupancy, C of O, then the land is not yours all you have is a lease.

One of the most contentious legislations in Nigeria remains the Land Use Act. Many of the stakeholders in the real estate industry have described it as monster crippling the housing development in the country.

6.0 TUTOR-MARKED ASSIGNMENT

Explain the features of the Land Use Act?

7.0 REFERENCES/FURTHER READING

The Land Use Act of the Laws of the Federation of Nigeria 1990.

UNIT 3 PLACE OF AGRICULTURE IN NATIONAL BUDGETS

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the place of agriculture in national budgets, meaning of budgets, types of budgets and farm budget.

2.0 OBJECTIVES

At the end of this unit, you will be able to:

- define national budget
- explain the meaning of budgets
- explain farm budget

3.0 MAIN CONTENT

3.1 Definitions of National Budgets

A budget is a financial plan for a future period. Budgets are usually prepared on a short term basis; the most common time period used is one year. It is a formal written document, containing the income and expenditure of an individual, an organization or government.

3.2 The Budget Structure

The budget planning process must begin with a forecast of income and expenditure. It is usually prepared in detail by income and expenditure sub-heads using several techniques. One method is to ask heads of

ministries, departments and parastatals, to submit the estimate of their income and expenditure in the next year.

The second approach is to study sales inflows from the customers' point of view by conducting a market survey in which customers are asked what they plan to buy.

A third in common use is to project trends by using historical data from the accounting records and adjust the trends by a factor which reflects the amount price competition in the particular state of the economy, industry and the effect it is estimated these factors will have on taxes, sales and other internally generated revenue and sales specific products coming yearly. With the budget prepared, the government can then develop supporting budget schedules.

3.3 National Budgetary Allocation Trend to Agriculture

According to Oriola, (2004) successive administrations in Nigeria have since independence made several efforts to achieve food security in the country. These range from the establishment of certain policies and programmes to considerations in the budgetary allocations with respect to agriculture to boost food production.

Table Federal government capital expenditure in Naira

Year	Total Agric capital expenditure
1999	6,912.60
2000	8,863.20
2001	57,879.00
2002	57,879,000.00
2003	32,364,000.00
2004	8,510,000,000.90
2005	10,555,000,000.00
2006	31,000,000,000.00
2007	30,813,299,000.00
2008	113,859,874,260.00
2009	166,924,361,050.00
2010	184,396,769,831.00

Source: Central Bank of Nigeria, Statistical Bulletin, December, 2006.

Analysis of the trend of the budgetary allocations to agriculture between 1999 and 2001 maintained an upward trend. However, in 2002 and 2003 there was a sharp fall in the allocations. But as from 2004 till 2010 an upward trend was maintained.

Several studies have established a link between the size of budgetary allocation and the performance of the agricultural sector.

Adequate budgetary allocations boost the performance of the agricultural sector; enable the execution of projects and programmes. The period 1999 to 2003 stimulated the current revolution in the agricultural sector in Nigeria and it is closely associated to the high budgetary allocation to the sector.

3.3.1 Types of Budget

Capital Expenditure
Recurrent Expenditure
Supplementary

A projected income statement or a projected balance sheet for the period; together with expenditure and income projection schedule**.**

4.0 CONCLUSION

A budget is a financial plan for a period of time. Nigeria's budget is usually prepared yearly. An analysis of the trend of the budgetary allocation to agriculture between 1999 and 2010 maintained an upward trend. This is because of the importance Nigeria attaches to agriculture.

5.0 SUMMARY

A budget is a financial plan for a future period. Budgets are usually prepared on a short term basis; the most common time period used is one year. It is a formal written document, containing the income and expenditure of an individual, an organization or government.

Successive administrations in Nigeria have since independence made several efforts to achieve food security in the country. These range from the establishment of certain policies and programmes to considerations in the budgetary allocations with respect to agriculture to boost food production. Agricultureis in the priority list of the federal government budget.

6.0 TUTOR-MARKED ASSIGNMENT

Adequate budgetary allocations boost the performance of the agricultural sector. Discuss

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UNIT 4 AGRICULTURAL CO-OPERATION AND EXTENSION

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the study of agricultural co-operation and extension featuring: meaning of agricultural cooperation, motives for agricultural cooperation, agricultural extension, and significance of agric extension and objectives of agricultural extension.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain Agricultural cooperation
- identify the motives for agricultural cooperation
- define agricultural extension,
- describe the significance of agric extension,
- distinguish between agricultural cooperation and extension.

3.0 MAIN CONTENT

3.1 Meaning of Agricultural Cooperation

The history of agriculture in any society is abounding with tales of agricultural producers or farmers coming together to protect their interests which they conceive as being constantly threatened by middlemen.

The concept of cooperation has been defined in many ways. In this study we have adapted Babcock's definition which states that agricultural cooperative societies are a legal practical means by which a group of self-selected agricultural producers seek to improve their individual economic position in a scarcity prone world.

In a similar definition, we can define agricultural cooperation as an agricultural business voluntarily formed, owned and controlled by its member-patrons (usually farmers and agro-allied producers) and operated for them on a non-profit or cost basis.

3.2 Motives for Agricultural Cooperation

Agricultural cooperation, from our definitions above, is clearly a business organization. However, there are fundamental elements which distinguish them from other types of business organizations.

These distinguishing characteristics which are also called principles or motives, have earlier been treated in this course, and are reiterated as follows: open and voluntary membership, democratic control by the rule of "one member one vote", sharing out of surplus in proportion to patronage, limited interest on capital, political and religious neutrality, cash trading, promotion of education of members, limited area of operation, voluntary work by board members, membership without subscription of shares, allocation of the entire surplus to indivisible reserves, limited liability of members, limitation of the business to members only, self-help without exclusion of government help, business specialization.

Three hard core principles have been extracted from all these principles:

- Democratic control of cooperative members' patrons
- Limited returns on equity capital
- Service at a cost to member patrons

Without over emphasis, the different criteria for categorization of cooperation based on occupation, economic functions, economic activities, geographic location, social class of its members, relations with the government and gender.

There are different kinds of cooperation involved in agricultural, production cooperatives, marketing cooperatives, processing cooperatives, purchasing cooperatives, agro-allied cooperatives, and multi-purpose cooperatives.

In the case of multi-purpose cooperatives the motives for setting them up are to undertake two or more activities beneficial to the members. Such activities include advertising, insurance, credit and advisory services.

The cooperators should be aware that the fundamental premise underlying the success of any agricultural cooperative business is the existence of an economic need to be fulfilled by the cooperation. Hence, focused in the areas of agriculture, cooperatives have the following advantages:

- Increase in the sales return of members' products
- A reduction in the prices of inputs
- Improvement in the quality of inputs
- Improved and equitable treatment to members of cooperation

To achieve the corporate objectives, the potential cooperators before setting up agricultural cooperation usually consider:

- whether an adequate volume of business can be secured and maintained
- whether sufficient, stable financing would be available
- ensure affordable but efficient management team
- strong self-determination to with stand competition and distraction

Listed below are some of the discouraging factors among the farmers cooperative:

- The subsistence nature of farming occasioned by land tenure system
- General level of illiteracy of most farmers
- The farmers' quest for independence and autonomy
- Lack of advisory services on the benefits derived from cooperatives
- Inadequate capital outlay that causes early demise of the cooperation
- Absence of stable reliable agricultural marketing system in Nigeria

3.3 Agricultural Extension

Agricultural extension is a part of sociology that involves exchange of ideas to improve knowledge about a certain area. The theory which is perhaps, one of the oldest theories of social behaviour is primarily

concerned with the social exchanges that take place between individuals and groups. Social exchange is an analysis of social relationships based on causes and rewards. The theory is based on the assumption that human beings, in their interaction, are calculative and that their responses will be influenced by the expected gains or benefits from the encounter. The more valuable the sentiment or activity the members exchange with one another, the greater the average frequency of interaction of the members.

Agricultural extension**,** as an educational process, was first introduced in 1873 by Cambridge University in England, United Kingdom, to describe a particular system dedicated to the dissemination of knowledge to rural people where they lived and worked. Within a short time, the idea had spread to other parts of Britain, Europe and North America and later to Nigeria.

Initially, agricultural extension was mainly concerned with the improvement of agriculture, using conventional teaching methods but later, home economics, youth programmes and rural community resource development were included.

Agricultural extension now has three main features namely:

- **As a discipline**

It deals with the behaviour of people and depends on a firm knowledge and expertise in sociology, anthropology, psychology, administration, economics, communication and political science, etc.

- **Agricultural extension as a process**

As a process, it seeks to influence the behaviour of rural people through education and information exchange so as to assist them in gaining a livelihood, improving their physical and psychological level of living and fostering community welfare.

- **As a service**

Agricultural extension makes the government ministry, the university a voluntary agency as useful as possible to the people who support it through taxes and donations.

3.4 Significance of Agricultural Extension

Agricultural extension services and programmes have developed around a philosophy of assisting farmers help themselves in the identification

and solution of their farm and home problems. Help through education encourages farmers to organize.

In fact, agricultural extension assists farmers in the following ways:

- Agricultural extension brings help to farmers through education and encourages farmers organize themselves through cooperatives.
- Agricultural extension workers encourage the sharing of information and cooperation among members under the condition of equity, mutual trust and respect for the culture, values and belief system of farmers.
- Agricultural extension respects the ability of rural peoples to participate actively in decision making rather than accepting new information passively
- Agricultural extension assists rural people acquire knowledge, skills and ability that would enable them to produce, process, distribute and market agricultural products more efficiently.

3.5 Objectives of Agricultural Extension

The objectives of agricultural extension are summarized under the following headings:

- **Youth Development and Empowerment:** Agricultural extension aims at improving the educational and social life of the rural youth so that they can develop desirable ideas and standards of farming by inculcating in them the habits of healthy living, purposeful recreation and better use of leisure time, by training rural youths to acquire attitudes and abilities for working cooperatively with others.

- **Social Development:** it is the objective of agricultural extension to provide learning experiences to help rural people develop attitudes, habits and standards of behaviour consistent with community life; by developing the awareness of rural people to social problems and enabling them to seek out reasonable solutions.

- **Homemaking:** Agricultural extension by helping families to demand and use improved techniques of homemaking, better nutrition, child care and over-all family standard of living and by encouraging cultural, recreational and community improvement activities and thereby reducing rural-urban migration and its undesirable consequences

- **Knowledge:** It is the objective of agricultural extension to assist rural farmers to acquire knowledge, skills and abilities that will enable them to produce, distribute, process and market agricultural products more efficiently and to assist farmers utilize agricultural services provided by the government and private agencies.

4.0 CONCLUSION

Agricultural extension is an aspect of sociology that deals with ideas to improve knowledge concerning agriculture. Initially, agric extension was mainly concern with the improvement of agriculture, using conventional training methods but later ventured into home economics, youth programmes, and rural community resource development. Agricultural extension assists farmers in so many ways including, education, co-operatives, providing information technology to farmers, rural participation, knowledge and skills.

5.0 SUMMARY

The concept of co-operation has been defined in many ways. In this study we have adapted Babcock's definition which states that agricultural co-operative societies are a legal practical means by which a group of self-selected agricultural producers seek to improve their individual economic position in a scarcity prone world.

Agricultural extension is a part of sociology that involves exchange of ideas to improve knowledge about a certain area. The theory which is perhaps, one of the oldest theories of social behaviour is primarily concerned with the social exchanges that take place between individuals and groups.

6.0 TUTOR-MARKED ASSIGNMENT

Explain the objectives of Agricultural Extension.

7.0 REFERENCES/FURTHER READING

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UNIT 5 FOOD PRODUCTION STRATEGIES IN NIGERIA

CONTENTS

1.0 INTRODUCTION

This unit introduces you to the meaning of agricultural cooperation, motives for agricultural cooperation, agricultural extension, significance of agric extension, and difference between agricultural cooperation and extension

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain Agricultural cooperation
- identify the motives for agricultural cooperation
- define agricultural extension,
- describe the significance of agric extension,
- distinguish between agricultural cooperation and extension

3.0 MAIN CONTENT

3.1 Food Production Strategies in Nigeria

In Nigeria food production is a household activity as most of the food consumed in the country is produced by local farmers. e.g, the peasant farmers with their farm holdings produced the yam, rice, pepper, plantain, potatoes, vegetables, beans and other food stuffs consumed by the people. People must have food of high quality and adequate quantity to improve and maintain their healthy and nutritional well-being. Food security is perceived as the most fundamental agricultural objective in Nigeria and as a result, various National Development Plans and policies have been initiated to address the issue.

These respective strategies for food security in Nigeria include:

- National Accelerated Food Production Programmes (NAFPP), 1972
- River Basin Development Authority (RBDA), 1974
- Agricultural Development Project (ADP), 1976
- Operation Feed the Nation (OFN), 1976
- Green Revolution (GR), 1980
- Directorate of Food, Roads and Rural Infrastructure (DFRRI), 1986
- National Accelerated Industrial Crops Production Programme (NAICPP), 1995
- Agricultural and Rural Transformation Programme (ARTP), 2000.

These strategic programmes were aimed at transforming the rural areas and favourably impact on agriculture.

Unfortunately, none of these programmes can be described as being completely successful. Apart from the several technical factors, the key issues responsible for the poor outcome of these government support programmes are the frequent cases of misappropriation of funds, under investment in the sector and multiple political interests and other agricultural issues.

The Federal Ministry of Agriculture and Rural Development, (FMARD) 2000, declared Nigeria as an agrarian country with 80 percent of its land mass in the rural areas. Based on this assertion, Nigeria embarked on several rural agricultural programmes as strategies to improve food supply. Such programmes are:

3.2 Strategies for Food Crop Programme Co-ordination

The Agricultural Development Programme (ADP) is set up to co-ordinate the food crops programme implementation, organize extension support, publicity, training and field demonstration, collaborate with relevant research institutes in raising seeds/seedlings/suckers/budded stumps to be taken up by farmers, fertilizer distribution in the states, agricultural mechanization**,** supervision of the THUs, ensure that they pay in the proceeds from their operations and make sure that all micro credit support is co-ordinated by NACRDB**.**

1. Livestock Programme Co-ordination

The livestock component is co-ordinated by the ADPs. Relevant specialized support given by the State Livestock Departments. The ADP in liaison with the Livestock Departments is responsible for organizing extension support, and training. Disease control is handled by veterinary officials in the ADP and the states ministry. The breeding stock support that involves rehabilitation of ONBCs is handled by the Federal Livestock Department. Major support for the raising of grass-cutter families to be distributed to farmers is undertaken by private sector agencies and appropriate research institutes. Micro credit support is coordinated by NACRDB in collaboration with the ADP.

3.3 Strategies for Livestock Production

- The main objectives of this livestock component are to encourage more effective production and create disease free environment for livestock to survive and thrive.
- To make more meat available and accessible. The main strategies for this programme are as follows:

3.3.1 Creation of Improved Stock Breeds

To be handled by the Open Nucleus Breeding Centers (ONBC) some of which will be rehabilitated under the programme. The breeding programme covers sheep, goat, cattle, pigs, ruminants and poultry.

3.3.2 Control of Major Animal Diseases

The main disease control measures to be taken will be against PPR in sheep and goat, Contagions Bovine Pleuro-Pneumonia (CBPP), New Castle Disease (NCD) in poultry and Swine Fever in pigs.

3.3.3 Establishment of Grazing Reserve

Under the programme effort should be made to settle pastoralists in grazing reserve in order to integrate them into the rural communities. This will help to restore relations between livestock and crop farmers, in addition to creating a good environment for rural development.

3.3.4 Support for Direct Production

Besides the general support to be given towards direct production of various livestock, this programme will specifically encourage the production of grass cutter. The grass cutter has become a popular local meat animal with high protein and low cholesterol content. It is under threat of extinction in the wild, and its support under this programme will help in conserving the forest biodiversity by reducing bush burning and hunting practice.

3.4 Fisheries Programme Co-ordination

The fisheries programme is coordinated by the ADP. Technical support provided from time to time by the State Departments of Fisheries. Extension services support and publicity is handled by the ADP. The stocking of water bodies with fingerlings as well as procurement of the special delivery vans for fingerlings is handled by the Federal Department of Fisheries (FDF). They also supervise the rehabilitation of heavy equipment for pond construction and to rehabilitate the abandoned Federal Government fish farms and prepare them for privatization. The TTCs were established and run by FDF. ADP organizes training in collaboration with TTCs.

3.4.1 Strategies for Fisheries Production

A major set-back to fish farming and aquaculture development in Nigeria is the acute shortage of high quality fish fingerlings of culturable local species. It is estimated that while the total fingerlings supply from all sources is 27.3 million, the average annual demand is 297.5 million. Under this programme major efforts are geared up to substantially improve this situation. The main strategies are as follows:

1. Fingerlings Production

This will involve the restocking of dams, reservoirs, lakes and lagoons with high quality fast growing fingerlings. Some abandoned heavy pond construction equipment will be rehabilitated because of their usefulness.

2. Promotion of Aquaculture

Seed and commercial fish farms that is moribund under the Federal Government to be rehabilitated and put up for privatization**.**

3. Institutional Strengthening of Aquaculture

Some of the fish farming and aquaculture demonstration centers are to be converted into Technology Transfer Centres.

4. Programme Finance

The programme is run on a cost sharing arrangement involving external donor agency, the Federal Government, State Governments and Local Governments. The sharing ratios are as follows:

4.0 CONCLUSION

Most of the food products consumed in Nigeria are produced by Nigeria's rural farmers. Nigeria embarked on different developmental plans and policies such as National Accelerated Food Production Programme (NAFPP), River Basin Development Authorities, etc. Unfortunately, none of these programmes can be described as completely successful. Hence, the new strategy programmes were began upon, e.g.strategies for fisheries programme co-ordination, livestock programme coordination

5.0 SUMMARY

In Nigeria food production is a household activity as most of the food consumed in the country is produced by local farmers. e.g. the peasant farmers with their farm holdings produced the yam, rice, pepper, plantain, potatoes, vegetables, beans and other food stuffs consumed by the people.

The Federal Ministry of Agriculture and Rural Development, (FMARD) 2000, declared Nigeria as an agrarian country with 80 percent of its land mass in the rural areas.

6.0 TUTOR-MARKED ASSIGNMENT

Write short notes on the following agricultural strategies"

- Livestock Production
- fisheries production
- Food Crop Programme.

7.0 REFERENCES/FURTHER READINGS

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