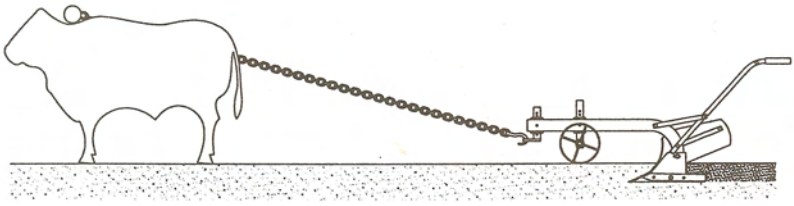
Adjustment and maintenance

of

animal drawn mouldboard ploughs



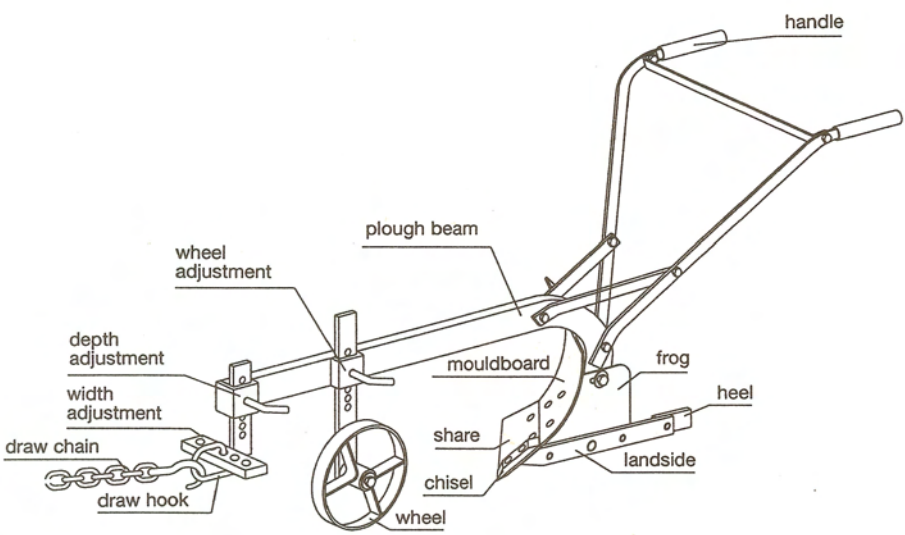
Why ploughing

Control weeds by

- burying the weed and
- cutting the deeper roots

Produce suitable soil conditions by

- incorporating crop residues
- incorporating manure
- improving aeration and drainage
- burying surface soil
- breaking down hard soil
- preparing a good seedbed



Introduction

Many problems with the use of ox-drawn mouldboard ploughs are caused by poor maintenance and improperly adjusted regulators: farmers often do not understand how to set up this rather complex mechanism. It is often seen, that the regulator is either dismantled or broken and not repaired.

Consequences are improper weed control, improper seedbed preparation, excessive wear on the wheel-axle and the animals get tired sooner than necessary.

This booklet contains simple drawings with little text, to show farmers and extension workers in a step-by-step method, how to properly adjust depth and width of ploughing. Depth of ploughing can be adjusted in two different ways:

1 by adjustment of the depth regulator, and
2 by changing the length of the draw-chain.

Both methods are explained.

In addition, instructions are given for proper maintenance of the plough.

It is hoped, that this booklet will stimulate a more effective use of the ox-drawn mouldboard plough and thus contribute to a higher crop production.

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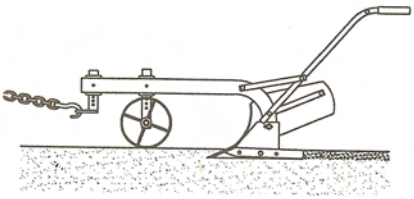
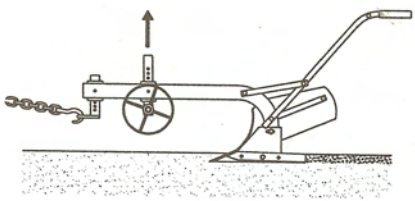
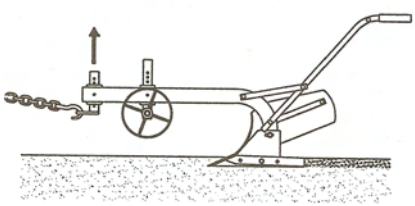
Ploughing deeper by raising the regulator



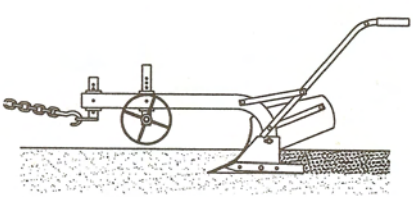
The plough is working **too shallow**



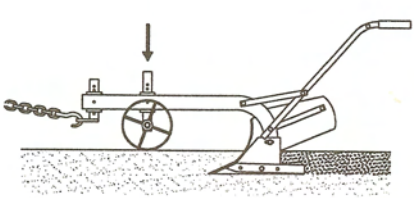
To plough deeper, first the **wheel** must be **raised** completely



Then the depth regulator is **raised** a little

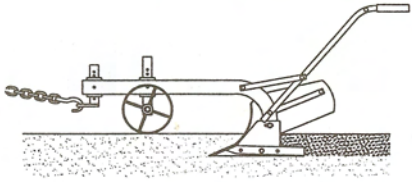


As a result, the plough works **deeper**

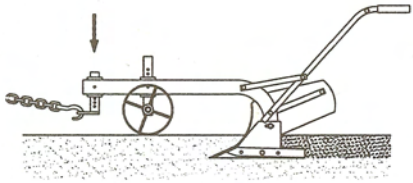


Once the desired working depth is found, the wheel is lowered, until it just touches the soil.

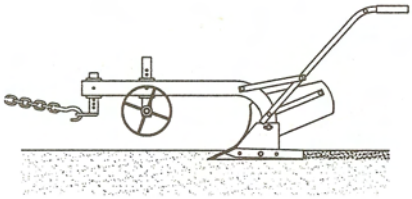
Ploughing shallower by lowering the regulator



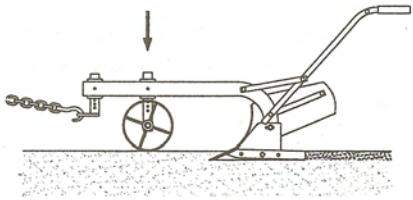
The plough is working **too deep**



To plough shallower, the depth regulator **is lowered** a little



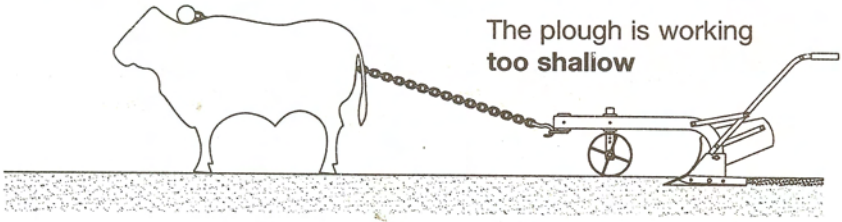
As a result, the plough works **shallower**

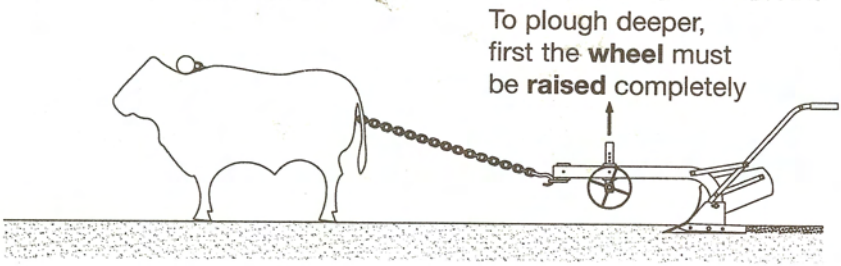


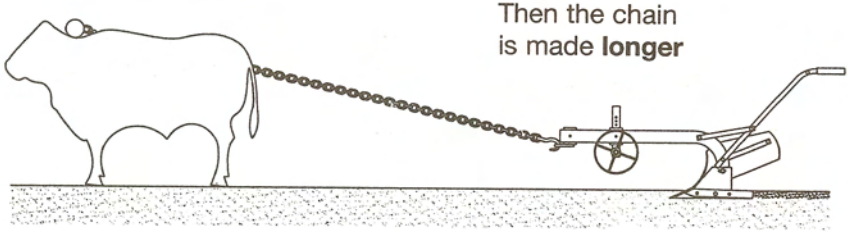
Once the desired working depth is found, the wheel is lowered until it just touches the soil.

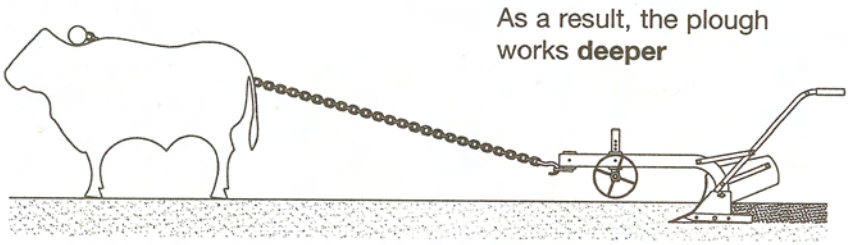
Ploughing deeper can also be done by making the length of the chain longer.

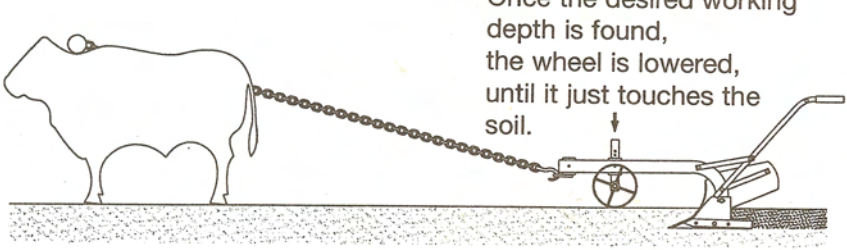
This method is often used, when the regulator is out of order.





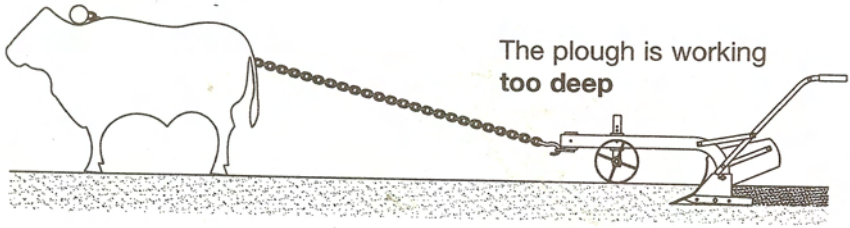


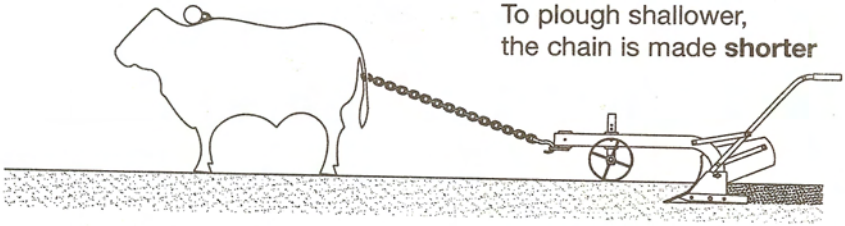


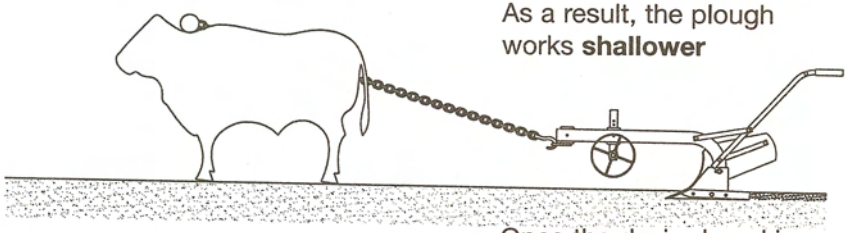


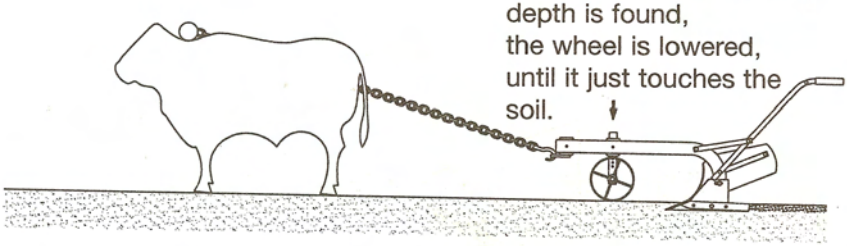
Ploughing shallower can also be done by making the length of the chain shorter

This method is often used, when the regulator is out of order.

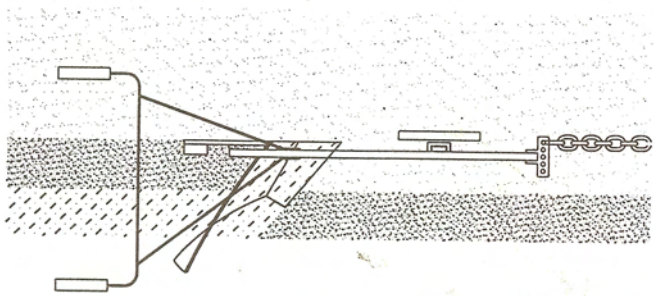




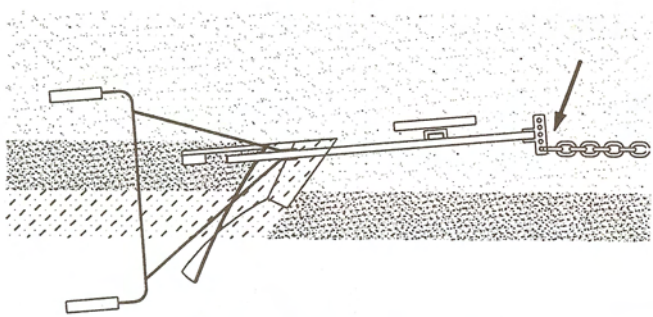




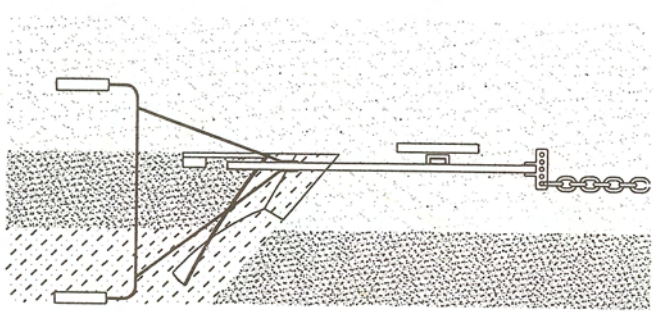
Ploughing wider



The plough works **too narrow**

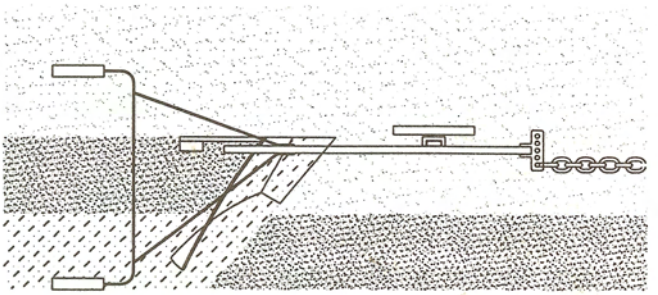


To plough **wider**, the chain is connected **further from** the unploughed land.

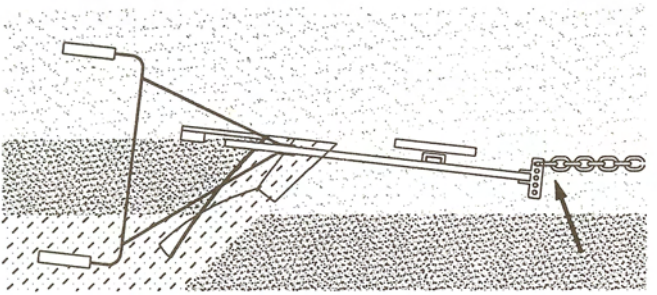


As a result, the plough works **wider**

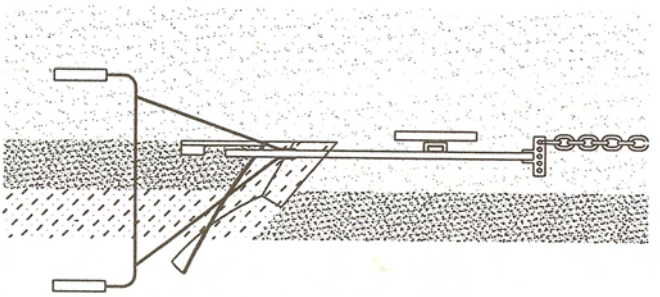
Ploughing narrower



The plough works **too wide**



To plough **narrower**, the chain is connected **nearer** to the unploughed land.



As a result, the plough works **narrower**

Maintenance of the plough

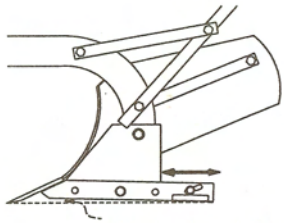
Before ploughing

- tighten all bolts and nuts

- the coarse from share to mouldboard must be smooth. If this is not the case, adjust the position of the share.

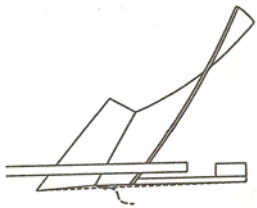
- check pitch
  Wear of the share and the heel reduces pitch. The plough will only penetrate the soil properly if the pitch is ± 2 cm. Adjustment of pitch is done by shifting the heel over the landside.

Pitch is adjusted by shifting the heel over the landside.



Pitch should be 2 cm.

- check suction
  Suction should be zero. Adjustment of suction can only be done by reshaping the share. This should be done by a blacksmith.



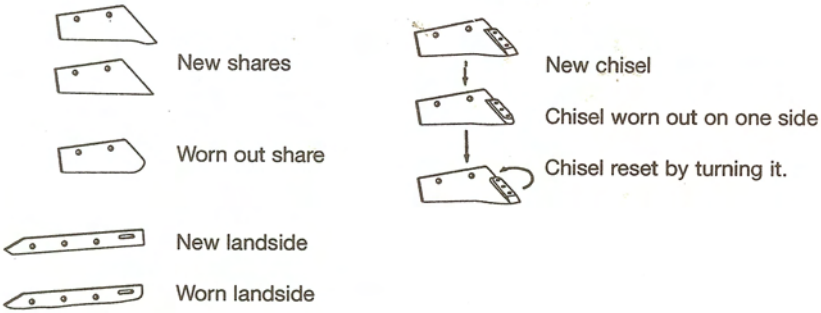
Suction should be zero.

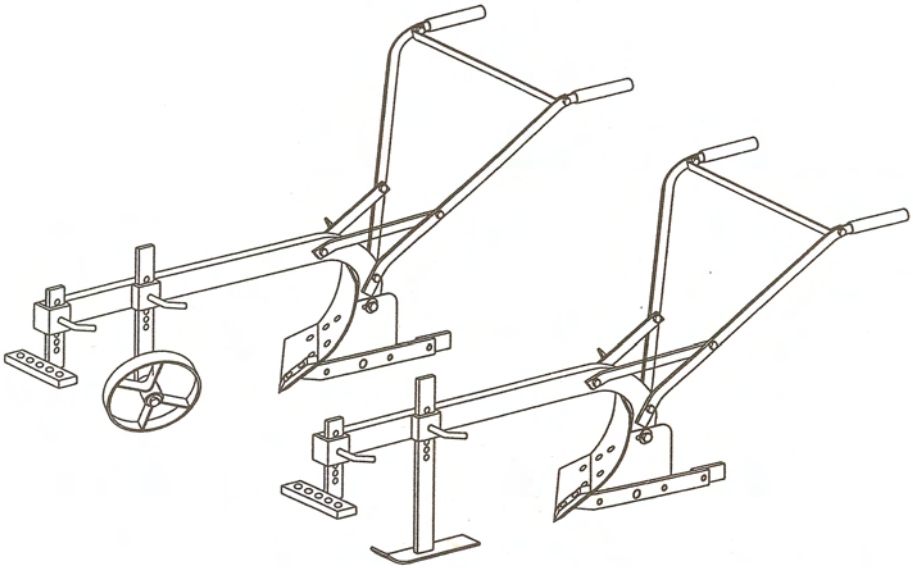
Maintenance of the plough

After ploughing

- after using the plough, clean and grease or oil it, to prevent rust.

- check the plough on wear and tear, and replace broken or worn-out parts as soon as possible.





A wheel with a worn out bearing could also be replaced by a metal or wooden skid.

Plough setting faults

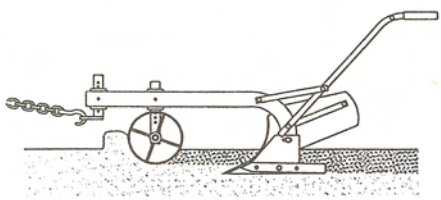
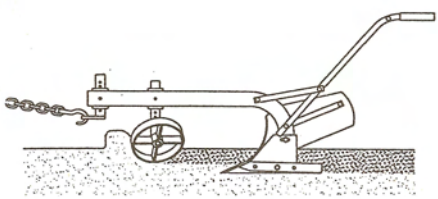
Poor penetration
- land too hard and dry for ploughing
- worn shares
- too little pitch on plough bodies

Variations in ploughing depth
- hard patches in the land
- too much pitch
- worn out landside
- plough frame bent

Variations in ploughing width
- too much suction
- worn out landside
- plough is not held upright

Body not scouring
- mouldboard rusty

Furrow slices standing on the edge
- furrow too narrow compared to depth
- share too wide for furrow width

Weeds and rubbish showing after ploughing
- furrow too narrow compared to depth
- adjustment of plough too wide for the plough body

Wheel penetrating in the ground and extremely hard labour for farmer and animals
- the wheel is adjusted too deep compared to the regulator, resulting in excessive wear on the wheel-axle