S.4 AGRICULTURE NOTES

PRICE THEORY

- Price is the amount of money paid in exchange for a good or service
- MARKET FORCES
- DEMAND AND SUPPLY

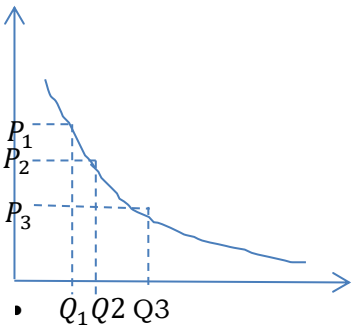
DEMAND

- It refers to desire backed by the ability to pay for a certain commodity.
- It's the quantity of goods or services which consumers are willing to buy at each specified price in a given market at a given time.

DEMAND CURVE

- It's a graphical representation of changes in demand for certain commodity with changes in price.

- **Price**



Quantity demanded.

DEMAND SCHEDULE

It shows how demand for commodities varies with changes in price of commodities ie

Eg number of kilograms bought for beans at various prices

Price per kilogram	Kilograms demanded
5000	1000kgs
4500	1800kgs
4000	2500kgs
3500	4000kgs

THE LAW OF DEMAND

It states that the quantity of a good or service demanded varies inversely with the price ie the higher the price the low the quantity demanded.

DETERMINANTS OF DEMAND

- Population size,
  huge population affects the demand of a certain commodity ie increases in population increases demand.
- Income of the consumers.
  Increase or decrease in consumer's incomes affects the quantity demanded
- Tastes and preference.
  Demand if affected by the tastes and preferences of consumers.
- Price of related goods (substitutes)
  The demand of a commodity increases if there is an increase in the price of a substitute.

- Price expectations
  More goods will be demanded if future prices are expected to increase.
- Advertisement.
  It increases the awareness of the commodity which increases the total sale.
- Beliefs and customs.
  These will influence the total demand for the commodity eg in a Muslim community there may be no or little demand for pork.
- Price of the commodity.
  Increase or decrease in price of a commodity affects the demand for the commodity.
- Seasonal factors.
  Some goods are mainly demanded during particular seasons eg planting materials.
- Government policies.eg taxation.
  Increase in taxation increases the cost of production which increases the price of the commodity. This reduces the demand for the commodity
- Nature of the commodity.
  Necessity goods have high demand than luxury commodities.
- Age and sex of the individuals.
  It affects taste and preference hence affecting the level of demand.
- Level of education of individuals may affect his or her tastes hence demand of commodity.
- Income distribution,
  Inequality of income leads to a decrease in demand.
- Level of new consumers joining the market.
  Increase in the level of new consumers on market increases demand for a particular commodity.

ELASTICITY OF DEMAND

It is the degree of responsiveness of demand to changes in price. Its calculated by dividing the percentage change in quantity demanded by percentage change in price

- $Ed = \frac{\%DQ}{\%DP}$.

  EXAMPLE

  Calculate the elasticity of demand when 1000 loaves of bread are demanded at a price of 300sh per loaf while only 600 loaves were demanded at 400sh per loaf.

  Ed= $\frac{\%DQ}{\%DP}$

- But %DQ= $\left(\frac{Q2-Q1}{Q1}\right)$X 1OO

  Q1= 1000

  Q2=600

- %DQ= $\left(\frac{600-1ooo}{1000}\right) X1OO$

  =$\frac{4OO}{1000}$X1OO

  %DQ= 40

  FOR PRICE

  %DP=$\left(\frac{P2-P1}{P1}\right) X1OO$

  P1= 3OO

  P2=4OO

  %DP=$\left(\frac{4OO-300}{3OO}\right)$X 1OO. =33.3

BT. ED=$\frac{\%DQ}{\%DP}$

=$\frac{40}{33.3}$ = 1.2

Therefore the bread is elastic because the figure is greater than 1

SUPPLY

It is the quantity of goods or services which producers are willing to sell at specified pricein a given market and time.

LAW OF SUPPLY

It states that the higher the price the higher the quantity supplied and vise vasa.

SUPPLY SCHEDULE.

It shows how supply of goods and services varies with changes in price of the commodity.

SUPPLY CURVE.

Is graphical representation of supply of particular goods with changes in the price.

It shows the relationship between the price and quantity supplied at different prices.

DETERMINANTS OF SUPPLY

- Number of suppliers.
  Increase in the number of suppliers increases the supply of a given commodity.
- Price of the commodity.
  When other factors are constant, increase in prices increases the level of supply.
- Season of the year.
  Most agriculture commodities will have a high supply during harvesting season.
- Price of other commodities.eg compliments.
  Increase in the supply of the compliment will increase the supply of other commodity.
- Political stability.
  Security has an effect at production of a commodity hence affecting the supply of that particular commodity.
- Government policy eg subsidization and taxation.
  Taxation reduces production hence reduced supply and vice versa.
- The level of technology.
  If better technology is used more goods will be produced hence increase in the supply.
- Gestation period.
  If the crop has a short gestation period, it will have a higher supply.
- Natural factors eg pest and diseases, climatical changes etc.
  If these are not favorable affects the yields hence a decrease in the supply.

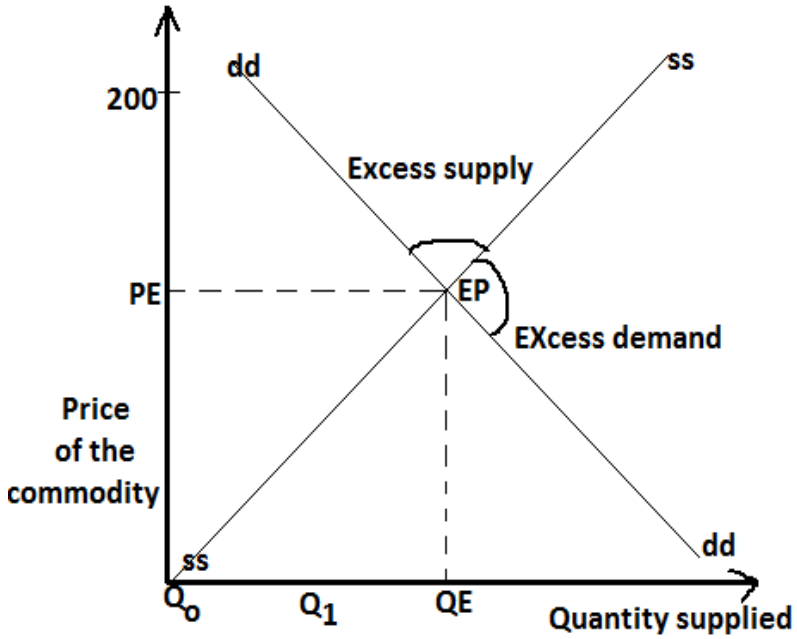
- Speculation.
  If the farmer is expecting a future increase in the price of the commodity, he may reduce the supply of the commodity.
- Level of demand.
  An increase in demand for a particular commodity increases the supply.
- Aim of the producer
  When the producer aims at maximizing profits, the producer will produce more products hence increasing the supply.

PRICE DETERMINATION IN A COMPETITIVE MARKET.

- Consumers are able and willing to buy the largest quantity of a given good at its lowest price and producers are willing to sell the largest quantity at the highest price. The two must agree on price which makes them happy and satisfied.eg

Price	Quantity demanded	Quantity supplied in kgs	Excess demand
200	110	5	115
400	90	45	45
600	75	75	00
800	67	100	-33
1000	63	120	-63
1200	60	126	-66

- At 600sh the quantity of beans demanded is equal to the quantity supplied
- At prices less that 600sh there is excess demand and there is shortage of beans because quantity demanded exceeds the quantity supplied.
- At prices greater than 600sh, there is s excess demand (supply) of beans because the quantity supplied exceeds quantity demanded as seen in the graph below.



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DESCRIPTION

- When the price is high, the supply increases but demand remains low
- When price is too low, the supply becomes also low but demand increases.
- When demand and supply are equal equilibrium, price is realized and whatever supplied will be bought.

WAYS IN WHICH PRICES OF AGRICULTURAL PRODUCTS ARE DETERMINED.

- Using forces of demand and supply.
- Government setting up fixed prices through price control
- Through Auctioning of agricultural commodities ie bidding for commodities and the highest bidder takes the commodity.
- Haggling ie bargaining for the price of the commodity till you agree
- Through retail price maintenance ie the same commodity is sold at the same price throughout all the areas.
- Contract pricing ie the seller makes an agreement with the buyers at which price is to be sold the commodity.
- Cost of production and profit method.

MARKETING AND MARKETING FUNCTIONS

Marketing refers to all activities in the movement of goods produced on farm until the final consumers utilize them. These activities are known as marketing functions.

- A market is a situation where there are suppliers of goods and willing to supply and willing buyers ready to buy the goods at price acceptable to suppliers.
  _or group of buyers and sellers of a commodity in close contact.

MARKETING EFFICIENCY

Efficiency is measured as a ratio of output to input.
Therefore, marketing efficiency is the maximization of output utilizer has to input (cost)
Ways of increasing marketing efficiency

- Use less expensive methods of handling and storage of commodity.
- Use labour saving machines
- Use more efficient methods of transport and storage facilities
- Use of better processing machines.
- Market with minimum costs.

MARKETING FUNCTIONS.

- Assembling and buying.
- Buying in small quantities from small producers and build into bulk
- Transportation.
- It involves moving produces from production areas to consumption areas.
- Storage of produces.
- Selling
- Processing.
- Changing form of product completely, sorting out and cleaning of products. Processing has the following importance.
- Prolongs the useful life of products
- Remove toxins eg roasting soya beans to removes trypsin inhibitors.
- It eases marketing and distribution tasks.
- Increases yearly availability of agricultural commodity

- Allow transportation of delicate / perishable goods across long distance.
- Processed goods are less susceptible to spoilage.
- Improve the taste.
- Improve the value and the quality of products.

STANDARDISATION

It's the making quality specification on products.
Importance
- Facilitate making of price mechanism.
- Allows inspection so that consumers are not cheated.
- Increases mutual trust between suppliers and consumers.

GRADING.

It is done to put products in groups of different qualities on basis of colour, size , shape , flavor, degree of ripeness.

Benefits of grading
- Minimizes spoilage since high quality products are separated from those of low quality.
- Ease selling and buying with minimal personal inspection.
- Makes distribution more effective since consumers in a locality are given grades they may require.
- Increase production and marketing of goods quality products there by increasing the farmers' returns.

MARKET INFORMATION.

It gives information about where, when and how to obtain different commodities available.
It gives knowledge about the demand and supply conditions of a place.
Information can be brought through advertisement, market research etc.

RISK BEARING.

The dangers of spoilage, loss, destruction of goods while in transit must be borne by some body. Some goods may be insured.

FINANCING.

All marketing functions require finances. This can be provided either by personal savings or credit facilities.

PACKAGING.

It refers to putting products in some form of containers or wrappers.

Benefits
- Facilitate easy handling.
- Reduce bulkiness hence occupying small space.
- Reduce shrinkage and spoilage of commodities due to weather conditions.
- Facilitate quality identification as products of different qualities are packed and labeled differently.
- Assists in advertising of products and branding and makes the product attractive.
- Prevent substitution or adulteration of products.
- Reduce other marketing costs by facilitating of self-services during retailing.
- Increase self-life of the commodity.
- Facilitate labeling.

LABELLING.

It involves attaching labels indicating names, weight, quality, date of manufacture and expiry date.

It makes it easy to sell or retail.

CHARACTERISTICS THAT MAKE AGRICULTURAL PRODUCTS DIFFICULT TO MARKET.

- Long gestation period, it makes it hard to increase, decrease output once planting has been done
- Seasonality of production, are more at harvesting time and low during the dry season. This increases scarcity during dry season.
- Perishability of products. Many easily go bad and are easily spoilt because these contain a lot of water. This makes them to need immediate consumption.
- Inelastic demand of agricultural goods, Agricultural goods are mainly of food value and its demand does not change with market supply.
- Large number of small-scale producers who cannot influence market prices as a single farmer.
- Bulkiness, most products are heavy but are of low value. This increases the cost transportation and storage of these products.
- Variable and mixed qualities of agricultural products, since agricultural products are dependent on environmental factors eg weather, pest and diseases causes variable prices for the some products.
- Existence of agricultural substitutes eg nylon, plastics as these compete with cotton and rubber.

OTHER CHALLENGES IN MARKETING AGRICULTURAL COMMODITIES.

- Poor transport and communication where roads are only passable during dry season.
- Political instability that reduce productivity of agriculture.
- Shortage of processing facilities to improve on the quality of products.
- Lack of market information services to provide information about demand and supply to framers.
- Once a crop is planted, it's hard to increase or decrease the output so the farmer cannot adjust according to market information.

Ways of improving agricultural marketing.

- Set up better storage facilities in different regions to collect and assemble products.
- Improving on transport and communication networks by constructing more tarmac and feeder roads.
- Formation of cooperatives to enable farmers' pool resources together.
- Set up more processing plants to improve the quality of products.
- Provide better extension services.
- Encourage contract production to reduce price fluctuations.
- Carry out agriculture diversification to reduce risks and uncertainties in farming.
- Provide agriculture credit facilities to farmers in order to increase their capital investment.

PRICE FLACTUATION OF AGRICULTURAL COMMODITIES.

Refer to changes in prices of agricultural commodities. Ie up and down fall in prices.

CAUSES OF FLACTUATION.

- Seasonality of production which causes excess supply during harvesting hence fall in price.
- Long gestation period where the demand may change before maturity of the products.
- Perishability where the commodities need to be consumed immediately.
- Inelastic demand of agricultural commodities which does not change with changes in price.
- It is difficult to substitute the agricultural products.
- Agriculture production is affected by environment factors which cause changing out puts. This makes it hard to predict the outcomes.
- Large number of small scale producers and cannot influence the markets in their favour.
- Bulkiness, which makes transportation of agriculture commodities difficult hence increasing transport, costs yet they are of low value.
- Variable qualities which make it hard to fix prices.

EFFECTS OF PRICE FLACTUATION

- Reduced balance of payments

- Unstable incomes of the farmers.
- Failure by the farmers to pay back loans.
- Civil unrest as the farmers will blame government for the fall in prices.
- Increase in the level of unemployment.
- Reduced saving by the farmers which hinders development.
- Loss of self-reliance by the farmers and the country.
- Reduced purchasing power by government and the farmers.
- Discourage farmers from agricultural production.
- Reduced government revenue due to reduced revenue.

REMIDIES TO PRICE FLACTUATION/ SOLUTIONS.

- Diversification, by adding supplementary source of income so that fall in price of one commodity will be compensated by the profit in the other enterprise.
- Improving the quality of agricultural commodities, as they tend to have stable prices.
- Improving on market information services to provide information to farmers about prevailing prices.
- Organization of marketing as farmers may organize them and market their products through cooperatives.
- Introduction of buffer stocks where the government buys the excess produces and store them. As the supply reduces, the government takes these commodities it had bought and stored to market.
- Use of stabilization funds.
- Improving on transport and communication to easily transfer produces from production areas to market centres.
- Use of international commodity agreements eg Quota system.
- Improving and setting up more industries to provide employment and increase people's incomes.

SPECIALISATION AND DIVERSIFICATION IN FARMING

Specialization,

It is when a farm decides to deal in one farming enterprise eg dairy farming, beef production, broiler keeping, layer bird keeping, maize production etc.

BENEFITS OF SPECIALISATION

- The farmer can master production skills because of repeated practice.
- Maximum outputs are possible because of proper use of resources.
- Labour becomes specialized and competent.
- It is easy to market a single product.
- It is easy to supervise one enterprise.
- May require little capital since one enterprise is carried out on the farm.
- Encourage production of high quality and uniform products.
- Reduce wastage of resources.

DISADVANTAGES OF SPECIALISATION.

- It may hinder innovations in production.
- It leads to boredom
- The farmer may not get constant incomes throughout the year.
- Some resources may not be utilized for the part of the year.
- Farmer may experience greater losses from natural disasters.
- Farmer can easily be affected by price changes in commodities.

DIVERSIFICATION.

It is when farmer operates more than one enterprises at the same time eg mixed farming etc.

BENEFITS OF DIVERSIFICATION.

- It is possible for the farmer to get a balanced diet.
- There are constant incomes throughout the year from different enterprises.
- It is possible to use farm resources efficiently eg land.
- Labour is properly utilized on the farm.

- It is an insurance against loss on farm from natural disasters as loss in one enterprise can be compensated by a profit from the second enterprise.
- Crop remains can be fed to animals and reduces the cost of production
- Animal wastes can be used in the garden as sources of plant nutrients.

DISADVANTAGES

- More difficult to manage and select combination of crops and animals.
- Require many and much skills.
- Expensive to acquire equipment'/ tools for various enterprises.
- Require a lot of time in planning and carrying out different operations.
- It is difficult to market various products.
- May require a lot of land for the various enterprises.
- May require a lot of labour
- In case of mixed farming, animals may destroy the crops.

FARM RECORDS.

Are orderly entries of various business activities and transactions of farm written in their suitable books.

IMPORTANCE OF FARM RECORDS.

- Show past information on the farm so useful in future planning.
- Help to communicate information that helps farmers to make decision and make necessary actions whether to expand the business or reduce the business.
- When well-kept show the exact income of the farm which are vital when assessing tax.
- Show information whether the business plans are being followed correctly.
- Necessary when calculating profits or losses of the business and tells the results of business operation.
- Enables farmers to locate areas of weaken on the farm and adjust accordingly.
- Enable farms to get loans by showing the managerial ability and assets.
- Show the financial position of the farm whether the business is solvent or insolvent.
- Enables farmers to access the efficiency of the farm.
- The farm can estimate the value of the farm from records in case is to sale off his business.
- Useful in case of co-operatives because it help the farmers to share profits at the end of the year.
- Useful in settling disputes on estate after death of the owner.
- Used for keeping track of debtors.
- Used for culling unproductive animals on the farm.
- Farm records are to provide labour information like terminal benefits a worker is entitled to get.
- Useful during selection of animals for breeding especially pedigree selection.

TYPES OF RECORDS

- Managerial records eg
- Crop records, records all activities carried out during production of crops eg planting date, agronomic practices, expected date of harvesting etc
- Livestock records.eg type and the number of livestock, production level, diseases, replacement stock, breeding records etc.
- Health records, these show the name of disease or pest, kind of treatment and date of vaccination.
- Breeding records, shows the type of breed kept on the farm eg if poultry breed, will indicate layers, broilers, chicks, growers and if animals , it will have calves, heifers, bulls, sires, cows etc.
- Inventory records. It shows the list of all assets the farm owns together with the cash value of each item eg buildings, machinery, feeds, livestock etc.
- Financial records/ accounts, refers to receipts and payments, purchases and expenses that have been recorded.

TRADING ACCOUNT/ PROFIT AND LOSS ACCOUNT.

It shows the purchases and expenses, sales and receipts in a financial year.

It is a financial statement showing the net profit of the farming enterprise at the end of the financial year.

FEATURES OF A TRADING ACCOUNT/ PROFIT AND LOSS ACCOUNT.

- Heading stating the duration of the account, type of the account and name of the account.
- Sales and receipt side, records whatever bring money into the business.
- Purchases and expenditure side, records whatever takes money out of the business.
- Opening valuation which is recorded on the side of purchases and expenditure. This is the value of all assets on the farm at the beginning of the financial year and are entered on purchase side because that would be the cost the farmer has to incur at the start of the year to put them in place.
- Closing valuation, recorded on the side of sales and receipts because if the farmer was to sell off the farm, it becomes the profit realized. It refers to the value of all assets at the end of the end of the financial year.
- At the end both sides must balance.
- Profit is there when sales and receipts are more than purchases and expenses and appears on the side of purchases and expenditure.
- Loss is when purchases and expenditures is more than sales and receipts and appears on the side of sales and receipts.

Example of a trading account.

PROFIT AND LOSS ACCOUNT FOR KALAMU FARM FOR THE YEAR ENDED 31st DECOMBER 2010

PURCHASES AND EXPENDITURES		SALES AND RECEIPTS	
Opening valuation	112000	Closing valuation	200000
Debts payable	50000	Sale of crops	150000
Wages	73000	Sale of heifers	300000
Bought animal feeds	100000	debts receivable	15000
Pesticides	30000	Sale of milk	21000
Net profit	321000		
Total	686000	686000	

- Assignment for learners

The following information was obtained from books of kalerwe poultry farm as by 30th may 2017

- Bought feeds for birds for 200000sh
- Wages for farm workers 300000sh
- Closing valuation of 600000sh
- Sale of off layers 800000sh
- Egg sale of 1400000sh
- Opening valuation of 200000sh
- Bought chicks at 400000sh.
- Debts receivable of 400000sh
- Sold manure at 200000sh
- Vaccination of birds at 150000SH

Qn, Use the information provided, make a trading account for kalerwe poultry farm.

QN. Is the business solvent or not solvent? Give a reason for your answer.

BALANCE SHEET

- It is a financial statement drawn up to show the financial position of a farm at the end of financial year.
- It is a statement that shows the net capital of the farm at either the beginning or end of the financial year.

FEATURES OF A BALANCE SHEET.

- The heading showing the duration of account, type of account and name of the account.
- Asset, these are property owned by the farm These are divided into fixed assets and liquid assets.
- fixed assets are those which cannot easily be sold off eg land, machinery, farm buildings, roads, animal handling structure, pre- paid expenses etc
- Liquid assets are those which can easily be sold off and even cash money at hand, bank etc, stock in store, animals, etc

- Liabilities. These are claims against the farm ie long term liabilities and current liabilities
- Long-term liabilities are those payable after a long period of term. It only includes bank loan.
- Current liabilities, are payable after a shorty period of term eg bank overdraft, depreciation, rent, interests on borrowed loan etc
- At the end, it must balance.
- Net capital appears on the side of liabilities and it's when assets are more than liabilities
- Loss appears on the side of assets and it is when liabilities are more than assets.

AN EXAMPLE OF A BALANCE SHEET AS AT 31st/DEC/2016

LIABILITIES		ASSETS	
Debts payable	250,000	Cash at hand	500,000
Bank overdraft	150,000	Cash in bank	800,000
Rent	300,000	Debts receivable	300,000
Depreciation of machinery	100,000	Machinery	3,000,000
Loan from tropical bank	1,000,000	Pre-paid expense	500,000
Net capital	4,000,000	Perennial crops	700,000
Total	5,800,000	5,800,000	

ASSIGMENT

- Use the information below, draw a balance sheet for Ssegawa's farm as at 31st Dec 2016
- Loan from centenary bank 2000,000sh
- Cash at hand 500,000sh
- Debts payable of 300,000sh
- Machinery of 2,000,000sh
- Livestock 500,000sh
- Bank overdraft 600,000sh
- Building 4,000,000sh
- Interests of 400,000sh
- Unpaid wages of 300,000sh.

IMPORTANCE OF A BALANCE SHEET.

- It enables farmers to acquire loans.
- They are used when sharing profits.
- They show farmer's debts to pay it out.
- They show farmer's creditors in order to follow them out.
- They help in farm planning.
- Enables the farmer to assess the value of farm in case he wants to sell it off.
- They are use full during decision making.
- Help in tax assessment
- Show the farmers position.

DIFFERENCE BETWEEN TRADING ACCOUNT AND BALANCE SHEET

Trading account	Balance sheet
Drawn at any time of the year	Drawn only either at the beginning or end of the year.
Shows purchase and expenses, sales and receipts	Shows assets and liabilities.
Shows net profit of net loss	Shows net capital

EFFICIENCY IN FARMING

It is the measure of the performance of the farming enterprise. It is necessary in order to identify weakness and strength, areas of poor performance can be recognized and take necessary improvements.

EFFICIENCY STARDARDS

- Overall efficiency standards.
- Assess the performance of the farm enterprise as a whole in comparison with others of the kind.
- Factors influencing efficiency in farming
- Price. High prices offered for produces increases the efficiency.
- Managerial ability of the farmer. Proper managerial skills increase the efficiency of the farm.
- Size of the farm. The bigger the farm under good management, the better the efficiency.
- Records kept. If are well kept may increase the efficiency.
- Farming methods. Use of good methods of farming eg irrigation improves the efficiency of the farm.
- Availability of capital. Increase in availability increases investment which improves efficiency.
- Mechanization, it increases the rate at which work is done, increases uniformity and quality hence increased efficiency.
- Improved transport, it enables farmers to reach out to better markets.
- Improved storage facilities. This reduces the spoilage of goods
- Labour used, when skilled and well trained labour is used, the better the efficiency.

IMPORTANCE OF CARRYING OUT EFFICIENCY STANDRDS.

- Help in determining the profitability of the enterprise.
- Help to determine whether the production methods used are appropriate.
- Enables the farmer to make decisions about certain production decisions.
- Enables the farmer to compare performance of the farm business with similar ones in the same area.
- Enables the farmer to make plans for future development of his or her farm.

WAYS OF IMPROVING FARM EFFICIENCY ON THE FARM.

- Carry out proper land preparation to ensure good germinability of seeds in the garden.
- Carry out timely planting of crops to avoid bad weather conditions.
- Carry bout proper control of animal and crop diseases and pests to reduce disease attack on crops and animals.
- Ensure proper storage of farm produces to avoid wastage and destruction by pests, weather conditions.
- Carry out irrigation in a dry season to provide enough soil moisture for the crops.
- Ensure good record keeping.
- Use improved varieties of crops and animals of high productivity.
- Ensure proper feeding of animals to increase the yields and fight disease resistance.
- Ensure proper drying of crop produce to increase shelf life and destruction.
- Provide extension services to farmers to ensure high productivity.
- Use machines to perform farm jobs as this increases precision and rate of doing work.
- Use skilled labour in farm operations as the produce better products.
- Carry out proper planning on the farm enterprise to increase output.
- Carry out proper supervision of the farm as it increases output on the farm.

EFFICIENCY STANDARDS

- These are measures or guidelines used to compare the performance of two or more enterprises.

TYPES OF STANDARDS.

- Technical efficiency.

It is a measure of physical output per unit input.

- Economic efficiency.

The costs of production are divided with the returns obtained to determine the profitability of the enterprise.

- Partial efficiency standard.
- Measures only a small part of farming enterprise

GROSS MARGIN.

- Refers to total cost minus variable costs.

USES OF GROSS MARGINS

- Measures how profitable each enterprise is on a farm.
- Helps find out which enterprise is more profitable to expand it.
- Helps to find out how the cost of production is being used in each enterprise.
- Helps to compare the profitability of one farm with another one of the same kind in the area.

HOW TO IMPROVE GROSS MARGIN.

- Processing of products before selling.
- Grading of the products.
- Advertising products.
- Using better technology during production.
- Selling commodities when prices are high.
- Choosing correct enterprises which are better paying.
- Using correct husbandry practices which maximizes production.
- Reducing costs by eliminating unnecessary operations.

FACTORS THAT DETERMINE CHOICE AND COMBINATION OF ENTERPRISES.

- Amount of capital available, where much capital is available many enterprises can be set up.
- Amount of land available, in case of large pieces of land, different enterprises can be chosen at once.
- Amount of labour available, much labour encourages wide choice for enterprises.
- Skills required eg mixed farming requires wide skills than specialized enterprise.
- Availability of markets, where market is readily available, different enterprises may be carried out.
- Nature of land scape, in hilly areas cattle keeping may be discouraged.
- Climatic conditions, favourable conditions encourage crop farming.
- Pest and disease prevalence, carry out enterprises which are not affected by the existing pests and diseases in an area.
- Government policy, subsidization may encourage carrying out particular enterprise in an area.

LAND TENURE

- Refers to the system of rights regarding ownership, management and uses of land.

WAYS OF ACQUIRING LAND

- Buying a piece of land
- Leasing of land for a period.
- Renting a piece of land/ hiring.
- Borrowing a piece of land.
- Through government planned settlement and resettlement schemes.
- Inheritance of land
- Winning am piece of land
- Being given land from the well-wishers.
- Estate ownership of land/ co-operative ownership

FORMS OF LAND TENURE IN UGANDA.

COMMUNAL OWNERSHIP

- It is the possession of rights of land by the whole community. In this system, the person has right to use the land and the land is neither bought nor sold.

ADVANTAGES OF COMMUNAL OWNERSHIP OF LAND.

- Every member of the community has access to land.
- The is no hoarding of land i.e. land is never left idle.

DISADVANTAGES OF COMMUNAL OWNERSHIP.

- Does not give any incentive for the farmer to improve the land.
- Encourages over use of land e.g. over grazing, over cropping etc.

- Farmer cannot use this land as security to acquire a loan.
- Encourages fragmentation with increasing population.
- Disease control is difficult as herds mix freely.
- Discourages agricultural development.
- It is difficult to carry out land conservation measures.
- There are poor quality pastures since no one is willing to improve on its productivity.
- Discourages growing of perennial crops.
- Encourages wrangles and land disputes with increased population.

INDIVIDAUL OWNERSHIP.

- The owner has a registered tittle/ Deed. It can also be called free hold or private land.

AGDVANTAGES OF PRIVATE OWNERSHIP

- The owner has a greater degree of choice of his production plan.
- The owner has an incentive to conserve his land.
- It is easy to mortgage the land for a loan.
- Land consolidation and farm planning becomes so easy.
- Settle demarcation or inheritance disputes.
- Land may be put to better use by the owner.
- Easy to set up long investment projects.

DISADVANTAGES

- Land is unfairly distributed to the population.
- Encourages hoarding of land.
- Land may be bought and sold at will. This means the tenants may be evicted with no means of livelihood.

LEASE HOLD SYSTEM.

An individual is granted a lease (permission) to use the land for a specific period of time e.g. 49years, 99years, 999years etc. and after the period, permission may be terminated or renewed.

- During the period of lease the farmer has full rights to use the land and can use the certificate to acquire a loan.

ADVANTAGES

- There are incentives to the farmer to improve on the land.
- Land consolidation and farm planning is easy.
- It avoids demarcation and inheritance disputes.
- It safeguards the local community if land is in short supply.
- Easy to get a loan when the lease certificate is presented.

LANDLORDISM

The owner is not able to use the land but rents out to other people

Land fragmentation.

It is a situation where a single farmer consists of different small parts that are scattered over a wide area or in different areas.

CAUSES OF LAND FRAGMENTATION.

- Increased population pressure on limited pieces of land.
- African system of land inheritance where every child is entitled to as piece of land.
- Accumulation of land in case of farmers with small amounts of capital by buying small pieces of land in different areas.

EFFECTS OF LAND FRAGMENTATION.

- The farmer cannot effectively supervise his land.
- There is wastage of time and money by the farmer as he moves from plot to plot.
- The farmer faces difficulty to access all the plots the farmer owns.
- The farmer may not be able to use his land to get a loan since he has no land tittle.
- It is difficult to control crop pests and animal parasites and diseases.
- There is difficulty in carrying out soil conservation measures.

- It is difficult to restrict movement and grazing of livestock and this leads to overgrazing.
- Mechanization is costly and sometimes difficult.
- It is difficult to provide extension services since farmers cannot plan properly.

LAND REGISTRATION AND CONSOLIDATION.

Registration is the process of attaining official documents of land. It involves recording particulars of land in question by the registrar of lands after production of official proof.

The tittle deed must be handed to the person who buys it from the old owner and the new owner is registered in the registrar's records.

ADVANTAGES OF LAND TITTLE OR DEED.

- Disputes about ownership are minimized since the land tittle acts as a proof.
- Long-term permanent projects can be started since there is security of tenure.
- Tittle deed can be used as security to get bank loan.
- The owner can lease part of it to get money.
- The owner is encouraged to carry out soil conservation measures.

LAND CONSOLIDATION

- It is the bringing together small-scattered pieces of land into one function unit.

BENEFITS OF LAND CONSOLIDATION.

- supervision of land is easy without wasting time in travelling.
- Soil erosion can easily be controlled.
- There is sound planning for the land.
- Weeds, diseases and pests can easily be controlled properly.
- Theft of farm produce is reduced.
- Large production can be carried out easily.
- Mechanization is possible because of large piece of land which makes it economical to use machines.
- Permanent projects can easily be set up of farm structures.
- Easy to provide extension services to farmers based on spot inspection.

LAND REFORMS

It's the organized action designed to improve the structure of land tenure or land use in any country. This can be achieved through

- Consolidation, refers to change of fragmented land by bring together very small pieces of land into a single unit.
- Planned transfer of population. People are moved from highly populated areas to sparsely populated areas.
- Tenancy reforms. Land reforms that encourage and allow farmers to have tittle deeds which will enable they acquire loans.
- Conservation and improvement of land. Some reforms are aimed at conserving soil and water and improve land use e.g. afforestation.
- Improving land tenure system e.g. registration. This could be inform of law of tenure, change in law of tenure.
- Size of the land. Minimum farm sizes are determined so that farmers can operate economically.

OJECTIVES OF LAND REFORMS.

- To encourage commercial production instead of subsistence farming.
- To increase efficient land use.
- To settle landless as to easy population density in some areas.
- To encourage conservation and improvement of land resource.
- To increase agriculture output by land consolidation.
- To put idle land to use.
- To increase agriculture output to match with market demands.

SETTLEMENT AND RESETTLEMNT SCHEMES.

SETTLEMENT

- Refers to occupation of land, which was previously unoccupied. So it's the planned transfer of population from one place to another.

RESETTLEMENT.

- It is the planned transfer of people from one area to other usually transferring from densely populated areas to areas of less population.

OBJECTIVES OF ESTABLISHING SETTLEMENT.

- To reduce population pressure from over populated areas through transferring people to less populated areas.
- To control pests and diseases to people in tsetse flies affected areas.
- To create employments for people who have been settled which may involve food production.
- To increase land for agriculture production by putting idle land to use.
- To provide land to displaced people and settle them eg refugees.
- To encourage self-employment to people being given land.
- To allow a variety of agricultural activities to be carried out on various settlement schemes e.g. irrigation, rice and fruit growing etc.
- To carry out research on important agricultural activities
- To avail resettled people with improved social services e.g. education, health, water etc.

FACTORS TO BE CONSIDERED FOR THE SUCCESS OF SETTLEMENT SCHEMES.

- The purpose and objectives of schemes must be set clearly and conflict between objectives should be resolved.
- Data related to physical, climatic and other factors should be analyzed properly.
- Expected number and origin of prospective settlement.
- The social and cultural characteristics of settlers' e.g. traditional values, attitudes and economic status.
- The settlers should have general interests and participating and should be involved in planning.
- Land holdings should be valuable and should have potential for future developments.
- Supporting services including agricultural extension services, finance credits, market facilities and training should be available.
- There should be efficient transport and communication systems e.g. good roads.

AGRICULTURAL RESEARCH

- Since agriculture is the main pillar in the economy of the country. A lot of research should be done in order to increase agricultural output.

OBJECTIVES

- To develop improved variety and types of crop and animals.
- To determine suitable ecological zones of various crops.
- To improve crop m and livestock production techniques.
- To improve pasture and fodder quality.
- To develop techniques of controlling diseases and pests for various crops and livestock.

FARMING ORGANISATION

CO-OPERATIVES

It's a farming organization formed by a group of people to provide services for themselves. The co-operative is owned and controlled by these members and are all entitled to shares and profits.

Types of co-operatives.

- Growers co-operatives (producers co-operatives)
- Consumers co-operatives
- Credit and savings co-operatives.

PRINCIPLES OF CO-OPERATIVES.

- Open membership.
  Members are not restricted and enter voluntarily if they are of legal age.
- Democratic control.

Each member is entitled to one vote and all members have equal rights.

- Limited share holdings.
  Almost equal amount of money has to be contributed by beach member.
- Distribution of profits.
  Profits realized must be distributed according to share capital owned.
- Cash dealing.
  Dealing with co-operatives should be by cash and services offered by co-operatives should be for cash.
- Loyalty to c-operative.
  None of the members is supposed to sell his goods outside the cooperative.
- Neutrality. Should be neutral in religion, tribe and politics.
- Continuous expansion.
  Should expand in terms of membership physical facilities.
  Promotion of education, should educate the members.

BENEFITS OF BEING A MEMBER OF A CO-OPERATIVE.

- Reduce marketing costs because they are able to buy in bulk making the per unit cost of selling is low.
- They eliminate middlemen which increases farmer's income.
- Help in improving products by standardization.
- They are useful channels on which loans can be given to farmers.
- They improve bargaining power of farmers and therefore can be able to get better prices.
- Can offer extensional services to members.
- Make transportation and marketing of agricultural commodities easy.
- Members can easily access inputs.
- They provide storage facilities to the members produce.
- Provide farmers with useful information on new innovations.
- Source of employment o farmers.
- Saving co-operatives encourage members to learn and save.
- The members can share the overhead costs in farming.

PROBLEMS FACED BY CO-OPERATIVES.

- Inadequate management skills make co-operatives to easily fail.
- High level of illiteracy among the members.
- They are subjected to corruption and embezzlement of the funds.
- Political interference in the management and running of the co-operatives.
- Inadequate markets for the produce marking the cooperatives to make a lot of losses.
- Inadequate government support in terms of credit facilities.
- Poor transport and communication facilities making transportation of products difficult.
- Unfair competition from more power full individual buyers who offer more prices than those offered by cooperatives.
- Poor storage facilities making the produce to easily be wasted.
- The monopoly power given to co-operatives by government make them inefficient.
- Seasonality of production which makes it expensive to pay workers when the co-operative is not operational.

FACTORS NECESSARY FOR SUCCESS OF CO-OPERATIVES.

- Clear goals and objectives of known members.
- There should be no government interference.
- Adequate funds
- High level of entrepreneurship.
- Adequate volume of business
- Willingness among the members.

AGRICULTURAL CREDITS

- Is the borrowed money used to carry out agricultural activities.

- It is the transfer of other people's savings through credit agencies in order to finance farm enterprise.
- Credit facilities are used to overcome shortage of income where there is potential to increase production.
- Credit may be used by the farmer for the following purposes.
- To finance the farmers activities over production period eg paying salaries.
- To buy capital goods e.g. tractors, pumps etc.
- To train labour or provide extension services.
- To buy inputs like fertilizers, seeds, feeds etc.
- To buy land and construct buildings and farm structures.
- To invest in income generating projects that may provide income and employment.
- To buy new technology eg new breeds of cattle, new crop varieties etc.
- To pay back loans.
- To enable farmers process there commodities to improve on quality.

TYPES OF CREDITS.

- Short term credits.
- These are used to maintain liquidity on the farm and are payable back within a short period of time.
- Intermediate credits.
- It's used to finance investments intended to provide results after a good period of time eg soil conservation measures, buying livestock etc.
- Long term credits.
- Used for long term investments eg improving on soil, building, buying farm machinery. These are payable after a long period of time eg 15years and above. These are mainly bank loans.

SOURCES OF AGRICULTURE CREDITS.

- Co-operative societies
- Crop boards
- Commercial banks eg tropical bank, Centenary bank, Baroda etc.
- Agricultural financial co-operatives
- Micro finance institutions
- Legal money lenders.
- Non-government organizations eg World vision, Danida etc
- Individual savings

REASONS WHY FARMERS FAIL TO PAY BACK LOANS.

- Failure of production
- Fall in price of agriculture commodities.
- Un suitable conditions attached to credits.
- Unrealistic credit repayment schedules.
- Political instabilities making farmers unable to supervise farming activities.
- Poor culture of loan payment by the borrowers.
- Poor extension services.
- Misappropriation of loan money.
- High interest rates charged on credits.
- Death of the borrower
- Poor supervision of loans by the financial institutions.
- Wrong timing of credit facilities where the facilities are either given too early or late at the end of the season.

FACTORS THAT AFFECT THE INTEREST RATES

- Demand for the credit, the higher the demand, the higher the interest rate.
- Level of supply of loanable money, if the supply is low, the will be high interest rate.
- Cost of administration, the higher the cost, the higher the interest rate.
- Decline in the value of money, decline in the value increases the interest rate.
- Government policy, this may affect the interest rate either way.

- Type of credit, long term credit facilities have low interest rate than those of short-term credits.

REASONS WHY FARMERS ARE NOT USING THE CREDIT FACILITIES.

- Lack of collateral security required by lending institutions.
- Lack of credit worthiness by the borrowers.
- Many of the credit institutions are located in urban areas yet farmers are found in remote areas.
- Lack of information about the availability of credit facilities.
- Money for lending is not enough.
- Agriculture has a lot of uncertainties which make the lending institutions unwilling to lend money to agriculture.
- Conservativeness and unwillingness by the farmers to borrow the money.
- Tribalism in the lending sector.

MEASURES TO MAKE CREDIT FACILITIES SUCCESSFUL.

- Credit program should be accompanied with measures to develop commercial attitudes to farming.
- Agriculture credits should be extended in kind to the farmers.
- Credit given to farmers should be with the farmers request and should be flexible at all times.
- There should be constant supervision on agricultural projects to which credits are offered.
- Instead of collateral security, farmers should farm co-operatives to act as security.
- Marketing of agricultural products should be grouped.
- Provide in puts are fair price.
- Loans should be given to farmers on time.
- Training programs for agricultural credit personnel's should be provided regularly to enable them handle the farmers properly.
- Reasonable grace period should be given to the farmers and give suitable repayment schedule.
- Provide extension services to farmers to educate them on how to effectively use loans.
- Help the farmers identify viable projects in which to invest the loan money.

SUBSIDY SCHEMES.

Refers to aid extended to sustain or supplement business. They can be in form of reduced taxes, reduced prices for inputs, etc.

IMPORTANCE OF SUBSIDIES.

- They encourage farmers to invest in rural areas and reduce rural urban migrations.
- They stabilizes the prices of agricultural products
- They stabilize farmers' incomes.
- It may encourage farmers to invest in agricultural business that have been subsidized.

ANIMAL NUTRITION;

Nutrients required by the farm animals

Water;

Is the most abundant nutrient in living organisms above 60 to 96%. Is also most available and the cheapest

Importance of water to animals;

- Water is an excellent solvent for pollen subsistence. Therefore, it acts as a medium and universal in all vital processes like absorption, execution, reproduction, etc.
- It is a medium of transportation of food from ileum to when its required and in the removal of waste products
- Water activates chemical reactions through hydrolysis
- Water with its qualities of high latent neat the freeing and evaporation maintains homoeothermic of animals. If disputes, heat is the body

- It is the compound of body cells and many body fluids, water aids on maintaining pit of body fluids with normal range
- It gives aridity to supportive tissue of the body. The bodies become tagged with water and therefore maintain shape and structure
- It is used for lubricating of joints
- It is used in fertilization of swimming garments

Sources of water;

- Direct drinking
- Water in plants and other foods e.g. succulent foods
- Metabolic water from decomposition of fats and carbohydrates (endogenic water)

How animals lose water;

- They lose water through skin by evaporation
- Lose water through feaces in case of defecation.
- Lose water through milk production
- Through urine

The amount of water required by a farm animal (livestock) varies according to

- Age, cows need more water than bulls
- Bas Taurus breed require more water than the bus indices
- Lean animals require more water than fat ones because fat animals gain a lot of water from endogenic water after fat oxidation
- High milking cows need more water than a low producer does. It is recommended that a cow needs an extra kg of water from each kg of milk produced

Factors that influence water intake;

- Nature of feed eaten; protein feeds make animal to take more water since urea produced has to be removed from the body.
- Amount of food or dry matter, dry rations make animals to drink more water than succulent feeds.
- Individual performance/ productivity, high yielding animals need and take more water than dry animals.
- Accessibility to water source, when supplied at all times, water intake is high.
- Temperature of environments, animals take in more water when temperatures increase than in cold temperatures.
- Salinity of water, saline water encourages more intakes.
- Physiological state of the animal, lactating and pregnant animals take in more water.
- Physical exercises, draught animals take more water than stall grazed animals.
- Sizes of the animal, Friesians tend to take more water than local animals.

PROTEIN.

Measures of protein quality;

Crude protein;

It is the rough measure of the amount protein in the feed simple expressed as % of dry matter. Crude proteins of a feed measure both a true protein and the non-protein nitrogen content e.g. it includes proteins, amino acids, amides, nitrogen glycosides and nitrates.

Digestive crude protein;

It refers to the proportion of protein digested and absorbed in the body. Some proteins are digestible while others are not digestible e.g. lain isn't digestible

Digestible true protein;

The actual protein that can be digested.

DTP = DCP – Amides

MINERALS;

CALCIUM;

It is the most abundant amount in the body.

- It is used for formation of bones and teeth.
- It is also essential for clothing of blood.
- It regulates the permeability of capillary walls.
- It is essential for contraction of heat muscles.
- It regulates the excitability of nerve centres and fibres.
- When calcium intake is negligible, there will be a depression of calcium because it will be excreted

Anti-rickets triangle;

(diagram)

In absence of one will lead to malnutrition of the other sometimes access antagonized uptake of others

Phosphorus;

- Phosphorus metabolism is linked with that of calcium and vitamin D
- It is necessary for formation of bones and teeth.
- It is a constituent of certain enzyme.

Magnesium;

- It is found in certain enzyme. It also acts as an activator of some enzymes e.g. alkaline phosphates
- It is necessary in the formation of bones
- It has a similar role with calcium and phosphorus in bones

Feeds and feeding;

- The objective of feeding is to optimize production were feeding can be divided into three
- A ration is a mixture of feed that meets the animal nutrient requirements.
- It contains all classes of food in equation proportion
- Or, it is a feed which is formulated and it is able to meet the nutrients requirements of the animal for which is formulated

Maintenance of ration;

The food supplies the nutrients to keep the animal alive without losing or gain weight

Production ration;

This is the ration is used for production purpose e.g. milk production, egg production and reproduction

Live weight gain/fattening;

This food is used to meet the excess energy that is converted into fat

Classification of feed;

- Feeds are classified to provide a basis for food formulation
- It also provides a basis for substitutes of one food staff for another

This is necessary because of rising costs and availability of food staffs

Feed classification.

SUCCULENT FEEDS.

- Contain a lot of water.
- Usually fresh and are of plant origins eg grass
- Low fibre content when are dry.
- Highly digestible.

Roughages;

- Moisture content is below 15%
- High fibre content.
- Low digestible.
- They low palatability.
- Nutrient content varies according to stage of growth
- They contain high amount of vitamin A and D but low in protein
- They are mainly from green fodder i.e. hay and silage.
- They need to be supplemented with protein concentrated for good results e.g. hay, legume, straw, bagasse, etc.

Bulky feeds;

- They contain limited amounts of nutrients in given weights
- They usually have high fibre content e.g. roughages
- They usually satisfy appetite especially where low nutrient intake is sufficient as in mature non-pregnant dry cows

Concentrates;

These are feeds usually having low moisture and fibre content with relatively high nutrients content and high digestibility e.g. maize brand grain, legumes, etc.

Types of concentrates;

Basal concentrates; these are feed which include all grains eg maize bran, wheat bran, and molasses.

Protein rich concentrates;

- They have a greater proportion of protein as a constituent
- They are either a plant origin or animal origin

- The protein rich concentrate of plant origin are products of bi-products of legumes and oil cakes e.g. ground nuts, soya, simsim, cotton and coconuts
- They usually have high total digestible nutrients and crude protein however, some may contain toxic materials e.g. cotton seed cake contains gossypol and soya beans contains trypsin inhibitor
- They are highly digestible and get utilized by the body
- They have high fat content that may lead to rancidity. This may be prevented by use of anti-oxidant
- **MIXED CONCENTRATES**, are usually prepared animals feeds eg growers mash, chicks mash etc.

CHARACTERISTICS OF CONCENTRATES.

- Have high food value both energy and proteins.
- Have low moisture content.
- Is either of plant or animal origin.
- Have fairly constant food values.
- They are highly palatable.
- They have high digestibility.
- Have low fibres content.

o Mineral supplements;

o These are commercial mixture which are added to feed

o They supply calcium, phosphorus, magnesia and trace elements. You can also use gustier shells (busonko) and limestone

o Vitamin supplements;

o These are concentrated preparation of vitamins that are prepared commercially

- They are required in small amounts and are premixed in small quantities of food

o Feed additives;

These are non-nutrient feed ingredients. They are added to the ration to meet purposes other than nutrient ones. An egg is drugs such as anti-biotic and cocciddiostats ration to control disease and improve growth through improved growth efficiency

Hormones;

There are two types of hormones

- Growth hormones
- Sex hormones
- Diethyslibertrol is used in the castration of chicken through compromising
- There is also synthetic progesterone
- Some hormones are used or young animal to improve on their feeding efficiency
- There some hormones that are used to synchronize oestrus.
- Some hormones are also given to increase milk production e.g. hypoactive hormone

Binders and sweeteners;

Binders are applied to the food staff that is dusty to turn them into pellets

- Molasses are added to food to make it palatable
- Anti-oxidants are applied to a food that has a lot of fats and in case of fat soluble vitamins which tend to get oxidized and the food gets rancid e.g. anti-oxidants is sandoquin.

Flavouring;

In most case have no feed value but are used to improve (increase) intake and increase appetite

Digestibility;

- Much food is lost in feaces so the actual value of feed is determined by digestibility
- Digested food is that portion of food that is not excreted which is assumed to be absorbed by the animals
- Digestible energy;
- It is the measure of the amount energy of a feed. The percentage of energy lost in
- The exact figure to multiply by 2.5 because fat has twice energy is much as carbohydrates or proteins
- A ration is a mixture of feeds that meet the animals' nutrient requirements.

Ration formation and balancing;

A ration that is formulated should be able to meet nutrient requirement of the animal for which the formulated and it should be wholesome.

Factors considered when formulating a ration.

- Physical nature of final product whether to be in pellets form or Powderly.
- Type of the animal, eg dairy animal require dairy meal, layers take layers mash.
- Age of the animal, chicks mash is given to chicks, pellets to calves.
- Cost of the ingredients; look for ingredients that are not very expensive.
- Palatability of the ingredients, should such that are liked by animals.
- Wholesomeness, the feed should not cause any harm to the animals.
- Availability of ingredients, use ingredients which are locally available that can supply the required nutrients.
- Nutrient requirement of the animal, eg in late pregnancy animals are given highly nutritious feeds.

RATION BALANCING;

Proteins used for determining the major proportion rationing ingredients because proteins are the most expensive.

- It is not replaced.
- Excess proteins fed to an animal may be a waste since it has no additional value to the animal yet it is expensive.

Methods used in formulating the rations;

The Pearson square method;

A farmer wants a 16% protein ration using maize that contains 8% protein and carbohydrates and cotton seed cake that is 38% protein

- Draw a square and make diagnose and insert crude protein % required in the middle of16%
- Put the crude protein % of maize at the upper hand and therefore the seed cotton cake at the lower left hand. Subtract diagonally across the square the small number from the larger number disregarding the signs. In 16 – 8 = 8 parts of the protein supplement and 38-16=22

parts of maize

(diagrams)

Therefore, in 100kg of feed there will be 73kg of maize and 27kg of cotton seed cake. If a mineral supplement such as MA chick is to be added to supply the required mineral at 2%, level maize and the protein supplement (cotton seed cake) will constitute only 98% of the ration. Therefore, the level of protein in the 08% of the ration will have been higher than 16%. It would be $\frac{100}{98}x16 = 16.3\%$

(diagram)

- Thus the proportion of maize $\frac{21.7xaq}{30} = 71\%$
- The proportion of cotton seed cake $= \frac{8.3}{30}x98 = 27\%$
- The proportion of mineral supplement $= \frac{2\frac{6}{}}{100\%}$

Factors affecting feed intake and utilizations

- Age of the animal, young animals effectively use the proteins, minerals and vitamins compared to matured animals.
- Health of the animal, health animals utilizes the ration better than sick animals.
- Amount of food given to animal per day, when adequate feeds are given increases utilization than when too much is given.
- Climate, favourable temperatures increases food intake and utilization than high temperatures that cause deprived appetite.
- Nutrient content, balanced feeds increases utilization than unbalanced ration.
- Physiological state of the animal, pregnant, lactating and fattening animals encourage better utilization.
- Digestibility, feeds with low digestibility have low feed utilization than highly digestible ones.
- Type of animal, ruminants can effectively utilize roughages than non-ruminants. Additives used, eg hormones, molasses, salt all improve utilization.
- Processing eases digestibility and reduces bulkiness.

DAIRY PRODUCTION.

Is the management of cattle for milk production. These cattle include Frisians, jerseys, Brown Swiss etc.

CHARACTERISTICS OF DAIRY ANIMALS.

- Wedge shape ie thin at the head and wide at the rear.
- Prominent milk veins, ie they supply blood and food nutrients to the udder.
- Well-spaced teats and long enough.
- Large capacity of the udder ie accommodates large quantities of milk.
- Good temperament.
- Long lactation period.
- Should be a high milk yielder.
- Should be a good converter of herbage into milk.
- The udder should not be pendulous.

CHALLENGES OF DAIRY PRODUCTION.

- High labour requiring.
- Its capital intensive i.e. requires a lot of money to look after and to buy equipment.
- Have many risks.
- Requires more skills and knowledge.
- Milk is highly perishable therefore require quick marketing or good storage facilities.

MILK PRODUCTION AND MILK PRODUCTS;

- It involves the activities for milk until the milk reaches to the customer.
- Structure of the udder.

- It contains a lot of nerves and blood vessels.
- It has 4 separate quarters.
- Each quarter is separated by a structure called medial suspensory ligaments and milk is manufactured in each quarter is removed through a teat.
- There are several alveoli, which secretes the milk.
- This cells/milking secreting cells or alveoli absorb plasma (liquid0 and convert nutrients into milk constituents' eg amino acids, glucose and glycerol.
- The alveoli open into small ducts/ large milk glands that discharge milk into udder/ gland cistern.
- At the convergence where different parts are meeting, a sphincter muscle holds milk and will not release milk until the cow is stimulated.

QUALITIES OF A GOOD UDDER.

- Should be soft and pliable with fine teat.
- Has large capacity to hold enough milk.
- The teats are of even size ie equal size.
- Four well-spaced and developed teats.

- Non-pendulous ie should be not too large to reduce the chances of infection.
- Should have prominent milk veins to supply enough blood to the udder.

ABNORMALITIES OF UDDER.

- Blood strains due to either broken blood vessels or mastitis.
- Failure of the animal to let down milk especially in newly calved heifers.
- Swelling of the udder before milking.
- Under inflammation due to bacterial infection.

MILK SYNTHESIS, SECRETION, MILK LET DOWN AND MILK HOLD UP.

Milk synthesis.

- Process through which milk is made in the udder.
- Milk is made from raw materials like amino acids, sugars, glycerol as they are brought to the udder by blood vessels. It takes place in the secretal cells found in the alveolus where they are assembled.

MILK SECRETION.

- Begin a few months before calving. It takes place under the influence of prolactin. During this process, milk is released from secretory cells into the alveolus. As milk reaches the alveoli, it moves to the ducts and then to gland cisterns.
- This happens under the influence of luteinizing hormone.

NB. A fall in the level of progesterone also initiates milk secretion especially near calving.

MILK LETDOWN.

- Is the down flow of milk from other tissues through the teat canal.
- When the animal is stimulated by
- Massaging the udder tissue with warm water.
- Site of calf at milking time.
- Approach of milking time.
- Provision of feeds at milking time.
- suckling by the calf.
- noise of the milking utensils.
- A message is generated and sent to the brains (posterior lobe of the pituitary gland)
- The master gland responds and release oxytocin and prolactin into the blood stream.
- When it reaches the udder tissue, muscles in the alveoli and the cistern contracts as the sphincter and annular folds relax, this makes the milk to flow through the teat canal.

Milk hold up;

Is when milk flow stops from the teat canal.

- When an animal is frightened, excited, roughly handled.
- A message is sent to the brains, adrenaline hormone is released, and cuts off blood supply to the udder hence no oxytocin.

- Adrenaline cause relaxation of the muscles of the alveoli and other systems as the sphincter muscle contracts hence no flow for the milk.

MILK COMPOSITION.

- Water (87.6%)
- Sugar (lactose 4.8%)
- Fats (3.7%)
- Proteins (3.2)
- Minerals (0.7%)

QUALITIES OF GOOD MILK.

- Free of foreign materials.
- Good keeping quality.
- Nutritious ie should contain all food valves.
- Safe/free from disease e.g. TB, BRUCELLOSIS.
- Good flavor (scent) i.e. should be pleasant.

Why milk is highly perishable?

- Can easily absorb smell i.e odour from the surrounding.
- It is highly rancid because it contains many nutrients.
- It contains many nutrients that attract bacteria.
- Contain a lot of water that gives favourable conditions for quick multiplication of bacteria.

PREPARATION FOR MILKING;

- The milk parlour/ban; the milking ban should be thoroughly cleaned and scrubbed every other milking
- It should be dry before the next milking commence
- No dusty feeds should be fed to the cows
- The hindquarter of a cow should be cleaned/brushed to remove dust (grooming)
- The animal should be brought in milking yard in good time before milking. This allows animals time to settle down
- The udder and teats should be washed with warm water containing disinfectants.
- Dry the udder with milking towel.
- Draw a few stream of milk from each teat onto a strip cup to test for mastitis.
- The milking equipment should be cleaned, dried and assembled.
- The milker wash hands, clean, cut nails before milking.

MILKING PROCEDURE;

- Sequence of operations before, during and after milking
- The cow is brought at milking parlour.
- It is groomed
- Wash the udder and hands with water.
- use the milking towel to dry the udder

- Wash the milkers hands and dry them.
- Use milk salves or apply milk salve or teat to avoid friction that will make them to break.
- Use a strip cup the first few steams of milk from each teat should let on a strip cup to create for possible incidence of mastitis.
- The animal with mastitis should be milked to avoid spreading the disease to health animals
- Milk the milk into a milking pail quickly and quietly.
- Drain all the milk out of the teats ie complete milking.
- After milking, the milk is filtered using milk strainer into a milking can.
- Store the milk in a closed milking can in a cool place and take to cooling centre.

How to produce hygienic and safe milk on the farm;

- Milk healthy animals which are free from diseases eg TB, Anthrax, Brucellosis.
- Wash the udder to prevent dirt that contaminates milk.
- Use a strip cut to detect mastitis.
- The cow with mastitis should be milked last to avoid contamination of milk.
- Do not milk animals that have just been treated, as their milk is not good for consumption.
- Milking jelly should be smeared on the teats to avoid cracking of the teats.
- Wash and dry the hands to prevent contamination of milk.
- A milker wears a cup to avoid hair dropping into the milk.
- The milker should cut off his fingernails to avoid injuring the teats.
- The milking parlour and the surrounding should be cleaned to avoid contamination of milk.
- Use clean utensils to avoid contamination of milk.
- Sterilize the milking utensils with detergents to kill the germs that may contaminate the milk.
- Use aluminum utensils to avoid contamination of milk.
- Filter the milk with a milk strainer to remove foreign impurities eg grass, hair.

OFFFLAVOURS OF MILK.

- Refers to unpleasant smell in milk.

Causes of off flavours.

- Feeds consumed by animals eg wild onions, Mexican marigold, garlic. When eaten, there smell appears in milk.
- Milking from dirty environment with silage, dung etc may make milk absorb the odour.
- Milking diseases animals eg milking animals suffering from mastitis. Its milk is usually salty and has a poor smell.
- Oxidation of fats when exposed to high sunshine.
- Accidental addition of medicants, paraffin, insecticides and other chemicals ay make milk to have the smell.

Bacterial contamination, this makes the milk to have an acidic test.

Milk and milk products;

Fluid milk;

- On the reception from farmers, the milk is tested for outdoor test appearance and specific gravity is measured by the use of lactometer
- The normal specific gravity of milk is 1.032. If the leading is higher, it is used to addition of favours bananas that make milk heavier
- If the specific gravity is much lower, it could be due to addition water.

Homogenization;

- This is the passing of milk at a higher pressure through small pores. It is canned at breaking up fat globules to mix properly. The milk then assumes the uniform mixture and colour

pasteurization of milk;

- Milk is heated to a temperature below boiling point and for a period sufficient to kill all disease causing and spoilage organisms so that milk is safe for human consumption at 62.8% for 30mn/72^{o}c per 6 seconds

Cream and skimmed milk;

- Low milk is centrifuged to form cream that is then skimmed off. Cream has 15 to 40% fat content skimmed milk is without cream. Cream is used to make many things i.e. butter after the cream has been separated from skimmed milk.

- It is then ripened for 6weeks to 6months.

FACTORS AFFECTING MILK YIELD AND QUALITY.

- Breed of the animal, exotic breeds produce more milk than local breeds. Local breeds produce milk with high BFC than exotic animals.
- Age of the animal. Animals that have ever given birth produce more milk than the heifers because it has large udder. However, heifers produce milk with high BFC.
- Heat period, milk reduces shortly during heat and even BFC reduces during heat because of excitement and reduced food intake.
- Health of the animal, diseased animals' produce milk with blood clots, pus is of low quality as the animal is suffering from mastitis. When the udder tissue is painful, animal produces little milk.
- Stage of lactation, milk yields increases as the lactation advances but declines towards drying off. Bfc increases as the lactation increases.
- Nature of the feeds given to the animals, May affects both quality and quantity as they may lack some food values.
- Interval of milking, more milk is produced where the milk intervals is short. However, BFC increases with increase in milk intervals.
- Temperament. Docile animals produce more milk and have consistent BFC than notorious animals.
- Season of the year, milk yields increase in wet season than in dry seasons because of succulent pastures. However, BFC is high in dry season than in wet season.
- Milking techniques, well-handled and stimulated animals produce more milk.
- Amount of water given to animal, when animals are given less water, they produce concentrated milk but of low yields.

BEEF PRODUCTION AND SKINS AND HIDES

- Beef productions refer to management of animals kept for meat production purposes. These animals kept for beef may include Zebu, Aberdeen Angus, and Galloway etc.

  Characteristics of beef animals.
- Have ability to calve regularly.
- Have high feed conversion rate to meet.
- Should produce a lot of meat I.e high percentage of carcass weight.
- Squared body/ blocky.
- Short strong legs to carry the weight.
- Should have the ability to grow very fast and put on weight quickly.
- Should be able to survive drought without losing weight.

PROBLEMS FACED BY BEEF FARMERS.

- Poor breeds of animals that take long to mature and produce poor quality beef.
- Limited capital to purchase feeds, buying better breeds of animal, medicine.
- Prevalence of parasite and disease causing organisms that reduce the quality of produces.
- Shortage of land where pastures can be grown.
- Poor quality pastures that reduces productivity.
- Shortage of water for animals.
- Insecurity due to cattle rustlers and cattle thieves which reduce the quality of produce.
- Infertile soils which fail to support enough pastures.
- Poor provision of extensional services.
- Poor marketing facilities in terms of advertisement, storage facilities and transport. This makes it difficult to dispose beef cattle and their produce.

SOLUTIONS TO IMPROVE BEEF PRODUCTION.

- Carry out irrigation to support forage growth during the dry season.
- Carry out seasonal breeding to coincide with maximum pastures during the rainy season.
- Cull animals toward the dry season before they lose weight.
- Provide strong extension services to improve the performance of animals.
- Provide loans to farmers to enable them buy better equipment and heifers.
- Carry out artificial insemination to improve the quality of the animals.
- Train farmers in proper herbage conservation to overcome shortage during the dry season.
- Carry out proper management especially in disease control to maintain good health of the animals.
- Improve on marketing facilities to enable easy marketing of beef and other products.

FACTORS CONSIDERED BEFORE ESTABLISHING ABEEF HERD.

- Availability of water for animals to take and to use in the abattoir.
- Availability of pastures and other feed supplements to improve animal diet. These should be in plenty.

- Availability of extension services eg veterinary doctors. Should be present in order to treat animals in case of disease outbreak.
- Availability of market should be readily available as meat is highly perishable.
- Availability of marketing facilities such as good roads to easily transport meat to markets.
- Prevalence of pests and diseases, these should not be there to avoid attack of animals.
- Government policies should be favorable eg reduced taxes, subsidiaries.
- Availability of good breeds of animal, these should be purely of beef type.
- Availability of land. Should be in plenty to encourage growth of large quantities of pastures for animals.
- Availability of capital to be used to buy good breeds of animals, feeds and equipment.
- Availability of labour both skilled and semi-skilled labour to look after the animals Climate of the area should be favourable to encourage growth of pastures and noy affecting the animals.

MANAGEMENT OF BEEF CATTLE.

- Select suitable breeds ie should be purely of beef type.
- Control breeding by castrating the poor bulls.
- Ensure correct bull cow ration.
- Give balanced and suitable ration to the animals.
- Ensure good health of the animal through proper control of diseases.
- Heifers should be properly grazed so that they do not lose weight.
- Meat production and slaughtering process.
- All skeletal muscles or tissues are used as food.
  - Slaughtering.
  - Is the process of cutting off the animal neck and allowing it to bleed.

SLAUGHTERING PROCESS.

BEFORE SLAUGHTER.

  - Treat the animal humbly so that it does not go wild.
  - Starve the animal to reduce stomach content.
  - Rest it to preserve the glycogen.
  - Carry out stunning of the animal.ie make the animal senseless to reduce the pain by use of hammer or stunning gun or electricity.
- Slaughter the animal, the neck is cut off.
- Hoisten the carcass ie hung the carcass upside down to allow complete bleeding.
- Flaying ie remove the skin.
- Evisceration ie removes the stomach content.
- Inspection by veterinary doctor to determine the suitability of the meat for human consumption.
- Grading, the meat according to colour, fat content and texture of meat.
- Aging and tenderization, makes meat more tender and palatable. The meat is stored in a cold room to allow the enzymes to soften it.

- Curing, done to preserve meat and preserve the red colour of meat and adds flavor.

FACTORS TO CONSIDER TO IMROVE SLAUGHTERING EFFICIENCY.

- Ensure adequate slaughter space to avoid unhygienic meat production.
- Hoist the carcass to ensure complete breeding.
- Ensure clean slaughtering place to avoid contamination.
- Flay carefully.
- Starve the animal for 24hours to reduce the stomach content that could contaminate the meat. It also preserves glycogen used as natural meat preservative.

FACTORS THA MAKE MEAT UNFIT FOR HUMAN CONSUMPTION.

- Infection from animal parasites eg tape worm.
- Drugs those are persistent in the animal body
- Poor preservation resulting into rotting of the meat.
- Un acceptable proportions of meat eg fats and bones
- Animal diseases eg TB, Anthrax.
- Poorly bled meat ie incomplete bleeding that makes the meat to go bad.
- Poisons.
- Unfavourable feeds that give off-flavours eg garlic, Mexican marigold.
- Contamination of the meat during slaughter and transportation.
- Age of the animal slaughtered, too old animals produce meat is very fibrous or hard and too young animals (calves) provide very soft meat.

FACTORS THAT INFLUENCE THE RATE OF MEAT SPOILAGE.

- Diseases, meat from diseased animals deteriorate very fast than normal meat.
- Moisture, if moisture content is very high, meat rots very faster than dry meat.
- Transportation, if done in unhygienic conditions, it increases spoilage.
- Rumen content, these may contaminate meat and it increases spoilage.
- Temperature, high temperatures encourage multiplication of bacteria and encourage rotting.
- Bleeding, poor bleeding leaves a lot of blood in meat and increases rotting.
- Application of preservatives eg salt, smoking etc tends to reduce spoilage.
- Slaughter house, dirty slaughter house increase contamination of meat and encourage quick spoilage of meat.

SKINS AND HIDES.

- Hides are got Poor folding before and after drying along the backline with the hair outside leading to loss.
- Keeping the hides in open over night to increase weight encourage rotting.(fraudulent practice)
- Poor roping eg over stretching causing distortion.

QN How can a farmer ensure production of good quality hides and skins?

NB. It involves controlling all the factors that cause loss of skins/hide quality as seen above.

- from matured or large animals while skins are got from small or young animals.

IMPORTANCE OF SKINS AND HIDES.

- Used for making musical instruments.
- Provide constructional materials.
- Source of income to the farmer.
- Provide employment for people in the processing and marketing of skins/ hides.
- Used in the making of leather.

TREATMENT OF HIDES AND SKINS.

They undergo through the following stages.

- Flaying, removal from the carcass body.
- Washing, especially in running water to remove dung, blood, rubbish.
- Draining and fleshing, remove all the meat and flesh.
- Trimming, remove all irregular flaps or edges.
- Preservation, either by wet salting, dry salting or suspension drying.
- Tanning, treat the hide and skins with tannic acid to turn them into leather.

Wet stores eg leaking stores that wet the hides making them to rot.

Poor drying eg drying skins on bare ground that encourages contamination and rotting.

Storage pests eg rats which may damage the hides.

Improper transportation causing rubbing which leads to loss of hair.

PROCEDURES TO FOLLOW IN ORDER TO PREPARE GOOD QUALITY SKINS AND HIDES.

- Wash the hides to remove any dung and soil.
- Hang it up to allow water to drain/ drip.
- Carry out fleshing to remove meat and fats.
- Trim the hides and remove the odd flaps.
- Dry it by hanging in frames in open air or cure using salt
- Add pesticides to control attack by rodents and beetles.
- Fold the hide once along the spine with inside out side to avoid spoilage.
- Carry out grading to remove bad hides/skins.
- Ball the graded hides using rope.
- Weigh the hides before sale to determine value.
- Carry out proper storage to avoid damage by moisture.

ANIMAL HEALTH

A health animal is one, which has a properly functioning body

Causes of diseases;

- Pre-disposing diseases;
- These are indirect and distant but prepare the way of disease
- Heredity;
- An animal may be susceptible to a disease. This may be inherited from parents. The animal may also have physiological disorder and anatomical defects

- Age;
- Young animals defense mechanisms are not yet fully developed and their power of resistance is low thus their susceptibility is greater
- Climate;
- Moist and warm climate favours the development of bacteria and parasitic diseases
- Animals may be born with diseases when they are transmitted from parents to off spring i.e. salmonella is transmitted to chick through eggs
- Food and water;
- This may carry and transmit disease-causing organism
- Inadequate food especially during the gestation period. Growth periods retard growth or young animals. Un balanced food with absence of essential food nutrients lowers the power of resistance and increases susceptibility to diseases

Determining causes;

These agents or factors actually cause diseases. These include; infections which are disease caused by living pathogens which include fungi protozoa bacteria, etc

- Nutrition deficiencies; diseases caused by lack of adequate minerals and vitamin C and Vitamin D cause Rickets
- Poison; any substance which can destroy life or interfere with body functions some useful chemicals used on the farm each as herbicide, insecticides and fat poison can cause harm to the animals
- Injuries; damages on the body and its structure by mechanical means

Kinds of diseases;

- Infectious diseases;
- Living agents such as bacteria and viruses cause them. They are easily spread but not by direct contact like tetanus and lumpy jaws
- Contagious diseases;
- These are transmitted from animal to another animal due to direct contact of one another i.e. food and mouth disease or black quarter
- Non-infectious diseases;
- Are diseases caused by something other than living organism's i.e. metabolic disorders and injuries

Communicable diseases;

These are diseases transmitted by direct contact from one animal to another by direct or indirect contact and they rate of infection is very high. Therefore, by law you are supposed to report this disease to veterinary or police i.e. foot and mouth, anthrax, etc.

Parasitic diseases;

Are diseases caused by internal or external parasites i.e. ring worms.

Deficiency diseases;

Are diseases caused by inadequate nutrients in the diet i.e. rickets.

Metabolic disorders;

These diseases due to an upset in metabolism affect the body eg bloat

Congenital defects;

These are due to hereditary or improper development i.e. white heifer diseases

How diseases spread;

- Introduction of diseased birds or livestock
- Introduction of healthy livestock that have recovered from diseases but they are still carry
- By direct contact from one animal to other
- By indirect contact through objects or contact such as feeds, drinkers, contaminated bags and feeds
- Bodies of dead birds and animals that have been improperly disposed off
- Blood sucking sectors such as tsetse flies or ticks
- Shoes or clothes of any one who moves from one flock to another through animal quarters
- Excrete feaces e.g. feaces of calves it may have disease causing organisms
- Air born organisms may be spread through the air
- Soil can harbour resting stages i.e. anthrax spores
- Running water

Signs of ill health;

- Posture movement and behavior of the animals will change in case of illness. Animals standing with head down/reduced awareness
- Loss of appetite and stoppage of ruminants are signs of diseases
- Rough dry skin indicates disease skin covered pin plus indicates diseases
- Raised standing vain is undesirable
- Body temperature; high temperature are associated with increased activities of the body in fighting diseases
- Watery faeces and with bloodstains.
- Urine have abnormal odor.
- Valva and tail have smell and should contain pus discharge because they indicate septic conditions
- Yield changes in quality and in quality e.g. milk, egg yields are early symptoms of diseases. Blood clot in milk indicate amitosis
- Poor response to stimuli by animals.
- The nostrils will be dry in animals of high temperature
- Variation in pulse rate affects the rate at which the heart pumps. The pulse rate is generally higher in younger animals
- Sunken eyes with fixed steering look indicates sickness discharge from the eye indicate sickness
- Immunity;
- Is the power of the body to fight (resist) disease. It can either be acquired naturally or artificial means
- Artificial acquired immunity;
- It is obtained by giving an animal a vaccine either by injection or orally
- Passive immunity;

- It is the immunity contained by giving up anti- secum that will act against effective agent or toxicants. If an animal is given a mild doze of disease which is anti-susceptible. It leads to production of anti-bodies by the animal's passive immunity lasts for two weeks.
- A newborn calf obtains maternal anti-bodies from cestrum and this enables it to resist diseases until its own immune system is developed.
- Prevention and control of contagious diseases;
- The first step in controlling a disease is its diagnosis.
- The manager should observe his animals daily, this incidence of ill health should properly. be studied, and the veterinary doctors should be contacted.
- Providing and maintaining of sanitary animals quarters.
- Inside animals shade should be scrubbed and cleaned daily to remove ticks
- The animals shade should be kept clean and dry.
- Animal quarters should be properly drained with adequate space and good lightening.
- The removal of excrete from the house and proper disposal of manure of microorganisms.
- Individual animals that have been seriously affected with such should be dusted with insecticides.
- In cattle rotation, grazing controls many diseases and parasites
- Disposal of dead animals or can burn animal that has died of contagious such as anthrax should be done by burying or burning. The body should be buried 1.5m deep to avoid warms carrying bacterial spores to the surface
- The heading, excreta, feed left, and topsoil where the body was lying should be buried alongside with the body and covered with quick time.
- Restriction of visitors to livestock area of the farm
- Following a vaccination program for livestock or poultry as recommended by vet officer
- Provision with adequate wholesome of water and feeds
- Maintenance of good record this induces vaccination
- History disease problem and medication used
- Isolation, segregation of animals that are known or suspected to be sick from the healthy ones
- Animals that are sick should be housed separately from normal animals
- Equipment used on sick animals should not be used on healthy ones
- Quarantine;
- Is the segregation of apparently health animals from which have been exposed to diseases from a risk of infections? This is done in case of untreatable diseases such as rinder pest and foot and mouth diseases. Quarantine is done on a large area i.e. district so that the movement and sale for livestock and livestock products are suspended
- Elimination of carries;
- After animals have recovered from a disease although it looks in a good condition, it may labour organisms in the tissues carrier's potential dangers to susceptible animals.
- Carriers should be diagnosed and eliminated so that herd is completely there

- Use of a trip cup test for mastitis;
- This comprises of letting the first few steams of milk from each quarter to the each disc of the strip cup. Milk from a sick animal will be watery having clots, blood stream
- Disinfection;
- Is the destruction of pathogenic or microorganism from a place so that the place becomes of infection by use of germicides
- Disinfectants include sunlight heat, chemical disinfections e.g. Antiseptic
- There are chemical disinfectants i.e. sick, antiseptic is a chemical used to treat woods so that they do not become septic
- **Disinfection of pasture;**
- Removal of any enviously infective materials such as carcass or observed fetus and dung
- Use of chemical such as copper sulphate and prevention of animals grazing on water logged areas
- The pasture should be ploughed and left to fallow for nearly month.

Deworming;

- It is essential to de-warm animals regularly by use of anti-indamines. All animals should be de-warmed
- Before animals are de-warmed, they should be rested for 24hours
- Preventing humans from defecating on pasture or around the farm to eliminate tap warms
- Control of snail population may result into control of liver flocks

Parasite of farm animals;

General characteristics of parasites.

Skin Irritation.

- They transmit diseases causing organisms (vectors)
- They rob food nutrients from the host.
- They cause loss of weight.
- They cause anaemia due to sucking of blood.
- They cause obstruction in the alimentary canal.
- They dig hales in body organisms and long worms.
- They cause death due to inflamental reactions.
- They lead to loss of appetite, weakness.
- They damage skins and hides e.g ticks.

PARASITES ARE DIVIVED INTO

- Internal parasites
- External parasites
- **INTERNAL PARASITE**
- They are also called endo parasites i.e. tape warms. It attacks all the animals including man and birds but is less severe in ruminants. There are two species of taenia

- There is one called teaniasolium (pork tape warm). Tuaniasaginata beef tape warm
- Tape warms are flattened reborned like animals. They are white in colour and tapering anterior. It may be 2.5 to 4m long and 1.5m wide
- The anterior is marked by tiny knob called scolex which ……protractible prosecution known as the rostchum
- Behind the rostellum is a bauble row of covered continued hooks which together with four suckers forms the means of attachment in the intestine
- Behind the scolex, there is a narrow region of protestation and behind this region you have progloticks. The proglotids become longer and water
- (diagram)

- In a fully-grown warm, there are about 800 proglotids of which are cost off every day. There is no mouth alimentary canal the tape warm absorbs the digested food of its host of its all body system
- A very mature proglotides contains a full set of male and female reproductive system (Aphrodite)

Reproduction;

- Fertilization is internal. It may occur between male and female organs of the same proglotides or folding of the body between male of one region to another
- A proglotide that is cost off contains over 40,000 onchospheres eggs. If few prognosis are cost off in the feaces and no further development, takes place until the unchospheres are swallowed by the secondary host
- When onchosphere are swallowed by the pig, the ……are digested in the duodenum and the hexacantha embryos are feed with their shape hooks hold into the grant walls and their blood of retalic vessel in which they can carried are on the body.
- They scan leave the circulation system and entre the voliratary
- Muscles in the young and limbs and the embryo develops into the cystericus
- For further development, the raw meat should be eaten by human being
- The infected pork has brown spots. The bladder warm is digested by the stomach juices of man continue to fix in the intestine walls and cost of the bladder starts of proliferating progolotides. It will remain in the human for life

LIFE CYCLE OF A TAPE WARM;

- (diagram)

- Structural, physiological and reproductive modification;
- (Tape warm adaptation to parasites)
- Lack of alimentary canal due to the fact that the tropic stage is perpetually bathed in a solution of a digested food
- The suckles ….and hooks have involved in fixation of got wall
- The tape warm is adopted to life in an environment without oxygen some tape warms can respire an aerobically
- The resist digestion by the host enzymes both in man and pigs

- They contain anti enzymes produced by the secretion of gland cells
- They reproduce prolofiphically i.e. at rate of proglotides per day each proglotide will develop into female or male organ
- During one single year, a single tape warm produces more than 2000 proglotides each containing 30,000 to 40,000 onchosphers

  Meaning a man with one tape warm will pass out 2million orchosphers in 30 years.

  Where the ticks are found.
- On ears, belly, between the legs, nose, volva on the nose and on the base of the tail, along the tooth gag and the odder.

  Effects of ticks.
- Transmit diseases like east
- Skin wounds.
- Reduce production of milk production
- Irritation.
- They suck blood.
- Loss of weight.

  Control measures
- Dipping or spray the animal with recommended chemical
- Hand dressing
- Use rotational grazing.
- Hard picking from the animals
- Burn the bush to kill them.

  Use birds to pick the ticks.

  Life cycle of the tick.
- Eggs are laid on the ground which turn into larvae and climb on the host to feed.
- The fully fed larvae molts into a six legged nymph as these nymph feeds.
- These engaged nymph molts into eight legged adult.
- The adult male/ female feed on the host and later make while on the host.
- The engaged female full of eggs drop to the ground to lay eggs and then it dies.
- **NOTE**
- One host tick goes in all the stages on the same host ie larvae, nymph and adult e.g a blue tick.
- A two host tick; larvae stage is one first host the nymph takes place on the second host e.g red legged tick and also the adult stage is on the second host.