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Agricultural Economics

Definition

Economics is the study of how man and society employ the scarce productive resources to produce various commodities, over time, and distribute them among various consumers in society.

It attempts to explain how man can best use the limited resources to provide goods and services with which to satisfy his needs e.g. food, clothing and shelter with minimum wastage or loss of these resources.

Principles of Economics

(a) *Scarcity*
Economic scarcity means resources are limited in supply relative to demand. That is to say the goods and services available are scarce relative to people's desire for them.

This principle implies that there is no time that man can have enough resources to satisfy all his needs or desires.

(b) *Choice/Preference*
Human wants are many and varied and means of satisfying them are limited. Therefore, man has to make a choice among the alternatives in order to use the resources available. Man does this by satisfying the most pressing needs first. This is called scale of preference.

(c) *Opportunity Cost*
The principle of opportunity cost states that "the best use of an input resource is to put it into a project (use) where the greatest marginal returns are obtained." This means the value of the forgone alternative.

The explanation of the principle is that opportunity cost is the return forgone (was not earned) when a resource factor is taken away from its best alternative.

The concept of opportunity cost helps consumers to make rational decisions, set and achieve their priorities where there are no alternatives or where there is unlimited supply of resources, there is no opportunity cost.

Relationship between Firm and Household

A household is considered to be a unit comprising a farmer and members of his family. It produces raw materials and consumes manufactured goods.

A firm on the other hand, is any manufacturing or processing concern, which consumes raw materials and produces manufactured goods.

Both household and firm generate income, which in turn, is used to:

(i) Improve the standard of living of the house-hold members by paying for essential goods and services.

(ii) The firms build more industries to create more employment and revenue through salaries and wages.

(iii) Finance government projects through taxes and hence further national development.

National Income

National income is determined by:

(a) Gross Domestic Product (G.D.P.)
This is the sum total of all goods and services produced in a country in the period of one year.

(b) Gross National Product (G.N.P.)
Is the sum total of G.D.P. and the difference between income inflow (revenue coming into the country from outside) and income outflow (money going out of the country by foreign investors or incomes of citizens of other countries). It represents the total income earned within the country and from abroad.

(c) Per Capita Income
Is the Gross National Income (in revenue terms) divided by the number of people living in that country. It is not a good measure of the economic well-being of the people because of the uneven distribution of income among them.

Factors of Production

A factor of production is anything that contributes directly to output. It ultimately determines whether or not production takes place. It is a productive resource.

Productive resources are usually employed in the production of goods and services:

(a) Land
As a factor of production refers to the natural characteristics and properties of a given area of land. The key factor here is productivity e.g. soil fertility, presence of water and minerals.

(b) Labour
Besides being a consumer, man is also a factor of production. He provides the labour force (human power) required in the production process. Labour is assessed in terms of productivity and not mere numbers of workers or labourers. Labour is measured in terms of man hours, man days or man months etc.

The labourer's productive capacity depends on factors such as age, health, state of nutrition and level of education. The amount of work and the efficiency with which it is performed determines the quality of labour.

(c) Capital
Capital refers to all man-made assets that help land and labour to produce. It is categorised into:
(i) *Fixed/durable capital* e.g. machinery, buildings and permanent improvements on land like fences, roads, irrigation facilities, water-supply system, etc.
(ii) *Working capital* which include consumable goods e.g. fertilisers, livestock-feeds, fuel in stock, pesticides, etc.
(iii) *Liquid capital* e.g. ready money bank deposits, shares in financial institutions, etc.

(d) Management
An entrepreneur (e.g. manager) uses his knowledge and judgement to decide how to combine the other three productive resources in the best way possible. He makes plans, executes them and bears the risks or consequences which such plans entail.

Production Function

Definition

Production function is a physical relationship of inputs and outputs in a production process.

It tells the quantity of output (product) that may be expected from a given combination of inputs.

Production Function may be expressed in table form or graphically as a curve.

Examples: Feeding pigs for pork at varying levels of concentrate feed.

Unit of feed	Body Wt. Gains (kg.)	Marginal Products (kg.)
0	212	-
10	222	10
20	238	16
30	251	13
40	261	10
50	269	8
60	275	6
70	280	5
80	283	3
90	285	2
100	286	1

Types of Production Functions

A production function assumes three forms; which may be treated as different types:

(a) *Increasing Returns*
In this type, each additional unit of input results in a larger increase in output than the preceding unit. It is also rarely encountered in agricultural undertakings.

(b) *Constant Returns*
The amount of the product increases by the same amount for each additional input; i.e. constant returns to input factor. It is extremely rare in agricultural production.

(c) *Decreasing (diminishing) returns*
Here, each additional unit of input results in a smaller increase in output than the preceding unit. It is the most commonly encountered form in agricultural enterprises; and gives rise to the law of Diminishing Returns.

Examples:

(i) Feeding dairy cows for milk production with varying amounts of feeds.

(ii) Crop responses to application of varying amounts of fertilisers.

(iii) Use of varying units of labour on fixed unit of land.

The Law of Diminishing Returns

The law of diminishing returns states that if successive units of one input are added to fixed quantities of other inputs a point is eventually reached where additional product (output) per additional unit of input declines.

This law is encountered in practically all forms of agricultural production; and is useful in determining the most rational and profitable level of production.

Example:
Production of wheat at varying levels of N.P.K. fertiliser application on a fixed area of land.

Unit of N.P.K. fertiliser	Total Product Yields (bags)	Marginal Products (bags)
30	10	-
60	27	17
90	42	15
120	56	14
150	63	7
180	65	3
210	65	0
240	60	-5
270	52	-8
300	42	-10

The Principle of Profit Maximisation

The profit is defined as the difference, in monetary terms, between the total returns (income) and total costs (expenses) in a production process.

Profit maximisation aims at obtaining the highest returns at a minimum cost per unit of input factor used. This can be done by considering two concepts:

(a) *Marginal Concept*
Profit is maximised when the marginal (additional or extra) revenue (MR) is equal to, or slightly higher than, the marginal cost (MC). At this point every added input factor brings in higher returns than the expenses incurred in investing in it.

(b) *Net Revenue Concept*
Profit is said to be maximised in a production process when the Net

Revenue (differences between total revenue and total costs) is highest.
i.e. NR = TR - TC.

This is arrived at by analysing the total costs and total revenue earned from a particular enterprise and then subtracting the former from the latter. When calculating the profit using whatever concept, the following assumptions are made:

(i) Cost of inputs (e.g. fertilisers, labour) remains constant during the period of production.
(ii) Price of the produce (product) remains unchanged.
(iii) Fixed costs are ignored i.e. only varying costs directly involved are considered.

The Principle of Substitution

The principle of substitution states that if the output in a production process is constant, it is profitable to substitute one input factor for another, as long as it is cheaper than its next alternative.

This principle is applicable in a situation where more than one variable input factors are used e.g. feeding hay and concentrates for milk production, farmyard manure and phosphatic fertilisers in the production of maize.

The basic problem that the producer wishes to solve when two input factors are used in combination is in what proportions must the variable inputs be combined in order to produce at a minimum cost and hence attain maximum profit.

To solve the above problem, the producer must determine the least cost combination of inputs used. The least cost combination is attained at a point where the Marginal Rate of Substitution (MRS) equals the inverse of price ratio of the factors involved.

i.e. $\frac{\Delta x_2}{\Delta x_1} = \frac{P x_1}{P x_2}$

X_1 - first input factor

X_2 - second input factor.

Δ - change (increase or decrease)

P - price (cost of input factors)

Examples: Producing 20 bags of wheat using varying combinations of farm yard manure and Phosphate fertilisers.

Price of farm yard manure (FYM) is sh. 10/= per unit and that of phosphate fertiliser is sh.50/= per unit.

X_1(P-fert) 100 kg units	X_2(N-fert) 100 kg units	$\frac{\Delta x_2}{\Delta x_1}$ (MRS)
1	9.0	-
2	4.0	5.0
3	2.80	1.20
4	2.40	0.40
5	2.00	0.40
6	1.80	0.20
7	1.65	0.15
8	1.55	0.10
9	1.45	0.10
10	1.45	0.05

In the above example, the following assumptions are made:

(i) A fixed quantity of output is to be produced.
(ii) Input factors in combination substitute for one another at varying rates.
(iii) Relative prices of input factors do not change drastically during the period of production.

NB: One input factor substitutes for the other at diminishing varying marginal rate of substitution.

Principle of Equimarginal Returns

This principle states that the last unit of an input factor spent in one enterprise yields a marginal return exactly equal to the marginal return earned from the last unit invested in each of the other enterprises.

Example

If the last shs.100 spent buying cattle feed will return more than shs.100 spent on buying fertiliser for growing maize, then it is advisable to purchase more feed upto a point where the last shs.100 spent on it will

return exactly. the same as the last shs. 100 spent on fertilisers.

This concept is only relevant in a situation where farmers do not have adequate capital to employ inputs upto the level where marginal revenue equals the marginal cost.

Production Efficiency

Farmers always strive to increase their outputs while at the same time minimising operation costs. They would like to be efficient in their production undertakings. This can be done by adopting the following:

1. Proper planning based on accurate records and realistic data.
2. Following recommended crop production practices e.g.
   (a) timely cultivation and planting using correct seed-rates and spacing.
   (b) using certified planting materials and recommended fertilizers and manures.
   (c) use of correct and timely applications of agro-chemicals e.g. herbicides and pesticides.
   (d) timely operations e.g. weeding, harvesting, storage of produce, processing and efficient transportation of produce to marketing points.
3. Correct livestock husbandry techniques e.g.
   (a) Proper selection and breeding.
   (b) Correct and adequate feeding.
   (c) Timely and proper control of diseases and parasites.
   (d) Proper housing and sanitation.
4. Effective control and use of farm labour force through proper allocation and supervision.
5. Introduction of modern farming techniques e.g. mechanisation of farm operations and soil and water conservation methods.
6. Collecting and keeping farm operation records and data and using them to better future planning.
7. Executing farm plans at the correct time and bearing expected risks in farming.

Production efficiency can be measured by use of efficiency standards in terms of physical and financial performance of the farm business e.g. crop yield per hectare per year, milk yield per cow per lactation or egg production per 100 birds per laying period.

Financing Agricultural Production

Farmers quite often do not have adequate capital to finance their farm operation. They therefore, look around for sources of capital. The nearest sources are lending agencies. Borrowed capital is called "Credit" and there are many credit-giving organisations.

Credit or Loan Facilities

Credit is a financial assistance advanced to farmers to finance their farm projects and repay it with interest.

Types of Credit

Credit is categorised according to time of repayment and the types of projects to be financed. Examples are:

(a) Short-term credit - repayable within one year and is advanced for the purchase of seeds, fertilisers, animal feeds, etc.

(b) Medium-term credit - repayable within 2 - 5 years and is used to finance projects e.g. fencing materials, purchase of livestock, light farm equipment, etc.

(c) Long-term credit - Repayable period is up to 15 years and even more. It is given for the long-term or durable projects e.g. purchase of land, construction of soil and water conservation projects, farm buildings, irrigation projects for perennial cash crops e.g. coffee, farm machinery and implements.

Sources of Credit

Farmers usually secure credit facilities from various sources. Each source stipulates the lending and repayment conditions as well as securities to be offered. Some of the sources are:

(a) Co-operative societies and unions.
(b) Crop boards.
(c) Commercial banks.
(d) Agricultural Finance Corporation.
(e) Insurance companies.
(f) Individual money lenders.

Agricultural Services Available to Farmers

Agricultural production efficiency is greatly increased by services rendered to the farming communities by government institutions and other non-governmental organisations. Some of these services are:

(a) Extension and Training: In the field and in farmer's training centres.

(b) Banking Services: These enables the farmers to save some of their farm income and invest them on future projects.

(c) Artificial Insemination Service: Provides farmers with semen from improved or superior bulls to improve their livestock herds through controlled breeding.

(d) Agricultural Research Organisation: These develop and pass on to farmers, improved production techniques as well as crop and livestock species with better performance in different ecological zones.

(e) Farm Input Supply Service: e.g. K.G.G.C.U.; farmers co-operative societies and private industries. They supply seeds, fertilisers, pesticides, farm-tools and equipment, construction materials, etc.

(f) Marketing Outlets: These are agencies that ensure effective and efficient conveyance of farmers produce to points of processing and consumption. They are largely Crop Marketing Boards or Corporations and Co-operative Societies.

Farm Planning and Budgeting

The success and efficiency of a farm business is usually the result of careful and determined planning i.e. making the right and logical decisions.

Planning and budgeting is an accurate estimation of expenditure and income expected from each farm enterprise or project. It is based on proper analysis of records of past performance and making adjustments accordingly. One must also take into account the likely implications of the projected future policies.

A budget involving only one or part of one enterprise is called partial budget while one involving the whole farm or all the farm enterprises is called a complete budget.

A budget is useful to a farmer or any other operators in the following ways:

(a) When estimating future profitability and capital requirements; and hence seeking credit facilities.
(b) When submitting tenders for the farm tenancy.
(c) To estimate and determine future taxes on farm income.

Farm Accounts

Farm Accounts are records of income and expenses of the farmer.

Importance of these Records

(i) For the farmer to know his financial position.
(ii) A requirement by any loaning institutions before any loan is approved.
(iii) Detect profits or losses very early.
(iv) To know the debtors and creditors.

Financial Documents

These are invoices, receipts, delivery notes and purchase orders (Local purchase orders). An invoice is a voucher issued by the seller to the buyer for goods taken on credit,

payments to be made later. The original is given to the buyer and duplicate retained by the seller.

The invoice shows the following:

(i) The buyer and seller.
(ii) Dates of transaction.
(iii) Money involved.
(iv) Account Entry.

Delivery Notes

It is a document which shows that the goods have been delivered. The receiver verifies the goods and then signs on the delivery note.

Features: The delivery note shows the following:

(i) Goods delivered as per the order.
(ii) Quality or condition.
(iii) People involved in the transaction.
(iv) Date of delivery.

Local Purchase Order

Issued by the purchasing officer to the supplier e.g. school to KGGCU.

It shows people involved in the transaction, types and amounts of good ordered and dates. It should be written and signed by the authorised officer. It is written in duplicate and the original is given to the supplier.

Financial Books:

(i) *Ledger:* Is a book which contains individual accounts. It is a principal book of accounts in which the entries contained in all the other books are entered. It is a storehouse of all the transactions. Each page is numbered and vertically divided into two equal parts namely credit and debit. Each part is further sub-divided into four sections as shown below:

NJOGO ACCOUNT

DR					CR				
DATE	DETAILS	FOLIO	SHS.	CTS.	DATE	DETAILS	FOLIO	SHS.	CTS.
1.8.91	Purchase Dithane M45	VI/1/20	350	00	1.8.91	Sold 120	VI/3	00	00

(ii) *Journal:* It is a book of first entry showing a record of all business transactions arranged in the order in which they occur. Its pages are divided vertically into five sections. The information is posted to the ledger.

DATE	DETAILS	FOLIO COLUMN	DR		CR	
			SHS.	CT.	SHS.	CT.
1.7.91	Boom sprayer purchased	3	4000	00		
	Being purchase of boom sprayer	4			4000	00

(iii) *Inventory:* This is a list of all the possession/assets item by item and their market value. Such items are land, livestock, tools and equipment and crops in the store.

Valuation is an estimation of the value of each asset or item, based on market price or cost of production.

(iv) *Cash book:* It is a book where transactions involving cash or cheque payments are recorded. It involves cash or cheque payments and receipts. It is divided into two parts - debit side and credit side. All the receipts of cash or cheque are recorded on the debit and all payments are recorded on the credit side.

Example: Enter the following entries in the cash book.

1.7.91 Received shs. 200 from Aoko by cheque.
2.7.91 Bought D.A.P. fertiliser and paid cheque of shs. 500
3.7.92 Received shs. 500 in cash from Rono.
4.7.91 Paid water bill for shs. 400 in cash.
9.7.91 Paid telephone bill of shs. 5,000 by cheque.
11.7.91 Deposited shs. 2,000 in the bank.
20.7.91 Withdrew shs. 2,000 from the bank for home use.

CASH BOOK

DR				CR			
DATE	DETAILS	CASH	BANK	DATE	DETAILS	CASH	BANK
1.7.91	Received from Aoko		200	2.7.91	D.A.P.		500
3.7.91	Received from Rono	500		4.7.91	Water bill	400	
11.7.91	Cash		2000	9.7.91	Telephone bill		5 000
20.7.91	Bank	1000		11.7.91	Bank	2000	
				20.7.91	Cash	1000	

Financial Statements

(i) Cash Account Sheet

It involves the recording of sales and receipts, purchases and expense. Each sale or purchase is entered twice, once in the total column and once in the analysis column. The sum of all the entries in the total column should always equal the sum of the entries in all the other columns.

(ii) The Balance Sheet

It is a financial statement of assets and liabilities recorded on a given date.

It shows the financial position of a farm business at a glance (snapshot).

(1) Assets are items owned by the farmer, these are:
   (i) Property (money, goods and buildings).
   (ii) Debts receivable from other people.
   (iii) Goods and services paid for in advance.

Assets can be divided into two:

(i) Fixed assets - Assets of permanent nature and not easily converted into cash.

(ii) Current assets - Assets which can be easily converted into cash.

(2) Liabilities are claims to the farmer's property e.g. bank overdraft, debts payable, etc.

(a) Current liabilities - Debts which must be paid within a short time.

(b) Long term liabilities - Debts which are payable over many years or over a long period.

THE CASH ANALYSIS ACCOUNT SHEET

SALES AND RECEIPTS							PURCHASE AND EXPENSES							
DATE	DETAILS	TOTAL	MILK	EGGS	CULLS	VEGE-TABLES	DATE	DETAILS	TOTAL	DAILY MEAL	SEEDS	SPRAYS	LABOUR	POULTRY
		SH. CT.	SH. CT.	SH. CT.	SH. CT.	SH. CT.			SH. CT.	SH. CT.	SH. CT.	SH. CT.	SH. CT.	SH. CT.
2.8.91	Sold eggs	45 00		45 00										
13.9.91	Sold vegetables	50 00				50 00	3.8.91	Poultry feed	200 00					200 00
4.12.91	Sold 4 old cows	50000 00			50000 00		13.8.91	Dairy meal	500 00	500 00				
1.2.92	Sold milk to KCC	5000 00	5000 00				14.8.91	Ambush	300 00			300 00		
							16.9.91	Weeding	120 00				120 00	
							3.1.92	Seeds	50 00		50 00			
							4.2.92	Knapsack	3000 00			3500 00		
2.3.92	Cash receipts Vegetable	60 00				60 00	5.6.92	Chicks	7000 00					7000 00
							5.6.92	Chick marsh	400 00					400 00
	Total	55155 00	5000 00	45 00	50000 00	110 00		Total	11570 00	500 00	50 00	3300 00	120 00	7600 00

FORMAT OF A BALANCE SHEET
BALANCE SHEET OF KIPLOKYI SCHOOL AS AT 31.12.91

ASSETS	SHS.	CTS.	LIABILITIES	SHS.	CTS.
Fixed Assets			Long term Liabilities		
Land			- Long term loan for land development		
Buildings					
Fences and other					
Structures			- Loans payable over 15 years		
Current assets					
Livestock			Current liabilities		
Debts receivable			- Debts payable		
Cash in bank			- Credits from friends		
Cash in hand			- Short term Loans		
TOTAL			TOTAL		

NB: If assets are more than liabilities then the balancing factor is net capital (in the liability side) hence the farm business is said to be solvent. If the liabilities are more than the assets then the balancing factor is a loss (in the asset side) hence the farm business is insolvent.

(iii) Profit and Loss Account

Prepared at the end of a calendar year. It is a final account which summarises the sales and receipts (income flowing in the business) and the purchases and expenses (flowing out of the business).

FORMAT:
PROFIT AND LOSS ACCOUNT OF KIBET'S FARM AT 31.12.89

SALES & RECEIPTS	SHS.	CTS.	PURCHASE 8 EXPENSES	SHS.	CTS.
1. Income during the year			1. Opening valuation		
2. Debts receivable			2. Expenditure during the year		
3. Closing valuation			3. Depts payable		
Balance being a loss			Balance being a profit or net farm income.		

To calculate profit or loss, account valuation is done by having an inventory of all the assets. Valuation of the assets is determined by market price and cost of production for machinery and buildings a depreciation factor is attached.

Market and Marketing

Market is an institution or a place where goods and services are offered for sale and bought.

Marketing involves all those processes which change the raw materials of the agricultural products into finished goods which can be sold to consumers.

Marketing functions

(i) Transportation - Movement of goods from production centres to the consumption centre.
(ii) Buying and selling - Purchase of goods from the producers to be sold to the consumers.
(iii) Storage - Agricultural products are seasonal hence storage is necessary.
(iv) Processing - Changing of raw form into utilisable form.
(v) Grading and standardisation - Sorting into uniform lots of certain qualities.

(vi) Assembling - Collecting the farm produce from the farms to the market centres.
(vii) Collecting market information - To know the prices and supply and demand of certain commodities.
(viii) Advertising - Making the consumers aware of the produce.
(ix) Bear of risks - e.g. fire risks, price fluctuation.
(x) Financing or expenditure on other processes.
(xi) Packaging or putting into small packs and labelling.
(xii) Packing or putting farm produce in containers e.g. bags.

Marketing Agencies and Institutions

1. Middlemen (Itinerant trader) - Is one who buys from the producer and sells to other agencies.
2. Wholesaler - Buys in bulk and sells to the retailers.
3. Retailer - Buys from the wholesaler and sells in small units to the consumers.

Problems of Marketing Agricultural Produce

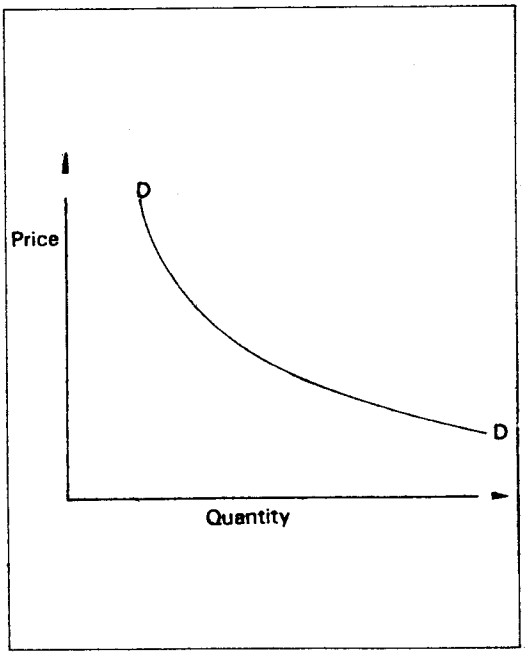
(i) Farm produce are bulky i.e. weight and volume and high but low in monetary value thus difficult to transport.
(ii) Most of the agricultural products are perishable e.g. milk, vegetables and fruits.
(iii) Agricultural products are seasonal hence subject to price changes.
(iv) Storage problems (since they are bulky they require a lot of space).
(v) Lack of proper transport system since agricultural products are in the rural areas and the markets are situated in urban centres.
(vi) Lack of market information hence farmers are exploited by middlemen.

Price Theory

Price is the amount of money paid in exchange for a good or service. Price theory is concerned with the determination of price of any commodity. Price is determined where demand for and supply of any commodity are equal to each other.

Demand

It is the quantity of any commodity which is purchased at any price within a given time. The law of demand states that quantity demanded changes inversely with the price.



Demand curve.

The curve slopes from left to right downwards. This means people buy more at lower prices and vice versa.

Factors affecting the Demand of a Commodity

(i) Population.
(ii) Income of the consumers.
(iii) New inventions.
(iv) Taste and preference of the individual.

(v) Price of the substitute commodities.
(vi) Price expectations.
(vii) Advertisement.
(viii) Culture and social values of the consumers.
(ix) Price of commodities having joint demand e.g. cars and petrol.

Elasticity of Demand

It is the responsiveness of demand to a change in price.

Elasticity of demand =

$$\frac{\text{Percentage charge in quantity demanded}}{\text{Percentage change in price}}$$

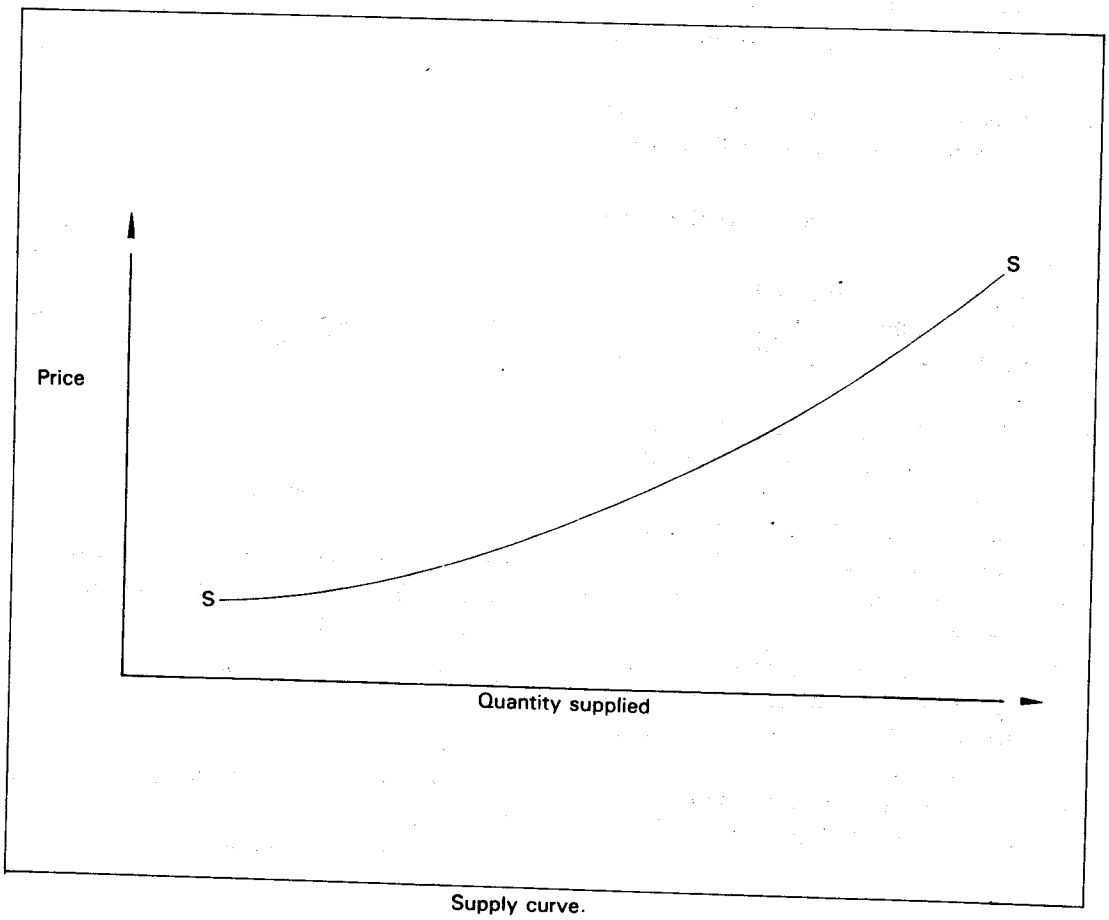
Types of Elasticity of Demand

(i) Elastic demand is one where the ratio is more than 1.
(ii) Unit elasticity is one where the ratio is equal to 1.
(iii) Inelastic demand is one where the ratio is less than 1.

Supply

Supply is the quantity of any commodity which is offered for sale at any price at a given time. The law of supply states that when price rises quantity supplied increases and when price falls decreases (other factors held constant).

The curve rises from left to right upwards. This means that people are willing to offer more for sale at higher prices.



Supply curve.

Factors affecting Supply of a Commodity

(i) Number of sellers.
(ii) Price of substitute commodities.
(iii) New technology.
(iv) Price expectation.
(v) Peace and security.
(vi) Weather Conditions.
(vii) Policy of the Government.
(viii) Cost of production of the commodities.

Elasticity of Supply

This refers to the rate at which quantity supplied changes due to a change in price level.

Elasticity of supply =

$$\frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}}$$

Types of Elasticity of Supply

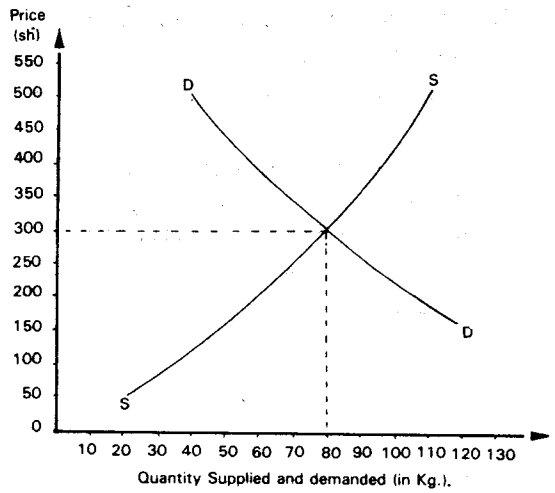
(i) Elastic supply one where the ratio is more than 1.
(ii) Unit elasticity of supply is one where the ratio is equal to 1.
(iii) In elastic supply is one where the ratio is less than 1.

One of the problems of agricultural produce is that supply does not readily adjust to price changes.

Equilibrium Price

Is the price at which demand and supply are equal. That means whatever is offered for sale at the market is bought.

In the graph below, the quantity supplied and demanded are equal at a price of Sh. 300 and quantity of 80kg. At this point the price is known as Equilibrium price. If the price is higher than sh. 300 then the supply will be greater than demand and there will be surplus hence price will fall. If, on the other hand, the price is less than sh. 300 demand will be greater than supply hence shortage and rise in price.



WORK TO DO

1. Define the term, "economics."
2. Write short notes on each of the following:
   (a) Scarcity
   (b) Choice
   (c) Opportunity cost.
3. Name the factors of production in economics.
4. (a) What is production functions?
   (b) Name three types of production functions.
5. State the law of diminishing returns.
6. (a) What is profit?
   (b) When is profit maximised in a production process?
7. State the principle of substitution and explain its application.
8. How would farmers improve the production efficiency on farms?
9. Name three sources from which farmers obtain credit.
10. List the various services available to farmers to improve their operations.
11. With the help of illustrations, show the formats of the following financial documents:
    (i) Invoice (ii) Receipt (iii) Delivery note (iv) Local purchase order (L.P.O.).

12. Explain how a ledger can be used in the farm.
13. State the major purposes of keeping farm accounts.
14. Explain the meaning of debit and credit in cash account. State the importance of writing up a cash analysis.
15. Differentiate between the following terms:
    (a) Opening valuation and closing valuation.
    (b) Livestock and dead stock.
16. Agricultural products are low in value as compared to their weights.
    (a) State marketing problems associated with such products.
    (b) Explain how these problems can be solved so that farmers can earn high profits.