

CHAPTER 3. SEEDBED PREPARATION

3.3 TECHNIQUES OF PLOUGHING

3.3.1. FIELD LAY-OUT AND CONVENTIONAL PLOUGHING METHODS

FIELD LAY-OUT

When ploughing is done correctly, the field is maintained level and the whole surface is cultivated. A poor ploughing pattern however will give rise to an uneven surface, unploughed patches and areas where the animals have excessively compacted the soil with their feet.

Fields are rarely of uniform shape and often obstacles such as tree stumps and termite or ant hills will be present. Once the field limits have been established, clear away the surface trash, fill in any deep holes and remove unnecessary obstacles.

The field may already have or may need some conservation structures such as waterways, contour bunds or cut off ditches. These should be installed and regularly maintained before cultivation commences.

On flat ground, the direction of ploughing normally should follow the longest side of the field. For sloping fields, both ploughing and eventual sowing must follow the contours. The animals should not be made to work a distance more than 150 metres but if the field is longer than this, it must be subdivided into smaller plots or alternatively, ploughed following the shorter side.

Conventional ploughing is carried out in "lands" which are working strips with a width of up to 25 metres. In small fields of less than about a quarter of a hectare, these do not need to be divided into lands and can be ploughed all at once.

A typical flat and irregular shaped field is shown in **Fig.1**. It could be ploughed in the two lands as shown. A border measuring 5 metres wide should be scratched out before starting work and a pile of stones or a stake placed at each corner. The border strip will be the last part to be ploughed and allows the animals to turn.

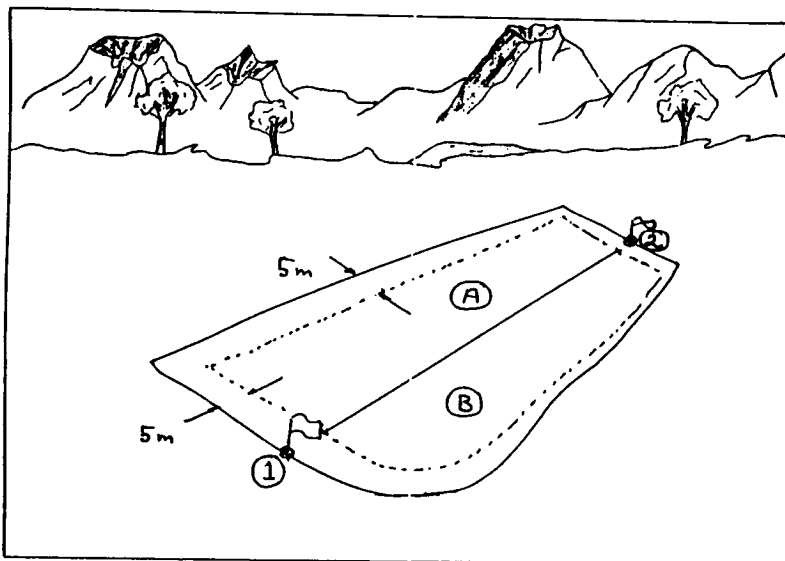


Fig. 1 Method for dividing up an irregular shaped field for ploughing in two lands. The border strip 5 meters wide should be scratched out at the start of work but is ploughed last.

Once the border strip has been marked, place a stake at the central position between the lands at the widest end (1) and a second stake at the other headland (2) so that at least one of the lands has parallel sides (land "A").

The field is now ready for conventional ploughing in the lands "A" and "B". On alternate years, the lands should be ploughed by either "gathering" or "casting" so that the field remains level.

CASTING PATTERN

For the "casting" pattern, ploughing starts along the right-hand edge of the land and works towards the centre where the narrow and shallow finishing furrow is made (Fig.2).

GATHERING PATTERN

With the "gathering" pattern, the land must first be marked along the centre by stakes at each end. An opening crown is made and gradually the land is ploughed towards the edges (Fig.3).

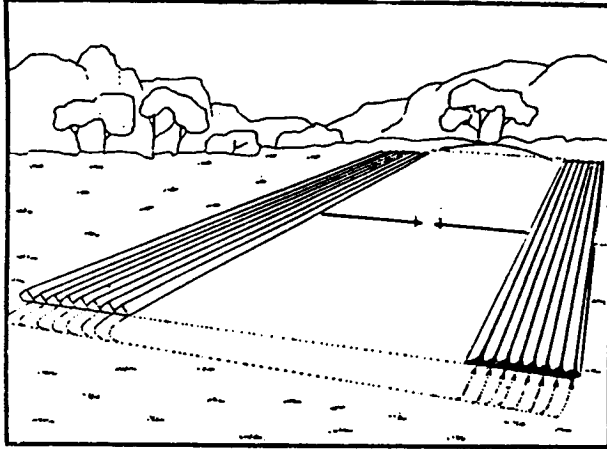


Fig. 2 The "casting" pattern of ploughing from the edges.

Source: AETC, 1986

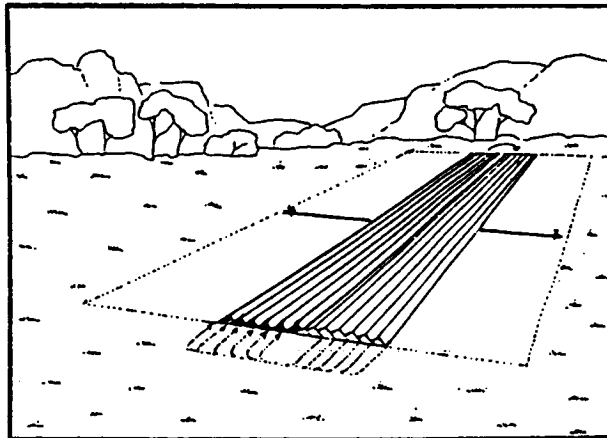


Fig. 3 The "gathering" pattern of ploughing from the centre.

Source: AETC, 1986

The opening furrows and closing furrows for the "gathering" and "casting" patterns are rather different and are fully described in **Modules 3.3.4** and **3.3.5**. They should be carefully constructed to maintain the field level. It is also important that furrows be kept parallel to each other to avoid untidy joining of the ploughed lands. Only constant perfection of work styles will produce tidy results.

COMPLETING THE HEADLANDS

Once the lands have been completed, the border strip is ploughed by working from the edges of the lands towards the outside of the field (Fig.4). The plough should enter at the field extremity for each run so that trampling of ploughed ground is reduced to a minimum.

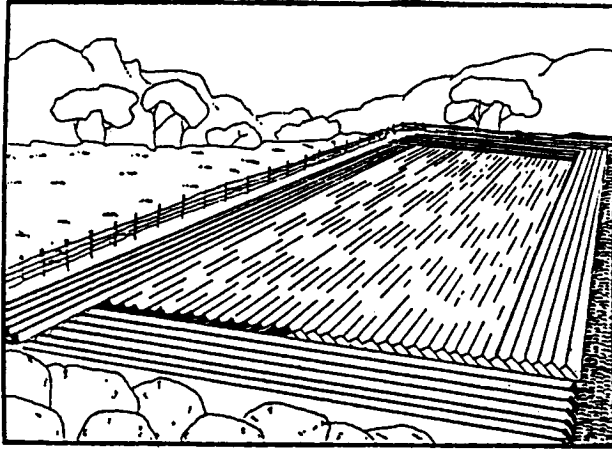


Fig. 4 Complete the border strip, ploughing towards the edges. Source: AETC, 1986

USING A SAND TRAY AS A PLANNING AID

The extension worker will find a sand tray very useful for planning proposed ploughing systems for particular farmers fields during demonstrations. It should be some 2 metres long, 1 metre wide and 5 cm deep. It is filled with about 2 cm of sand which has been sieved and mixed with a little oil so the it can be moulded into shape.

The field borders can be traced out in the sand to make a model and sticks can be used to represent the proposed position for marker stakes whilst laying out the lands in the farmer's field. A model plough can be made or even a bent teaspoon used which will serve to indicate how the ploughing will eventually be carried out.