FARM POWER

Farm power refers to the various sources of energy used in doing farm work.

sources of farm power

1. Human power
2. Animal power
3. Mechanical power
4. Electrical power
5. Solar power
6. Wind power
7. Water power
8. biogas

Human power

This source of power is usually supplied by the farmer. Under subsistence agriculture the power for doing farm work was originally supplied by human hands only. Human power is used in stationary work for turning wheels which transmit some power through cogs and pinions in grinding machines and water pump.

Advantages of human power

1. Man uses his intelligence to control all other sources of farm power
2. It is readily available and easy to control
3. Man is needed in the handling and use of farm machines, implements and other sources of farm
4. Power
5. It brings about least damages to soil, crops and is free of pollution.
6. Man can be trained to perform so many operations on the farm.

Disadvantages of human power

7. Man's energy decreases with time, so the output is inconsistent.
8. Man cannot perform tedious farm operations.
9. The output from human power is relatively small
10. Man cannot perform at odd periods like when there is heavy rainfall or in very hot weather.
11. Man can fall sick or die easily

12.If trained or specialized, it may be expensive.

Animal power is derived from cattle, horses, buffalos, donkey and mules. These animals are used for pulling ploughs, harrows, planters, harvesters and for hauling and transporting farm produce. Animal power is still used in agriculture in many developing countries.

Advantages of animal power

1. It is cheap sources of farm power.
2. Animals can perform more tedious operation on the farm.
3. Animals do not get fatigued easily.
4. Maintenance of animals is cheap.

Disadvantages of animal power

1. The required human guidance and direction in all operation
2. They are unreliable because they are subjected to ill-health and death
3. The cost of feeding and maintenance is borne by the farmer.
4. They have a limited use outside of transportation and pushing o and pulling of implements.

Wind power can be harnessed by installing a wind mill. The blades turn and cause the shaft to rotate. If it is connected to a water pump or motor it can be used to pump irrigation water, or generate electricity for lighting to operate equipment.

Advantages of wind power

1. It is cheap to maintain once it is installed.
2. It is suitable for remote rural areas that do not have electricity.

3.It is neat and free of pollution

Disadvantages of wind power

1. Wind is not always available and therefore, it is an unreliable source of power.
2. The cost of installation is high.
3. Power to produce can only be employed in stationary.
4. Power output is very small.

Water power

Water is harnessed by dam construction and the installation of turbines to generate electricity. The power so generated may be used for lighting or for operating stationary machines and equipment's.

Electric power

Electric power may be generated from an internal combustion engine or turbine installed in water dams and wind –mills. Electric power on the farm is used in stationary operation such as heating, drying, lighting and powering workshop machines.

Advantages of electric power

1. It is quiet, neat and free of pollution.
2. It is reliable and efficient.
3. It saves labour and other sources of power

Disadvantages of electric power

1. It cannot be employed in field operations.
2. It is expensive to installing independently on the farm.

3. **Solar or sun power**
   Energy from the sun is utilized by plants for synthesizing food, on the farm, solar power is useful in drying farm products. Solar power can also be harnessed in voltic cells and convert into electric power and used for lighting, heating or dryers and fro operating other agricultural equipment.

Assignment: Explain mechanical power and state the advantages and disadvantages of mechanical power.

Mechanical power

It is the use of an internal combustion engine which is driven by burning fuel. This is in farm machines such as tractors, trucks and bulldozers. They required trained operators and technicians for efficient maintenance.

Advantages of mechanical power

1. Within a short time a large area can be easily be brought under cultivation.

2. It can be employed in mobile and stationary operations.

3. It is reliable and can be used over a long period of time.

4. It removes the drudgery associated with farm work; hence it makes work less tedious.

Disadvantages of mechanical power

1. It is expensive to purchase and maintain

2. It requires skilled operators and technicians.

3. Maintenance and running costs are high.

4. It pollutes the environment

5. The lack of spare parts hampers their use as most of them are imported

Farm mechanization

In a narrow sense, farm mechanization refers to the use of labour saving machinery in agricultural production.

Broadly speaking, farm mechanization will include the application of labour saving devices such as machinery and agro-chemicals, the use of improved breeds of animals and varieties of crops and other forms of agricultural innovations.

Disadvantages of farm mechanization

1. It displaces unskilled farm labour

2. Excessive use of heavy machinery exposes and destroyed the soil structure.

3. Gases released from the exhaust of machines causes environment pollution.

4. It encourages deforestation and erosion.

5. It is expensive and is therefore beyond the income of small scale farmers.

6. It requires skilled labour for operation and maintenance.

7. Some food crops and cropping patterns are not adapted to the use of machinery.

prospect of farm mechanization.

1. Agricultural co-operative
2. Agro- services Centre
3. Education
4. Land reforms
5. Credits and subsidies
6. Appropriate technology
7. Agricultural co-operatives
8. Most small farmers are poor and therefore cannot embark on any meaningful form of mechanization. Through the formation of co-operatives, farmers can pool their resources, and require the needed machinery,
9. Agro-services centres
10. Through the establishments of agro-services centres, farmers have access to farm inputs, machinery, processing and marketing facilities.
11. Education
12. Through extension and adult education, farmers may be persuaded to adopt improved practices.
13. Tractor-hire services

The expansion of tractor-hire services to reach all rural areas will go a long way in removing the delays and high cost of land preparation.

Assignment: Explain credits and subsidies and appropriate technology as the prospect of farm mechanization.

Credits and subsidies

Increased availability of credits and subsidies will encourage farmers who lack resources to mechanize their operations.

Appropriate technology

The choice of technology recommended to farmers must be within their knowledge and resource levels such that they are fully used and maintained.

problems or limitation of farm mechanization.

1. Size of holding
2. Lack of capital
3. Farming system
4. Skilled manpower
5. Lack of spare parts

6.Seasonal operation

1. Size of holding: Mechanization is impracticable and uneconomical on small scattered plots. This situation is derived from traditional land tenure systems which encourages land fragmentation.
2. Lack of capital: Mechanization requires heavy capital outlay which is out of reach for most farmers.
3. Farming systems: Traditional farming systems do not give themselves to complete mechanization. For example, mechanization. For examples, mechanization can be employed only in land preparation in a mixing cropping system.
4. Skilled manpower: Most of the farmers are illiterate and therefore cannot handle complex machinery. Skilled operators and technician are in short supply.

5.Lack of spare parts: Most farm machines are imported from other countries where climatic condition are different from the tropics, thus, the machines break down easily. There is a scarcity of spare parts to make quick repair.

6.Seasonal operation. In many parts of the country especially in the south, agriculture is rain-fed. Thus, machinery remains idle after the cropping season. This makes their purchase uneconomical.

Assignment: Define factors of production

Factors of production

Factors of production are defined as productive resources (such as natural, human and material) that are used or combined in the process of creating goods and providing agricultural services.

This can also refer to the inputs used in producing agricultural produce and services

Land: vegetation, minerals, soil and water

Labour: family labor and hired labour

Capital: fixed, floating, working or current.

Management or entrepreneur: farm manager

Land

Land includes all the natural resources used in the production process. It is the total of the earth and water, the plants and animals, and the minerals that exist in nature.

Characteristics of land

1. Land is a natural gift not produced by man.
2. Land is fixed in supply or in quantity.
3. It is subject to law of diminishing returns.
4. It is limited in supply.
5. Land cannot be moved from one place to another.
6. Land appreciates in value.
7. The reward for land is rent.

8. Land varies in quality and its value varies with its location

List and explain the classification labour.

Labour refers to all human resources or effort which may be mental or physical, skilled or unskilled, scientific or artistic, hereditary or acquired, which are used in production process

Skilled labour: this is the labour that has undergone a relatively long and specialized type of training.

Semi-skilled labour: those who have undergone some form of training, but not specialized as that of skilled labour.

Unskilled labour: those who do not undergo any training such as labourers, cleaners and gardeners

State the characteristics of labour

as thus:

1. Labour is unique (provided by man)
2. It is an active factor of production
3. Labour is mobile
4. Supply of labour is basically inelastic
5. Labour cannot be easily stored for future used.
6. Labour has feelings and cannot be used anyhow.
7. Labour can be skilled or unskilled.
8. The reward for labour is wages and salaries

Assignment: List various types of capitals

Capital refers to all man-made productive assets, wealth or resources used to produce other goo types of capital thus:

1. Fixed capital: This consists of the durable assets which do not change their form in the process of production. Examples include tractors, farm buildings, motor, vehicles, dams or ponds, farm implements, workshop and barn.

2. Working or circulating capital: These are assets that are used up during production process. Examples are fertilizers, chemicals, water, fuel, feeds and drugs.

characteristics of capital

1. Capital has money value or price
2. It must be capable of satisfying human wants.
3. Capital is limited in supply
4. Capital can be bought or sold.
5. Capital is basic for production.
6. Capital is an indicator of scale of production.
7. Capital is man-made, it is thus accumulated

8. Capital depreciates with time.

Assignment: State the function of a farm manager

FARM MANAGER

Farm manager in agriculture is generally regarded as the entrepreneur whose duties include the organization, administration, production and marketing of produce from the farm.

FUNCTIONS OF A FARM MANAGER

ORGANIZATION

The farm manager secures suitable land for farming. He determines what to produce, sale of production. He also procures loan or capital for farming, He recruits labour for farming.

ADMINISTRATION

The farm manager supervises the work on the farm. He arranges work roaster, He direct staff on day –day activities. He also makes arrangement for staff welfare.

PRODUCTION

A farm manager is responsible for the purchase and use of farm input. He ensures the health of animals/crops on the farm. He also ensures the adequate supply of feeds. He combines resources to yield optimum profit.

Assignment: Explain other functions of a farm manager

AGRICULTURAL FINANCING

Agricultural finance can be defined as the process of acquisition and use of capital (money) in agriculture.

It is a supply and demand for funds in the agricultural sector of the economy.

IMPORTANCE OF AGRICULTURAL FINANCING.

1.It enables farmers to acquire more farm inputs for increase production.

2.It helps to protects against adverse condition on the farm.

3.It enables farmers to meet seasonal and annual fluctuation of income and expenditure.

4.It helps the farmers to increase the size of his farm.

SOURCES OF FARM FINANCING

Farmers can get credits /loan to start or expand their farm business through any of these sources.

1. Agricultural Bank: Nigeria Agricultural and co-operative Bank (N.A.C.B) was established in 1973 to grant loans to all potentials farmers to start or expand their farm business. It is popularly called “farmers bank” because it is only farmers that can borrow money from it.
2. Commercial Bank: These are major sources of lending to agriculture e.g First Bank of Nigeria, Union bank etc. have agricultural departments where farmers can get loans to carry out their farming activities.
3. Co-operative societies: These are group of person who come together to pool their resources together to buy produce or gives loans to members.
4. Family sources: Farmers can also secure credits from their family members to start or expand their farming business.
5. Money lenders: These are certain people who lend out their funds to farmers to enable them to start or expand their farming business.

   Agricultural credits: are loans obtained by the farmers to start or expand their farming business. It is repayable over a period of time with some interest as determined by the source of credit.

   Interest is the amount paid on borrowed capital or amount earned above the cost of goods.

   Classes of farm credits

   Classification based on length of period.

   i. Short term credit: This is a productive credit which the borrower is expected to repay in a year or less. It may be used to purchase livestock feed, fertilizer, fuel etc.

   ii. Medium term credit: it is repayable within a period of two or five years. It may be used to buy machinery, breeding livestock etc.

iii. Long term credits: This credit is to be repayed within a period of three to twenty years. It could be used to purchase costly fixed assets like land, irrigation project.

Assignment: Explain the difference between loan in cash and loan in kind.

IMPLICATIONS OF FARM CREDITS

The procurement of loans for farming activities is associated with some implication. Farmers find it difficult to get loans from banks because of the following reasons:

i. **High interest rate**: This is the rate at which farmers can borrow money from bank i.e the amount of interest a farmer will have to pay on the money borrowed. It discourages borrowing while low interest rates encourage borrowing by farmers.
ii. **High level of loan defaulter**: Farmers may not be able to repay the principal money, let alone the high interest charged in case of natural disaster.
iii. **Lack of farm record**: Many farmers lack good farm records of all their activities which can be used to assess their credits worthiness.
iv. **Inadequate collateral security**: Security is what the banks and financial institution will want a borrower to present before a loan can be given, such security includes landed property, buildings etc. which most farmers do not have to secure loans.

Assignment: Discuss any other three implications of farm credit.