

SUBJECT: AGRICULTURAL SCIENCE

CLASS: JSS2

WEEK: 4

TOPIC: FARM MACHINES

TERM: 1ST TERM

FARM MACHINES refers to tools and implements driven by some form of mechanical force to achieve some operations in the farm. farm machinery include different kinds of implements used on the farm, such as cultivators, ploughs, harrows, ridgers, planters, harvesters, feed mills, fertilizer application, sprayers and dusters(for pesticides application). the most important farm machine is the tractor which is used for operating other farm implements.

FARM POWER: The power to drive farm machines can come from any of the following sources:

1. Animals, like horses and oxen which can pull ploughs.
2. Humans operating cultivators and spraying machines.
3. Engines- which may be diesel or petrol and electricity.
4. Sun-solar energy for heating water.
5. Water-running water can turn water wheels for mills, drive turbines and produce electricity
6. Wind-wind mills have paddles that turn wheels.

TRACTORS

A farm tractor is a powerful motorized machine driven by diesel or petrol engine. it has an internal combustion engine, mounted on a frame, to couple other farm implements to achieve operation like clearing bush, cultivating the land, planting crops, weeding, applying pesticides etc. thus the tractor is used for:

1. Pulling and pushing other farm equipment such as ploughs, harrows and planters.
2. Driving other farm machinery, a takeoff shaft fitted with pulleys and belt transmit the engine power to another machine.
3. Driving hydraulic machines for transportation

There are two main types of tractors,

1. The wheel tractor has two small wheels in front and two very large wheels behind.
2. The tract-type tractor which moves on tracks instead of rubber tyres, and used for large scale cultivation.

INTERMEDIATES MECHINERY

Intermediate machinery includes animal drawn implement, motorized machinery and implement which can be attached to a tractor so as to use the power of the tractor

(a). Animal drawn implements

Bullocks are used in some places in Nigeria to pull plough and harrows, the commonest type in Nigeria is the the emcot plough.

(b) Planters

A planter is used to place seeds or planting materials in the soil. Usually, the rate at which the seeds are dropped is adjustable

(c).fertilizer and manure spreader

This is motorized equipment used for applying fertilizer and manure to the soil.

(d) Sprayers

Sprayers are machines used for applying chemicals such as fungicides, herbicides and insecticides to protect our crops.

(e) Harvesters

Harvesters are machines designed for harvesting crops. They are of various types examples are combined harvester mowers, balers, root crop harvesters.

(f) Mill or grinding machines

They grind up grains to flour. They also grind wet grains and peeled cassava tubers into pulp for making garri and starch.

TRACTOR COUPLED IMPLEMENTS

These are usually tractor drawn and are used to plough or harrow or cultivate the soil. Farm implement

Includes:

1. Cultivator- used to break up the soil
2. Plough- has strong blades which break up the soil. Leaving it in large clumps.
3. Harrow-it breaks up the soil further after the initial ploughing.
4. Ridger- mould board or disc ridger is similar to the ploughs. They are used to make ridges for yam, cassava, cocoyam, sweet potatoes etc.

METHODS OF MAINTAINING FARM MACHINES

1. Farm machines should be housed when not in use.
2. Bolts and nuts should be regularly checked, and missing ones replaced.
3. The moving parts should be lubricated, using correct fluids.
4. Regular inspection helps reduce damaged and save money.
5. Thorough cleaning after use removes soil, chemicals, fertilizers or pesticides.

