

JOB ROLE – GARDENER

Sector – Agriculture

(Qualification Pack Code: AGR/Q0801)

PPT's for Class XI



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UNIT 4: GARDEN TOOLS AND EQUIPMENT

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Session Objectives

The student will be able to :

- Identify implements used in preparation of land.
- Explain precautions to be taken during use of tools and equipment.
- Describe care and maintenance of tools and equipment.

Introduction

Introduction of modern technology in agriculture, and innovative research and development of various machines and tools, flower cultivation has become easier and more profitable than in the past. A cultivator, usually, adopts mechanical farming due to several factors, like uncertainty of weather, unavailability of skilled labour and time constraints. Mechanised farming, thus, helps in completing tasks in less time, saves excessive cost of labour, and is available at all times. Various advanced tools and equipment are now in practice, which eases the cultivation of various crops.

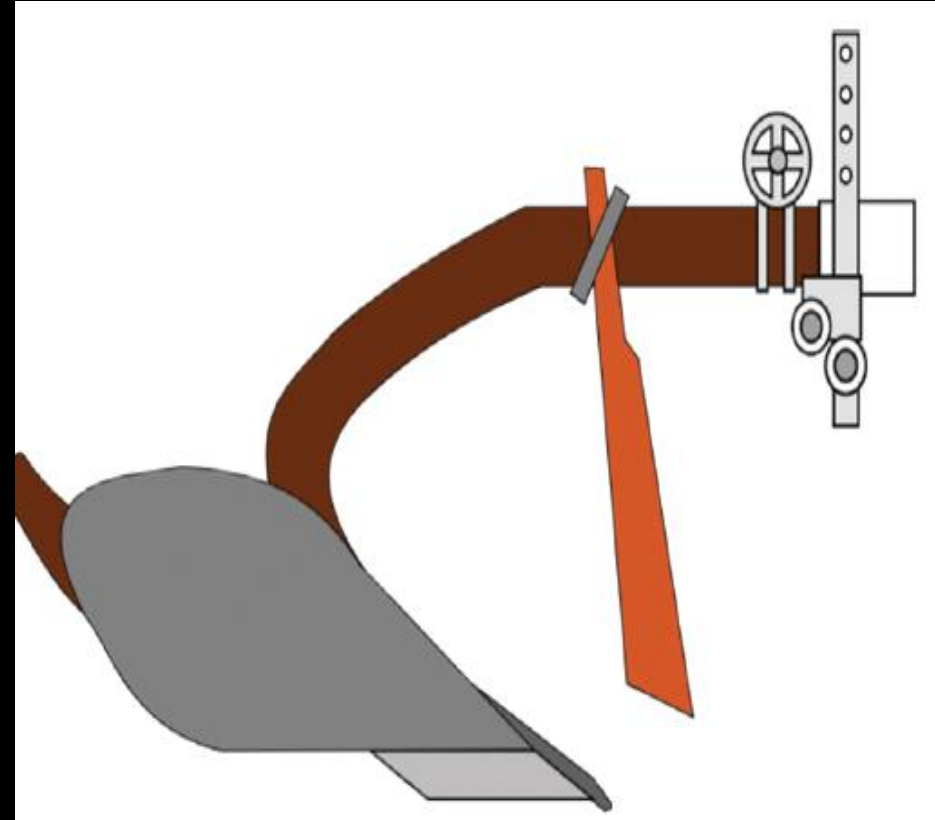
Tillage

Tillage is the most important operation, in which physical manipulation of soil is done with tools and implements in order to obtain favourable conditions for plant growth. The harder surface soil is dug out to a certain depth, and the resulting big clods are broken down to make the soil fine, smooth and compact. Different operations, such as ploughing and levelling of field soil, harrowing, *etc.*, are also performed under tillage operation. All these activities involve the use of different tools and equipment.

Implements Used for Land Preparation

Mouldboard plough:

This is made of carbon steel or steel alloy, the base of which is at the right angle triangle. The size of the mouldboard plough is measured by the width of the furrow that is opened by the plough. Generally, it can open a furrow of about 20 cm and above. It throws the furrow slices only on one side.



Implements Used for Land Preparation

Disc plough:

It consists of moving circular steel discs of varying sizes. The size of discs includes its diameter and thickness. Discs in different ploughs used are 50–90 cm in diameter. These can work well in sticky soil, as well as, in very hard and dry soil.



Implements Used for Land Preparation

Sub-soil single arm plough (*Patashi* plough):

This plough is useful for heavy soils. It consists of a single adjustable arm having shears at the base and breaks the hard pan developed below the soil surface. It improves drainage in water stagnant soils. It can be inserted up to 50 cm deep in the soil and is most suitable for making a trench of 5–7 cm wide.

Plank

Levelling of land and smoothening of the soil surface are the most important operations for sowing, planting and irrigation of crops. To perform these operations effectively and timely, different structures, such as level boards, *patela* or wooden plank are used.

Implements Used for Land Preparation

Harrows

It is used for deep tillage of the soil by breaking up and smoothening the hard surface to provide a good tilth of soil structure, which is more suitable for the sowing of seeds. There are four kinds of harrows *viz.*, disc harrows, tine harrows (including spring-tooth harrows), chain-disk harrows, and chain harrows.



Disc Harrow

Implements Used for Land Preparation

Cultivator

A cultivator is used to stir and loosen the soil, breaking the clods and destroying the weeds. The cultivator performs intermediary ploughing and harrowing. It also maintains a good tilth, adequate aeration, prevents run-off, and evaporation losses. Cultivators may be shovel, disc and blade types. Tine and spike cultivators are used to tilth the soil



Garden Tools

Bill hook:

It is commonly used for cutting big branches or to remove the old and dead branches from a tree.



Hedge shear:

It is used for trimming, pruning and cutting of hedges and shrubs in the desired shape. It consists of two blades with tangs.



Garden Tools

Budding-cum grafting knife:

A budding-cum-grafting knife is a combination of two knives used for budding and grafting operation. It consists of two blades, one for budding and another for grafting.



Slashing and pruning knives:

These knives are used to remove unwanted twigs or branches of a plant or tree. One end of the blade is hooked or curved in order to cut or slash the small branches.



Garden Tools

Secateurs:

These are meant for cutting the branches, de-shooting, disbudding, cutting of scion sticks, defoliation of leaves from the sticks and topping off of small trees, etc.



Khurpi:

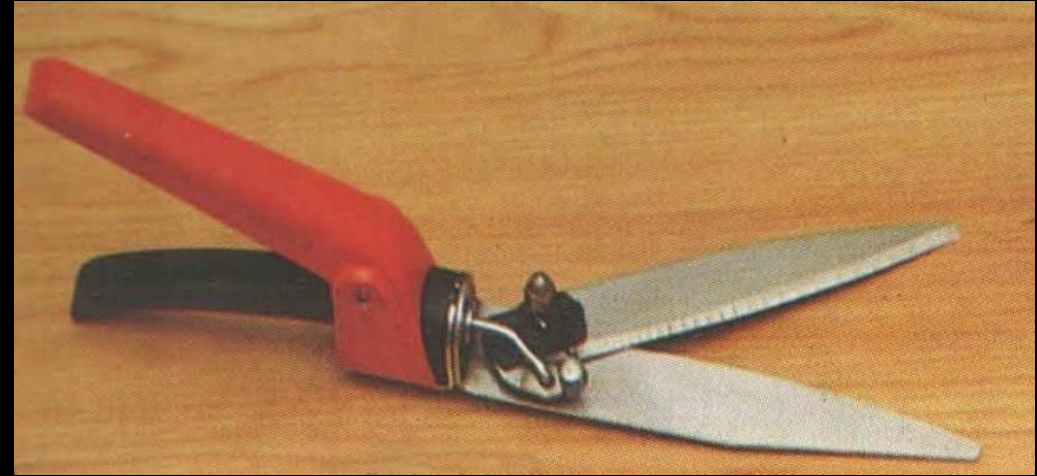
It is meant for weeding, lifting of seedlings and plants in the nursery, for transplanting the plants in pots and field, and for performing various other operations.



Garden Tools

Grass shear:

Grass shear in various types are used for the maintenance of lawns. A grass shear is used for trimming and side dressing of the lawn.



Sprayer:

It is used for spraying insecticides, fungicides, herbicides, fertilisers and various other chemicals in the field. Different types of sprayers are available in the market as per the requirement.



Garden Tools

Spade:

It is made up of cast iron and is used for digging or turning over the soil, making bunds in the field, and to prepare irrigation channels, etc. .



Rake:

It is used for breaking the soil surface, removing stubbles, small stones and collecting weeds.



Garden Tools

Water can:

It is used for watering seed beds, nursery beds and potted plants to avoid washing of the soil and damage to young seedlings .



Pruning saw:

It is used to cut thicker branches of plants



Garden Tools

Wheelbarrow:

It can be used to move heavy things from one place to another, and also to hold garden trash.



Hand cultivator:

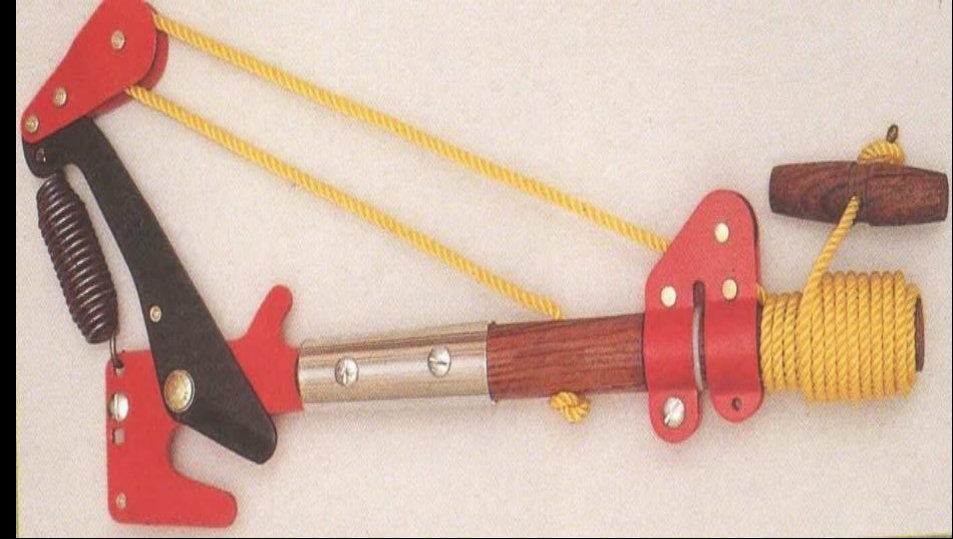
It is used for altering and loosening the soil without damaging the roots in the garden nursery .



Garden Tools

Tree pruner:

It is used for pruning shoots of trees, which are beyond reach from the ground level .



Flower scissor:

A flower scissor is used for cutting the flowers with stems. It has two short blades with handles.



Precautions to be Taken During the Use of Tools and Equipment

- Handle them carefully and follow the instructions given in the manual provided with them.
- If there is any accidental hazard, immediately contact the doctor.
- It is essential to clean the equipment after use.
- During the spraying of insecticides, pesticides and fungicides, effective safety measures need to be taken.
- Keep all the tools and equipment out of the reach of children.

Care and Maintenance

- Ensure cleaning of equipment before and after use.
- Store all machinery and equipment in a dry place.
- Drain the tank and flush it with clean water, wash the pump nozzle before and after the use of sprayer.
- Remove dust from the hopper of the duster and clean it with a cloth.
- Do not throw nozzles of sprayers and delivery tubes of dusters on the bare ground.
- Sharpen the blades of harrow, cultivators and cutters regularly.

Summary

In this session you have learnt about the implements used in land preparation, precautions to be taken during use of tools and equipment, care and maintenance of tools and equipment.

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