

# **CHAPTER 3. SEEDBED PREPARATION**

## **3.2 PLOUGHING EQUIPMENT**

### **3.2.1. CHOOSING AND CHECKING THE MOULDBOARD PLOUGH**

#### **CHOOSING A MOULDBOARD PLOUGH**

A choice of models and types of mouldboard plough may be available for purchase and so it is useful to be able to identify which is likely to be the most convenient for a particular farmer.

The first check should ensure that there is a sufficient range of adjustment possible at the hake (the front hitching bracket for the chain or beam) both for ploughing width and ploughing depth. Various design arrangements are available as shown in **Modules 3.2.2** and **3.2.3**.

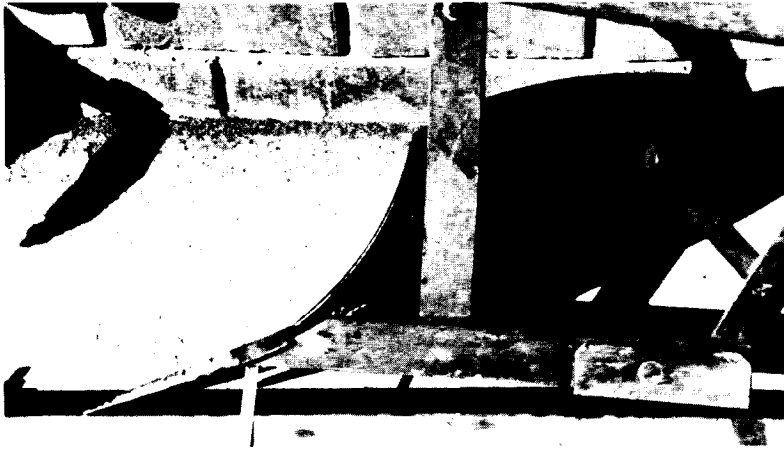
Now make sure that all wearing parts (share, landside, mouldboard, wheel axle) may readily be detached for repair and are bolted, but not welded to the assembly. It is preferable if only two sizes of bolt are used on the plough and that a suitable spanner is included with the implement.

Choose a light weight plough whenever possible as it is easier to handle and will work just as deeply as a heavier model when adjusted correctly. However the plough frame, plough body support, frog and handles must be sufficiently strong. Check the thickness of the parts carefully.

Choose a longer mouldboard shape (semi-digger) for heavier soils and when there is normally heavy weed growth to be buried. A shorter mouldboard (digger) works best in lighter and crumbly soils. Choose a small (6 or 8 inch, ie 15 or 20 cm) plough body for heavy soils or when working with donkeys, small oxen or a single animal. The 10 inch body (25 cm) can normally only be pulled by a pair of oxen in light or medium soils.

A heel bolted to the landside is preferable but more expensive than a shaped landside. It is however cheaper to replace after it has worn.

The support wheel is important for transport and a larger diameter will run more easily than a small wheel. A wheel is not however needed for very light ploughs which can easily be lifted, carried and turned at the headland. Ploughing quality should not be affected if the wheel is removed altogether, as long as the plough is correctly adjusted as explained in later Modules.



*Fig. 1 Check that the vertical suction is at least 3 cm.*

*Photo: J.E. Ashburner*

Two dimensions are very important for good plough performance. These are the plough suction clearance or pitch, measured both in the horizontal and the vertical directions. At least 3 cm is necessary vertically to enable the plough to bite the soil correctly (Fig.1). The horizontal suction needs to be at least 1 cm to permit the formation of clean furrows (Fig.2).



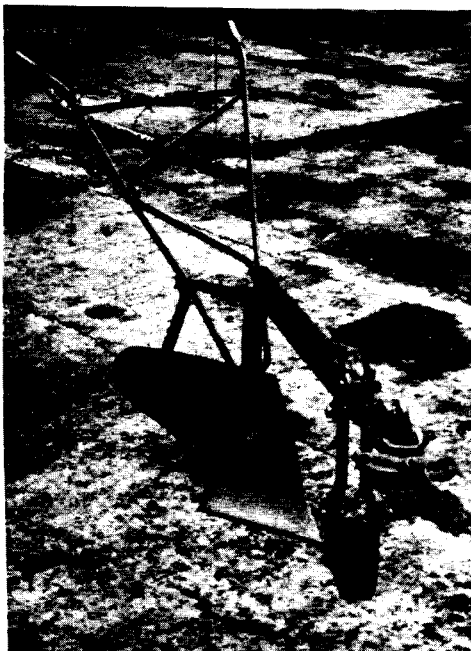
*Fig. 2 The horizontal suction should also be at least 1 cm.*

*Photo: J.E. Ashburner*

**PRELIMINARY CHECKS OF THE PLOUGH ASSEMBLY**

Before field work is attempted, the plough should be carefully checked to ensure that it is correctly assembled, aligned and that the wearing parts are in an acceptable condition:

- Check all bolts for tightness;
- Ensure that the bolts holding the wheel support and the hitch regulator can be loosened for later adjustment in the field;
- Look at the plough from the front and check that the alignment of the beam and the landside is straight because any distortion will make the plough difficult or impossible to control;
- Inspect the condition of the share, the mouldboard, the landside, the heel (if fitted) and the wheel axle, replacing all worn parts as explained below
- Do not grease the wheel axle as this will attract abrasive soil articles and increase the rate of wear



*Fig. 3 A typical mouldboard plough correctly assembled.*

*Photo: J.E. Ashburner*

**REPLACEMENT OF WORN PARTS**

The replacement of worn parts is critical for optimum plough performance and also to prevent expensive damage to the frog.

The share, the heel and the landside wear the most rapidly and a spare set should be kept readily available so that little time is lost during their replacement and repair. In sandy soils, the share may wear out after only 2 hectares of work.

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The mouldboard should be regularly checked for distortion. Look at the plough from the front and make sure that the frog is still protected by the mouldboard (Fig.5).

Replace the landside once it has been worn to a knife edge and replace the heel if so worn it can no longer be correctly adjusted.

#### 4 3.2.1 Choosing the mouldboard plough



*Fig. 4 Replace the share before it has worn down like is indicated in this illustration.*

*Photo: J.E. Ashburner*



*Fig. 5 Replace the mouldboard once the shin is worn as the frog will start to be exposed to the abrasive soil, causing expensive damage.*

*Photo: J.E. Ashburner*