3

MAKING BED FOR SEEDLING

We see plants all around us - in the forests, in gardens and in our homes too. Plants in the forests do not need much care and besides the fruits and flowers from these trees may not necessarily be cut to be used by us. In farming, especially, when done commercially one needs to grow plants that give us both quality and quantity of produce. So special procedures and technology are used to ensure that the the effort, time and money used is not wasted.

We all know that plants grow from seeds. In order to ensure a good harvest we need to pay a lot of attention to how we handle the seeds. For this the seeds are sown in special containers to grow the seedlings/saplings for the trees and then transplanted to the point where the tree will grow. Making of seed beds is an important activity requiring special skills. In this lesson we shall learn about the importance and the methods of making different types seed beds.

OBJECTIVES

After studying this lesson, you will be able to :

- appreciate the importance of bed for seedling;

- prepare beds for seedling;
- differentiate between flat beds, raised beds and sunken beds; and
- match seed bed fineness to seed type, seed size, hand planting and mechanical planting.

3.1 IMPORTANCE OF BED FOR SEEDLING

A seedbed or seedling bed is special soil environment in which seeds are planted. It is used to grow the seedlings in a controlled environment into young plants before transplanting them into a garden or field. So preparing seed beds is an important activity. A well prepared seed bed helps the growing plant in the following ways:

- Provides the required environment and conditions for the healthy seed growth and survival.
- Helps placing the seed evenly and at the proper depth.
- Allows moisture to move through the soil properly.
- Keeps moisture around the seed as it germinates.

3.2 PREPARATION FOR THE MAKING OF SEED BED

A seedbed or seedling bed is the local soil environment in which seeds are planted. It is made up of not only the local soil but also a specially prepared cold frame, hotbed or raised bed to grow the seedlings in a controlled environment.

The first step of making a seed bed is tillage. Tillage is the initial preparation of the soil of the seed bed. Tillage involves the use of agricultural instruments to prepare land/soil for planting. Tillage is done for the following reasons:

- To break up clods and loosen the topsoil to encourage seed germination, seedling emergence, and root growth.
- To chop up and/or bury the previous crop's residues.
- To control weeds.
- To help mix fertilizers into the soil.
- To shape and design the type of seedbed in relation to the specific local soil, crop, and rainfall conditions.

Common tillage equipment

Implements used for opening and loosening of the soil are known as ploughs. The plough also enhances the soil drainage properties. This is because the ridges the plough forms in the soil act as water channels. Ploughs are used for primary tillage. Ploughs are of three types:

- Wooden Plough
- Moldboard Plough
- Disk Plough

The only portion of the seedbed that needs to be reasonably clod-free is the narrow row zone where the seeds are to be planted. In fact, you're actually better off keeping the spaces between the rows in a cloddy condition to prevent weed germination and help maintain filth.

INTEXT QUESTIONS 3.1

Fill in the blanks.

1. In commercial farming, one needs to grow plants that give us both ---------- and ---------- of produce.

2. Making of seed beds is an important activity requiring special ---------- .
3. A seedbed or seedling bed is ---------- environment in which seeds are planted
4. ---------- is the initial preparation of the soil of the seed bed.
5. Tillage helps to break up clods and loosen the ---------- to encourage seed germination

3.3 PREPARAING BEDS FOR SEEDLING

Seedbed preparation is dependent on the following factors:

- It's location and the climate of the location, (In rainy season Raised Beds are prepared and Flat bed are prepared in summer season)
- Soil type,
- Crop to be grown
- Management level, and
- Available equipment.

Remember that the local farmers usually have good seedbed skills, which they have mastered and learnt through experience. So learn and observe closely the local methods thoroughly before experimenting and testing new ones.

3.4 CHARACTERISTICS OF A GOOD SEED BED

Good seedbeds are:

- uniformly firm soil to depth of 5 inches (12.7 centimeters) -

moisture down in the soil can be brought up for seed germination

- adequate soil moisture - helps start the enzymatic changes needed to grow.and
- weed free - allows the desired crop to grow without competition for nutrients, space, and sunlight.

3.5 TYPES OF SEED BEDS

There are basically 3 types of seedbeds:

1. Flat Beds
2. Raised Beds
3. Sunken Beds

The type selected for use depends more on the climate and soil conditions than on the crop.

1. FLAT BEDS

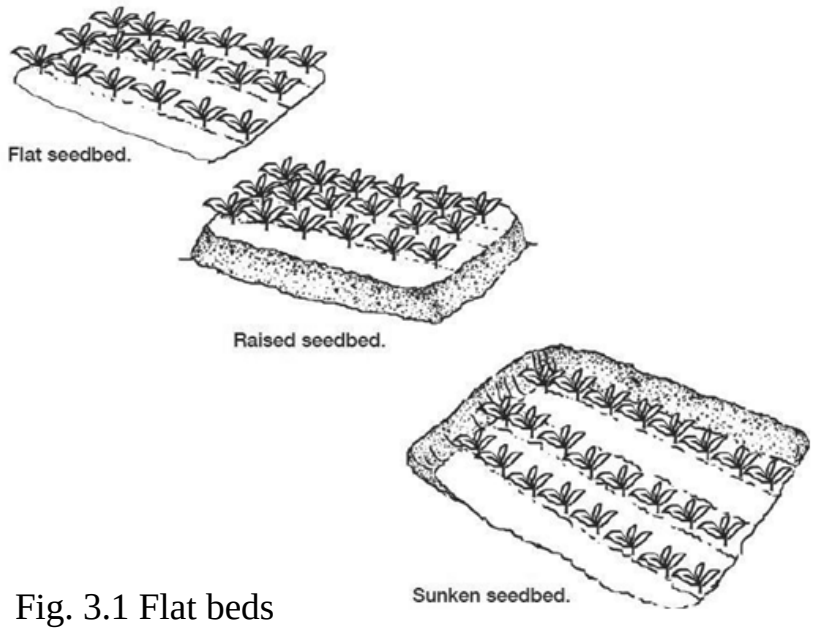

Fig. 3.1 Flat beds

Flat beds are used where water availability is adequate and there is no drainage problems. In some areas, crops like maize, sorghum, beans, and potatoes are started out on a flat bed; as the season progresses, soil is thrown onto the crop row to mound up the plants; this is called "hilling-up". These are not good in the rainy season.

Hilling up is done to:

- control in-row weeds,
- provide support, and
- improve drainage.

Hilling-up only works with plants that have enough stem height and leaf clearance to tolerate partial burial.

2. RAISED BEDS

Crops can also be grown on raised-up beds or ridges. They are especially advantageous for clayey soils under high rainfall or wherever else drainage is likely to be poor. They can also be used where crops are furrow irrigated, raised beds or ridges. This is essential to help the water flow down easilyin the furrows between them.

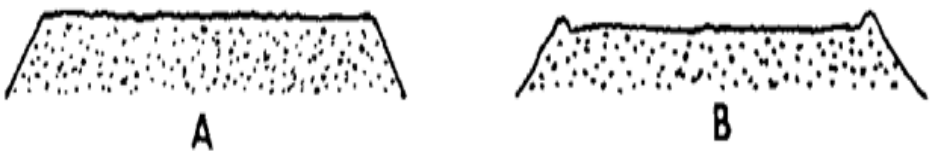

Figure 3.2 Two types of raised beds

Bed A is best suited to high-rainfall areas. Bed B has a lip around all 4 sides which helps prevents prevent water from running off (helpful in drier conditions).

3. SUNKEN BEDS

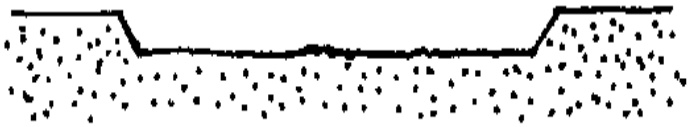

Figure 3.4 Sunken beds

In dry regions, especially on sandy soils with low water-holding capacity, vegetables can be planted in sunken beds (i.e. shallow basins) about 100-130 cm wide and going 2-5 cm below the surrounding soil level.

3.6 SEED BED FINENESS

Seedbed "fineness" refers to the degree to which clods are broken down and the soil smoothed over. This depends mainly on seed type, seed size, and whether hand planting or mechanical planting will be used. Let us study about these also.

- Seed type: Monocot plants like the cereals (maize, sorghum, etc.) have one cotyledon or seed leaf. These break through the ground in the shape of a spike which helps them handle some cloddiness easily.

  Dicot plants (pulses like beans, cowpeas, peanuts, and virtually all vegetables) have 2 cotyledons and emerge from the soil in a much more blunt form. They actually dragging the 2 seed leaves (formed from the 2 halves of the seed) with them. They have less clod-handling ability than most monocots.

- Seed size: As a rough rule, the larger the seed, the less the need for a fine seedbed. Large seeds have more energy and can also emerge from greater depths. A seed like maize is not only large but is a monocot too, so it has especially good clod-handling ability.

Peanuts, beans, and most other pulses are large seeded, but this advantage is partly offset because they are dicots. The small seeds of millet and sorghum lack some power, but being monocots is a help.

That smaller seeds (i.e. lettuce, cabbage, onions, amaranth, require shallower planting than larger seeds (i.e. pulses, okra, maize, squash, etc.) and that a cloddy seedbed makes it difficult to judge and be precise about planting depth to be adopted.

- Hand vs. mechanical planting: Farmers who hand plant can usually get by with rougher seedbeds for the following reasons.
- It's easier to control planting depth when hand seeding and large clods can be pushed aside.
- It's common under hand planting to plant several seeds per hole, which provides more power for breaking through the soil.

ACTIVITY 3.1

- Identify and use the appropriate tillage equipment to prepare a soil bed of your choice
- Discuss and learn the local methods used for preparing the seedbed

INTEXT QUESTIONS 3.2

State whether true or false

1. The type of seed bed selected depends more on the climate and soil conditions than on the crop.
2. Dicot plants like the cereals have one cotyledon or seed leaf.
3. The larger the seed, the less the need for a fine seedbed.
4. Sunken beds are used in dry regions, especially on sandy
5. Raised Beds are used where water availability is adequate and there is no drainage problems.

WHAT HAVE YOU LEARNT

- Importance of bed for seedling
- Preparation for the making of a seed bed
- Types of seed beds
  - Flat Beds
  - Raised Beds
  - Sunken Beds
- Seedbed fineness
  - seed type,
  - seed size, and
  - hand planting or mechanical planting

TERMINAL QUESTIONS

1. How does a well prepared seed bed helps the growing plant?
2. List the reasons for doing Tillage
3. Differentiate between Flat Bed and Sunken Bed
4. Describe the two seed types.
5. Briefly explain Seed Bed Fineness

ANSWERS TO INTEXT QUESTIONS

3.1

1. quality, quantity
2. skills
3. special soil
4. Tillage
5. topsoil

3.2

1. True
2. False
3. True
4. True
5. False