



**ROHINI COLLEGE OF ENGINEERING AND TECHNOLOGY**

**AUTONOMOUS INSTITUTION**

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## **Unit 2**

# **Primary And Secondary Tillage Implements**

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## **Mould board plough**

- One of the oldest of all agricultural implements
- It is considered to be the most important tillage implement
- It consumes more traction energy than any other operation
- It cuts loose the furrow slice, inverts the furrow slice more or less in pulverized form
- It is used for covering grass into soil immediately after rains
- But its design largely depends upon cut and try methods.



Hitching-Mast

Frame

Jointer

Xoke

Coulter

Cross Shaft

Leg

Mould Board

Tail Piece



## Components of mould board plough

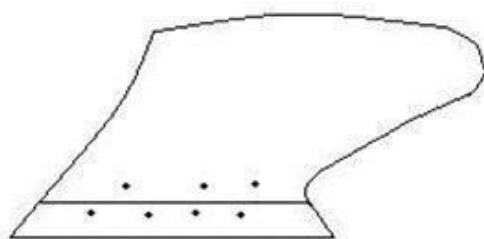
- a) Share: It is the part of plow bottom which actually penetrates into the soil and makes a horizontal cut below the surface.
- b) Mould Board: It is the curved part which lifts and turns the slice.
- c) Landslide: It is the flat plate which bears against and transmits the rear side lateral thrust of plow bottom to the furrow wall.
- d) Frog: It is the base of the plow bottom to which other parts are attached.
- e) Tail Piece: It is the extension of mould board which helps in turning the furrow slice.

### Types of Mould Board:

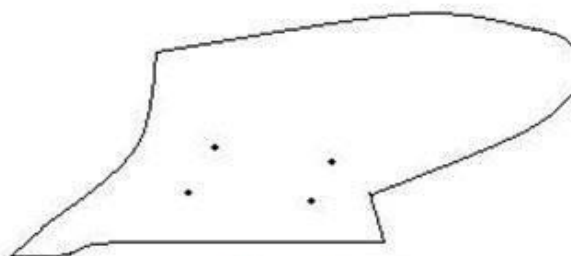
Different soil conditions require plow bottoms of different shapes. The moisture in the soil and texture of soil determines whether it should pulverize thoroughly or merely turned over to be pulverized later on.

#### a) General Purpose and High Speed:

These are mostly used and suitable for wide range of conditions. It mostly meets the general demand of seedbed preparation. It is a mouldboard having medium curvature lying between stubble and sod. The sloping of the surface is gradual. It turns the well-defined furrow slice and pulverises the soil thoroughly. It turns the well-defined furrow long mouldboard with a face being slightly convex.



**High Speed Bottom**



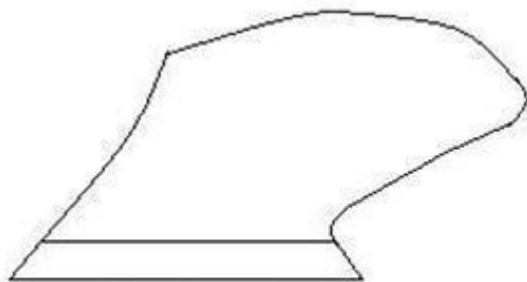
**General Purpose Bottom**

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**b) Stubble Bottom:**

It is generally used for old ground where good pulverization is required. It has relatively short and broad mould board which is curved rather abruptly near the top, resulting in a greater degree of pulverization than with other types. It is a short but broader mouldboard with a relatively abrupt curvature which lifts breaks and turns the furrow slice used in stubble soils. Its curvature is not gradual but it is abrupt along the top edge.

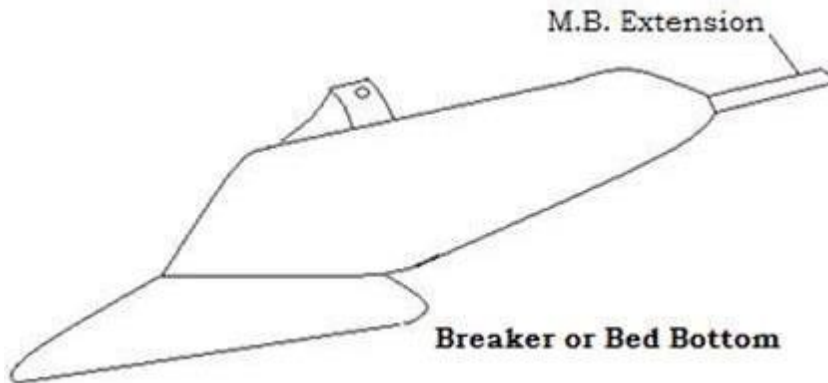
This causes the furrow slice to be thrown off quickly, pulverising it much better than other types of mouldboard. This is best suited to work in stubble soil that is under cultivation for years together. Stubble soil is that soil in which stubble of the plants from the previous crop is still left on the land at the time of ploughing. This type of mouldboard is not suitable for lands full of grasses.



**Stubble Bottom**

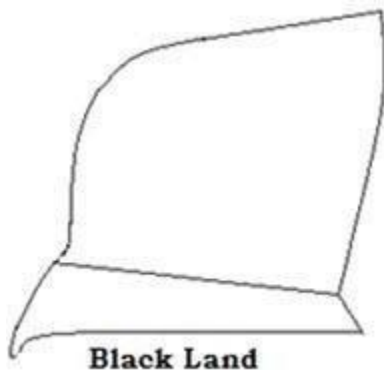
**c) Sod or Breaker Bottom:**

It is used in tough soil where furrow slices are completely turned over so that grass doesn't grow. It has a long and low mould board with a gradual twist (spiral) that completely inverts the furrow slice with a minimum of breakup, thus covering vegetative matter thoroughly. It is a long mouldboard with gentle curvature which lifts and inverts the unbroken furrow slice. It is used in tough soil of grasses. It turns over thickly covered soil. This is very useful where complete inversion of soil is required by the farmer. This type has been designed for use in sod soils.



#### **d) Black land Bottom:**

It is used for plowing gumbo or buckshot soil where scouring (cleaning) is a problem. It has relatively small mould board area, and its shape tends to promote scouring soils.

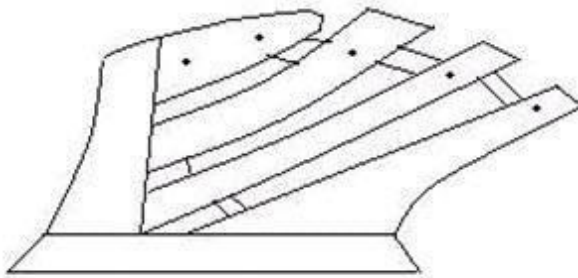


#### **e) Slat Bottom:**

It is the less common type. It is highly favorable in light and sticky soils where general purpose plow doesn't scour. The slates fitted give high pressure between soil and mould board scours better. It is a mouldboard whose surface is made of slats, placed along the length of the mouldboard, so that there are gaps between the



slats. This type of mouldboard is often used, where the soil is sticky, because the solid mouldboard does not scour well in sticky soils.



**Slatted Bottom**

### **Parts of Share:**

a) Share Point:

It is the forward end of the cutting edge, which actually penetrates in the soil.

b) Cutting Edge:

Front edge of the share, which makes horizontal cut in the soil.

c) Wing of Share:

Outer end of cutting edge of share. It supports the plow bottom.

d) Gunnels:

It is vertical face of share, which slides along the furrow wall. It takes side thrust of soil and supports the plow bottom against the furrow wall.

e) Cleavage Edge:

It is the edge of the share which forms joint between mould board and share on frog.

f) Wing Bearing:

Level portion of wing of the share providing a bearing for outer corners of plow bottom.

g) Throat: