

**GRADE: 8**

**SUBJECT:**

**AGRICULTURAL  
SCIENCE**

**WEEK 1**

**LESSON # 2**

**Topic: Principles and Practices of Cultivation**

**Sub-Topic: Land Preparation**

**Objectives**

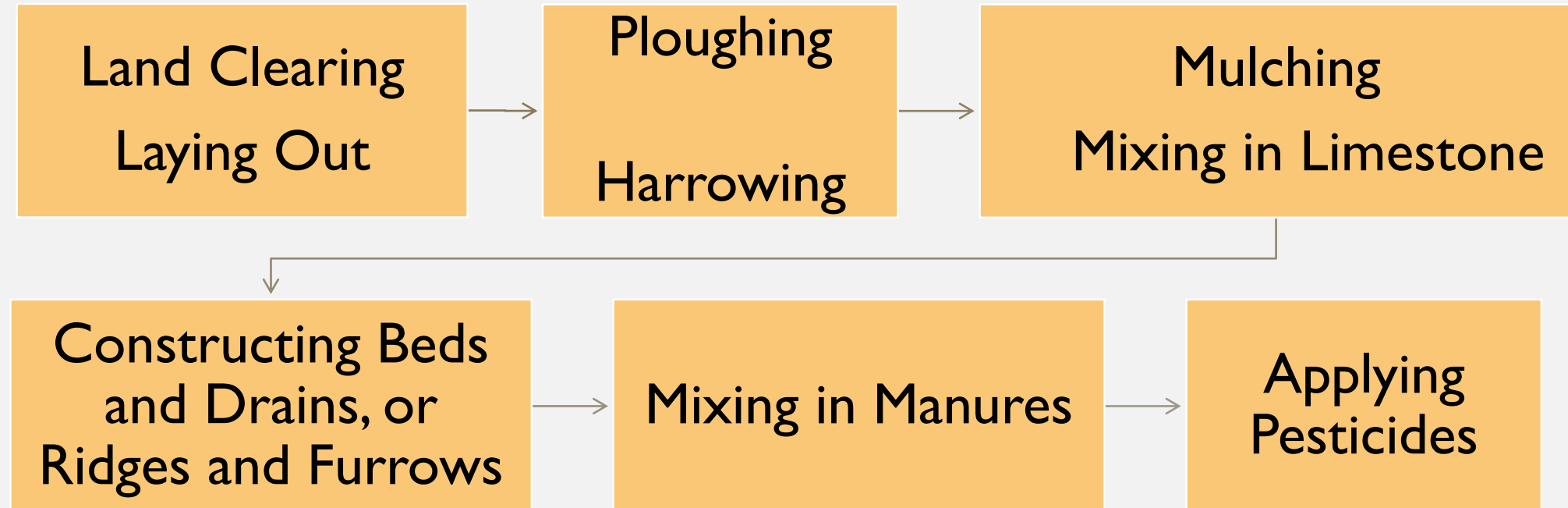
Students will:

-correctly demonstrate some of the activities involved in land preparation.

-accurately identify the tools and equipment to be used in each activity.

-discuss care and maintenance of tools with minimum difficulty.

# LAND PREPARATION ACTIVITIES



# LAND PREPARATION ACTIVITIES

## Land Clearing

- Is done to remove unwanted vegetation and objects from the field. This can be done manually or mechanically.
- Objects such as large rocks, branches and scrap metal occupy much and hinder other activities necessary for land preparation.
- The method used for land clearing depends on the area of the land, the crop to be grown, the type of vegetation, the slope of the land as well as the tools and equipment available to the farmer.

## Laying Out

- This makes it possible for farmers to design fields so that other farm activities can be done orderly and with much ease.
- Includes finding out the slope of the land.
- Fixing the boundary lines around the field.
- Dividing blocks into plots.
- Measuring off areas for dams.
- Dividing plots in beds drains or ridges and furrows.

# LAND PREPARATION ACTIVITIES

## Ploughing

- Involves the breaking up of the surface of the soil and turn the topsoil to a desirable depth.
- Soil particles in the subsoil layer are more compact than those in the topsoil layer, therefore, when the subsoil is exposed to atmospheric conditions it will weather and become friable.
- Aerated soils encourages the activities of soil micro-organisms.
- Ploughing can be done manually with the used of forks or mechanically with the use of ploughs attached to a tractor.

## Harrowing

- Harrowing or chipping is the breaking up of large clods of soil into smaller ones and is usually done after ploughing.
- It gives the soil structure a suitable tilth for the sowing of seeds.
- Harrowing is essential on clayey soils.
- On sandy soils, it may not be necessary since the rotovator can produce the soil tilth required.
- For wet-lands soil preparation as is necessary for rice planting, harrowing is done on flooded clay fields with the tractor and harrow.

# LAND PREPARATION ACTIVITIES

## Constructing Beds and Drains, or ridges and furrows

- The formation of beds and drains, or ridges and furrows allows the removal of excess soil from the root zone of plants.
- Plant roots can then grow deeper in the soil.
- Deeper root penetration helps the roots to reach more nutrients in solution during dry weather conditions and anchors the plant firmly.
- Ridges are built higher and steeper than beds and allow free water movement but there is more for root development.

## Application of Pesticides

- Pesticides are applied to the soil to control crop pests which there.
- Crop pests include nematode which block transport vessel in plant roots.
- Soil fungi which causes damping off and root rot.
- Soil insects which destroy roots as they feed.
- Nematicides, soil fungicides and insecticides are chemicals are chemical substances used to control pest.

# LAND PREPARATION ACTIVITIES

## Incorporating Limestone

- Many crops plants cannot tolerate high levels of soil acidity.
- This soil condition causes some nutrients to become insoluble and remain in the soil and makes it impossible to absorb.
- Limestone helps to make the soil less acidic.
- It facilitates desirable chemical reactions in the soil, improved clod formation and supplies calcium to the soil.

## Mixing in Manure

- All substances added to the soil to increase the supply of nutrients are called manures.
- It may be organic or inorganic.
- Organic manure includes animal dung, compost and green manures.
- Inorganic manure are concentrated substances which are also called fertilizers, e.g, urea, muriate of potash

## CARE AND MAINTENANCE OF GARDEN TOOLS AND EQUIPMENT

- Sharpen tool before and after use.
- Always store tools in their original cases.
- Oil or grease metal parts.
- Dry Tools After Use.
- Wooden handles should be strong.
- Hang your garden tools to avoid damage.



# SOME LAND PREPARATION ACTIVITIES

## Match each activity to the following pictures





# SOME COMMON TOOLS AND EQUIPMENT USED IN LAND PREPARATION



Knapsack  
Sprayer



sprinkler



Tree Dozer



Pick Axe



Chain Saw



Plough

# SOME TOOLS AND EQUIPMENT USED IN LAND PREPARATION



Garden Fork



Cutlass



Hoe



Shovel



Rotavator



Ridger

## VIDEO ON LAND PREPARATION

☐ <https://www.youtube.com/watch?v=7FCLbDgLDqE>



## VIDEO ON MANUAL LAND PREPARATION

<https://www.youtube.com/watch?v=8NKNbVcLKUg>



## REVIEW

1. Define the term harrowing.
2. Cutlass, \_\_\_\_\_ and \_\_\_\_\_ are all tools used in manual land clearing.
3. Why is it necessary for farmers to clear the land before planting?
4. In designing fields, laying out process involves \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
5. What is the importance of adding limestone to the soil?
6. A farmer is preparing to cultivate 5 acres of land, what type of labour would you recommend that he utilise for ploughing and why?
7. How should you plough on a sloping land?
8. Name any 2 insecticides, 2 nematicides and 2 fungicides used in Guyana.

## REFERENCES

### Book

Weever, et al (1993), Agricultural Science for Secondary Schools in Guyana, BK 2, Ministry of Education National Center for Educational Resource Development, Georgetown, Guyana. Chapter 1, pages 3-10.

### Video Links

<https://www.youtube.com/watch?v=7FCLbDgLDqE>

<https://www.youtube.com/watch?v=8NKNbVcLKUg>