LESSON FOR WEEK FIVE (5) ENDING 10TH OCT, 2025.

SUBJECT: AGRICULTURAL SCIENCE.

TOPIC: **FARM MACHNERY**

CLASS **SS2**

DATE: **6TH OCT, 2025**

Farm machinery means all vehicular implements and attachment units, designed for direct use in planting, cultivating and harvesting farm products.

ADVANRAGES OF FARM MACHINERY.

1. There is increase in farm size.
2. It increases the efficiency of production
3. They encourage timeless f far operation.
4. Some operation can be combined into one.
5. It makes farm work easier and attractive.
6. It eliminates drudging and human suffering associated with the use of traditional tools.

DISADVANTAGES OF FARM MACHINERY

1. Heavy machines destroy soil structure.
2. It leads to unemployment for labourers.
3. It leads to soil compaction.
4. Peasant farmers cannot use them.
5. It is expensive to buy, etc.

TYPES OF FARM MACHINERY

Types of farm machineries are

1. Tractor
2. Bulldozer
3. Tree pullers
4. Harvesters or combine harvesters
5. Shellers.
6. Dryers.
7. Incubators, etc.

TRACTORS: A tractor is a powerful multi-purpose vehicle consisting of an internal combustion engine and a hydraulic system equipped to power both mobile and stationary equipment and implement. It also has a power – off shaft and a coupling points.it has four wheels with rubber tyres. A tractor is used to transport farm output and input and for pulling other farm implement such as plough, harrows, ridger, seed drills, etc.

DAILY MAINTAENANCE OF A TRACTOR.

1. Check water in the radiator daily and top if necessary.
2. Check engine oil level and top if low or change if dirty.
3. Check fuel level and refuel if necessary.
4. Check battery electrolyte and top up if necessary
5. Gauge the tyre pressure and pump if low.
6. Check hydraulic break oil and top if necessary.

PERIODIC OR ROUTINE MAINTENANCE OF TRACTOR.

1. Change engine oil when necessary.
2. Replace worn-our tyres
3. Changing or cleaning of air filters when necessary.
4. Flush radiators
5. Adjust brakes or change brake pads
6. Adjust or change fan belt, etc.

Bulldozers: A bulldozer is a very powerful machine with an internal combustion engine powered by diesel. It is fitted with a heavy steel blade and prongs set a cross the front and back of the vehicle. It is equipped with a pair of track metal chain or crawlers which move by the aid of driving sprockets, tracks rollers and idler.

USES OF BULLDOZER

1. For clearing bushes.
2. For felling trees and for de-stumping
3. For leveling ground, in construction farm roads, irrigation site.
4. For moving earth.

DISADVANTAGES OF USING BULLDOZERS FOR LAND CLEARING.

1. It destroys soil structure
2. Causes soil erosion and water logging.
3. Leads to reduction in soil fertility.
4. Causes noise and air pollution.

SHELLER: A Sheller is a farm machine that is used for moving hard out covering of nuts and gains. It consists of a hopper for feeding the crops into the equipment, beater r shelling cylinder, concave or stationary plate with slot, a winnowing device, a setoff sieves.

DRYER: A dryer is a machine used to reduce moisture content of produce such as grain, cocoa, etc it consists of a heater, a drying chamber, or cabinet, a thermostat, thermometer and a fanning device.

Milking machine: Milking machines are suction machines used to extract milk from udder (teats) of a female farm animal. It consists of a vaccum pump- which creates suction for milk let-down, a vaccum tank, a vaccum line to each of the teat cups, a pulsate which set up the intermittent suction on the teats, a line for collecting milk.

PRECAUSTION IN USING A MILKING MACHINE.

1. Sterilizes the machine before and after use.
2. Start milking only after let-down
3. Ensure that there is no leakage or loose connection before use.
4. Stop milking as soon as milk flow ceases.

Incubator: This is a box-like type of machine in which the eggs are housed and maintained at a steady internal temperature. It takes 21 days for fertilized eggs of chicken and 28 days for turkey to be hatched.

CONDITIONS FOR INCUBATOR TO FUNCTION.

1. Temperature of 37°C - 39°C
2. Relative humidity of 50 -70%, an optimum level being 60%
3. Adequate ventilation
4. Sanitation, this should be done after hatching each batch.

COMPONENT OF AN INCUBATOR.

1. Egg turning device
2. Thermometer
3. Insulator
4. Heater
5. Control unit
6. Egg tray or felt tray, to hold the eggs.
7. Air circulation unit or vents.
8. Heat distribution unit
9. Relative humidity.

TRACTOR –COUPLED IMPLEMENT.

These are implement which are coupled or attached to a tractor in order to enable it to perform its function. They are also called inter- mediate farm machinery.

TYPES OF TRACTOR- COUPLED IMPLEMENTS

1. **Ploughs:** They are primary tillage implement used in cutting the soil and turning it over during land preparation. Two types of ploughs are the mould board and the disc plough.

A) **Mould board**: they are used where the farm land is free of obstacle like stones and stumps. They suitably used in grass land areas. The part of the mould board are beam or frame, coulter or vertical disc, share or share point, mould board and standard.

ADVANTAGES OF MOULD BOARD PLOUGH.

1. It breaks heavy lumps in the soil and give a smooth structure.
2. It enhances the drainage capacity of the soil.
3. It buries crop residue deeper into the field and enabling decomposition to happen etc.

DISADVANTAGES OF MOULD BOARD PLOUGH.

1. It is not good in heavy and hard soil.
2. It is unsuitable for shallow tillage in temperate and savannah lands.
3. It is not as strong as disc plough.
4. It cannot be used in peaty or organic soil.

B. **Disc plough**: Disc plough is a very powerful tillage implement adapted to tropical environment because it can overcome obstacles lie stumps, roots and rock out crops. They parts are; beam, coupling point, beam cap, standard, disc bearing, a set of disc, a scraper, spring and furrow wheel.

ADVANTAGES OF DISC PLOUGH.

1. It works well in all types of soil to break, turn and mix the soil.
2. It makes ploughing easier in rocky and rooted areas.
3. Very useful in hard and dry trashy condition.
4. Works best in area where soil erosion is a major problem.

DISADVANTAGES OF DISC PLOUGH

1. Ploughing is not uniform leaving some of the surface rough and some ground uncut
2. Crop residue are not completely buried for breaking down.
3. Constant use may lead to soil compaction because of its heaviness.

Harrows: These are secondary tillage implements. They are generally used to break down soil lumps and to level the surface before planting. The types of harrows include; disc- harrow, spike tooted harrow, spring – tooted harrow. The popular type of harrow is the disc harrow. It works on the same principles as the disc plough. The disc harrow consists of numerous small disc spaced closer on a common shaft to form a gangs. There may one or two pars of gangs working in the same direction or in opposite direction. Important part of a harrow is handle, drawbar, scrappers, steel disc or disc and wheels.

Ridger: The ridger is a secondary soil cultivation implement used for land preparation. The ridger is used after harrow and before planter. There are two main types of ridger; the disc and the mould board ridger.

Planter: They are used for planting seeds. They can also be used to spread fertilizers on the soil. Seed drill is a planting machine that drills and plant specific number of seed per hole etc.

EVALUATION

1. Briefly explain the following; Sheller, dryer, and milking machine.
2. Mention four daily maintenance of a tractor
3. State two advantages of farm machinery
4. What is farm machinery.