

STUDY ON THE PLOUGHING OPERATION BY A COUNTRY PLOUGH

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Ploughing

Ploughing is the process of opening the soil with the help of plough. Ploughing is the principal tillage operation, which aim to produce a good tilth required for making a good seed bed and providing better soil condition for plant growth.

Principles of ploughing

- Ploughing at the right moisture condition (zoe condition).
- Ploughing the soils those are hard and the physical condition is poor.
- Using right types of plough.

Some glossary of terms on ploughing

Furrow: The 'V'-shaped opening by a country plough at the time of ploughing.

Ridge: The raised part of soil between two furrows is termed as ridge.

Furrow stripe: The unploughed land or narrow stripe between two 'V'-shaped furrow made by country plough is termed as furrow stripe.

Furrow slice: Thee soils which come out while making furrow by country plough.

Pulverization: The process of alteration of soils and conversion into small pieces or dust is termed as pulverization.

Plough pan: The hard layer formed under the certain depth of soil surface due to continuous ploughing by a same plough in the same land for several years is known as plough pan.

Tilth: The physical condition of soil after tillage.

Materials required for ploughing

- A pair of healthy bullock
- A Country plough
- A Yoke
- Ropes
- A stick
- A pair of muzzle
- A spade
- A hammer
- A leveler

Procedure of ploughing

- i. A pair of healthy bullock, yoke, country plough and other materials was supplied by farm.
- ii. Before taking into field the mouth of the bullock were covered with muzzle.
- iii. A piece of land was assigned for ploughing operation.
- iv. The yoke was placed on the shoulder of the bullocks and each bullock was tied with the help of ropes.
- v. The plough connection was made to a position for uniform furrow depth by controlling the groove.
- vi. The right side of the bullock was hurt gently to turn them from right side to the left.



2 | Ploughing operation

- vii. The field was ploughed from North to South and then crops ploughing was performed.
- viii. The ails and the corner of the field was spaded out.
- ix. The clods were broken into small sizes.
- x. At the end of ploughing the land was leveled down by a leveler.

Calculation of ploughing efficiency

Length of the land: 30 m
Breadth of the land: 6 m
Area of the land = $30 \times 6 \text{ m} = 180 \text{ m}^2$
Time of ploughing: 80 min

We know,

$$\begin{aligned}\text{Efficiency} &= \frac{\text{Area}}{\text{Time}} = \frac{180 \text{ m}^2}{80 \text{ min}} \times \frac{1 \text{ ha}}{10000 \text{ m}^2} \times \frac{60 \text{ min}}{1 \text{ h}} \times \frac{8 \text{ h}}{1 \text{ working day}} \\ &= \frac{180 \times 60 \times 8}{80 \times 10000} \frac{\text{ha}}{\text{working day}} \\ &= 0.108 \text{ ha working day}^{-1}\end{aligned}$$

Factors affecting the efficiency of ploughing

- The condition of the field
- The condition of the bullocks
- The types of plough
- The ploughing depth
- Expertise of the ploughmen
- The weather condition of the day

Quality of good ploughing

- There will be no unploughed land or furrow stripes
- Furrows should be straight
- Furrows should be of same depth
- Ploughing should be criss-crossed
- Clods should be minimum
- The field must be free from weeds, stables, straws etc.
- Corners and ails should be well-spaded

Precautions of ploughing

- Ropes should be tied with bullocks so that they cannot turn to and fro
- Care should be taken to save the legs of the bullock from the share of plough
- Mouth of the bullocks should be covered by muzzle

