



SNS COLLEGE OF TECHNOLOGY

AN AUTONOMOUS INSTITUTION

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DEPARTMENT OF AGRICULTURAL ENGINEERING

COURSE CODE & NAME: 19AGO301 & FARM MECHANISATION

III YEAR / VI SEMESTER

UNIT : I SCOPE OF MECHANISATION IN INDIA

TOPIC : 6 – Study of mould board plough: accessories, adjustments, operation and material





Equipment used by the farmer to break and loosen the soil for a depth of 6 to 36 inches is called primary tillage equipment.

Why plowing is done?

- 1) To obtain a deep seed bed for good structure
- 2) To add more humus and fertility to the soil by covering, vegetation and minerals.
- 3) To destroy weeds.
- 4) To leave the soil in a condition to breath or allow the air to circulate freely.
- 5) To facilitate the introduction of seed in the soil with better contact.
- 6) To destroy insects and their eggs along with their breeding places.
- 7) To leave the surface in the condition to prevent erosion by wind
- 8) To get greater root protection.



When to plow?

- 1) Early plowing during rainy season reduces weeds. When buried in soil work it becomes manure and is of great importance.
- 2) In our country there are high winds which bring with them considerable amount of dust with particles of grass, leaves, crop residue like bhusa and all sort of vegetation which settle on ploughed, rough, cloddy surface of field which otherwise get blown off.
- 3) In a long period of dry and hot weather a good amount of nitrogen is built up in the air and this is caught by first rainfall and brought to the soil. In case the field is ploughed this rain water with nitrogen gets absorbed in loose soil hence works as fertilizer.

In olden days “Desi” wooden plows were popular throughout the world. In 14th century after introduction of steel, steel plows were popular throughout the world.



Mould board plows are:

- 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.



Types of mould board plows:

- 1) Trailed: It is also known as pull type and it is complete unit in itself supported on two wheels. The complete unit is hitched by the drawbar of the tractor. It is available in **1-8 bottoms** depending upon the capacity of the tractor. Single bottom has one bottom. **Two – Eight bottoms** are called as **gang mould board**. Sizes available are **36, 41 and 46 cm**. These are not easily maneuverable.
- 2) Semi-Mounted: These are more compact and more maneuverable than pull type. Sizes and number of bottoms are same as that of pull type. These are less expensive. These put more vertical load on tractor rear wheels (there by improving tractive ability).
- 3) Mounted: These are called as direct mounted, tractor mounted or tractor carried plows. These plows use tractor lift linkages which are controlled hydraulically. It is available in **2-5 bottoms** depending upon the capacity of tractor. Sizes available are **30, 36 and 41 cm**. Increased size of mounted type plows cause tractor instability during transport.

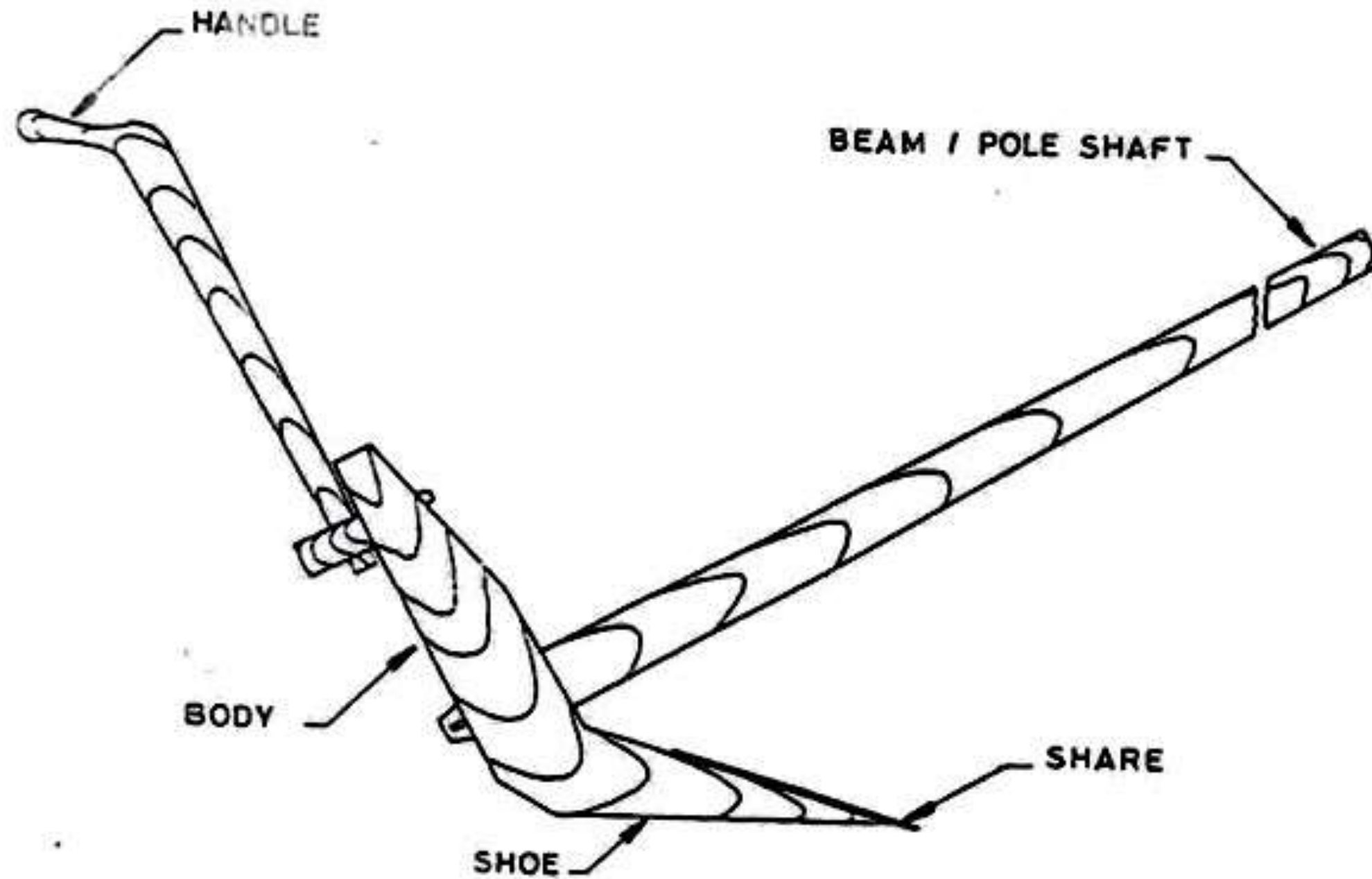


Fig.4 Country Plough



Classification of mould board plows:

1) One way plow: It turns soil to the right hand side.

One way plow require laying out a field in lands, starting with back furrows and ending with dead furrows.

2) Two way plow: It turns soil to both right and left side.

Two sets of bottoms are mounted on a common frame that is rotated about a longitudinal axis to change from one set to other.

Mechanical or hydraulic cylinders are used for rotation

Gage wheels and rear wheels are automatically repositioned as the plow bottom frame rolls over, unless each set of bottoms has its own wheel (which is usually the case of mounted plows).

Two way plows eliminate the back furrow and dead furrow leaving the field more level for irrigation or drainage.

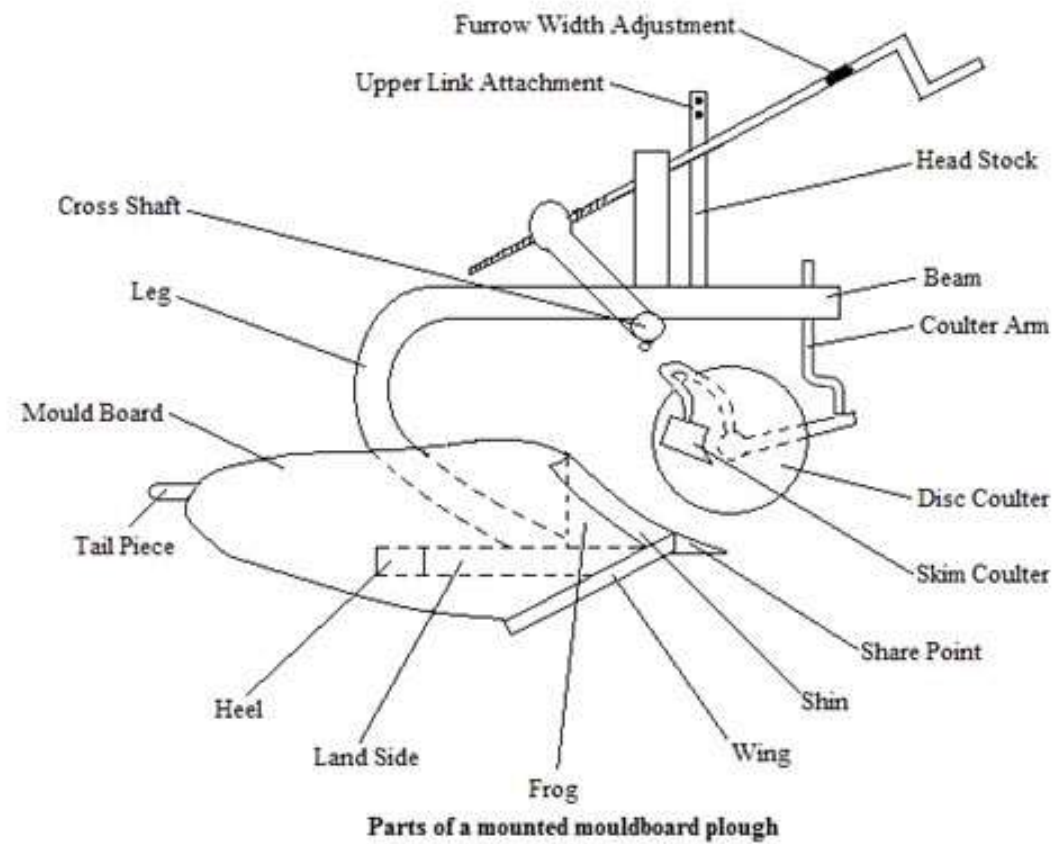
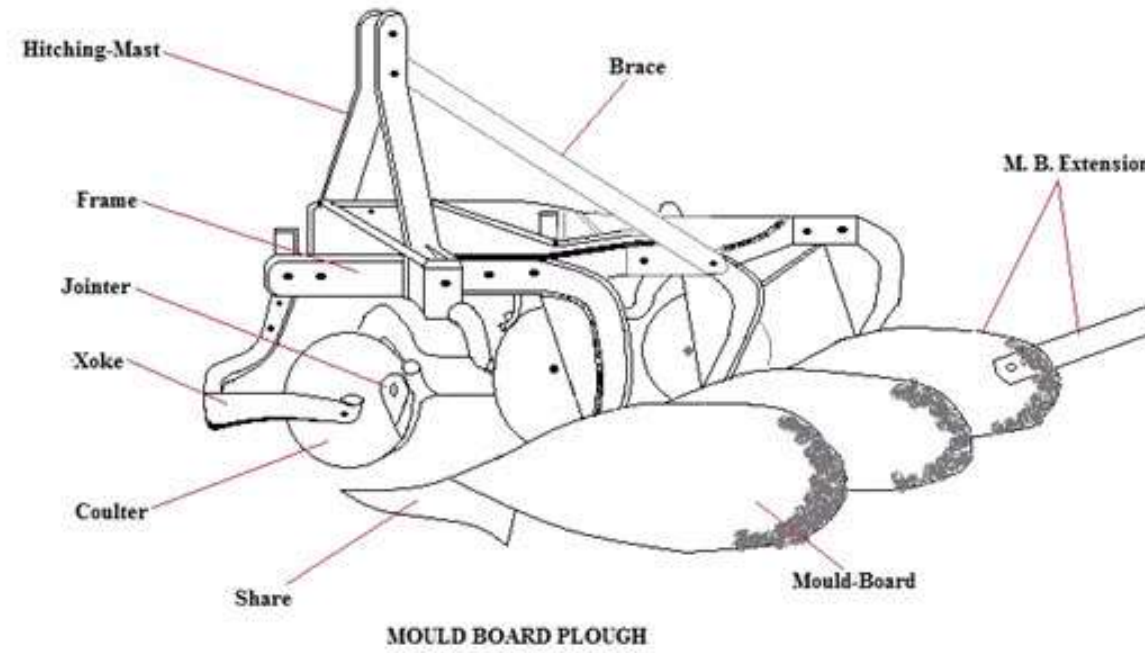
Two way plows are advantageous for terraced fields or contour ploughing and for small irregular shape fields.

Animal drawn two way plow is also called as turn- wrest plow.



Parts of Plow:

- 1) Plow Bottom
- 2) Plow Frame
- 3) Attachments (Coulters & Jointers)
- 4) Wheels
- 5) Lifting Mechanism
- 6) Plow Hitch
- 7) Depth Adjusting Mechanism





Thank You