It's everyone's responsibility to plant trees and make the Earth green. But because of lack of skills to raise plants, many farmers don't do this important work. They may try to do it, but often the planting isn't successful. In this chapter we discuss the question of how to raise seedlings using local resources and less work. There are many types of nursery to raise different types of seedlings. Here, we learn about a new and quite different type of nursery, called an **Air Nursery**.

An Air Nursery is a bed which is lifted above the ground, so there is empty air space between the bottom of the bed and the ground below.
Why make an Air Nursery?

The main purpose of the air nursery is to produce a good shape for seedlings' roots. It is mainly useful for those plants which develop a fast-growing tap root.

Seedlings are usually raised from seed sown in a nursery bed, or sown direct into polypots, or transplanted from one to the other. But it's very easy to damage the roots as young seedlings are transplanted from one place to another. Many plants can dry out. In polypots, roots need pruning regularly, and if this is forgotten or not possible at the right time, the roots grow into the soil and when lifted can break and damage the plant. The air nursery is especially for species that grow these fast, long roots in the nursery.

A small air nursery can be made in the corner of a kitchen garden

When to build an air nursery

The air nursery is built whenever normal nurseries are started. This is normally late winter for lower, warmer areas, and later in the spring for higher, cooler areas.

Materials needed to make an Air Nursery

digging tools, seed, straw or leaf litter, fertile soil

rope, nails

stakes, bamboo, planks, sticks

Building the Air Nursery

On the following pages the building method for the air nursery is described, with pictures and text.
Dig holes at 4 corners of a square and drive in 4 strong stakes.

Place strong sticks across the uprights.

Place smaller sticks across.

Add smaller sticks and straw to close all holes.

Strongly secure 4 planks around the top.

Fill with fertile soil.

Plant seeds in lines.

Cover the seeds with soil and cover the soil with a light mulch.
How to make

Dig in 4 stakes at the corners of a square, and between 50cm and 1 metre high, so they are strong and steady.

Surround the top frame with planks or bamboo, and fill with up to 6 inches of fine, fertile soil to make the nursery bed. Dig a round pit 50 cm deep and 50 cm in diameter underneath the nursery. The soil from this can be used to fill the nursery above. This pit then has a second use when lined with plastic to make liquid manure in, and is shaded by the nursery above. Now the air nursery is ready to sow seeds in. After sowing, cover the seeds with a thin layer of soil and then a fine mulch, and water the bed well. Seeds will germinate quicker if first soaked in warm water for 1-2 days.

Species to plant in the Air Nursery

Plants which produce a fast growing tap root are ideal for the air nursery, such as:

Lucaena, Acacia, Bauhinia, Dalbergia, Sesbania, Gliricidia, Flemengia, Calliendra, tree cotton, mango, papaya, walnut, honey locust, etc.
Use straw or leaf litter to stop soil from falling through.

Enclose the space with planks, as shown here.

Inside this, put up to 6 inches of fertile soil.

Make the soil fine and even.

Make lines to sow the seeds into.

how to sow the seeds in the bed.
Cover with mulch and water well and regularly.

After 3 months, showing seedlings growing well.

The top of the bed is well mulched with leaf litter.

Underneath is a pit for making liquid manure.

Ms Chandra Pun shows the roots of a papaya grown in the air nursery.

The roots of a papaya grown in an air nursery are short and well bunched.
Both roots shown below belong to the papaya plant. One is grown in a polypot and the other in an air nursery. What difference can you see?

**In a polypot**

- The roots are in a fine root ball, easy to dig out and plant.
- Because of the long tap root, digging up is difficult and damages the plant.

**In an air nursery**

- In a polypot and the other in an air nursery.
- What difference can you see?

**Maintenance**

**How to maintain an Air Nursery**

This is how the plants in an air nursery grow well. From time to time regular maintenance of watering and weeding is needed, and liquid manure can be used.

**Things to note:**

Water will dry out faster than normal in the air nursery, so watering is needed more often. In the hot season water once or twice a day, and in the cold season once every 2 days is enough.

**Here's a big, community air nursery to grow many seedlings**
So the roots will grow down as the leaves and stems grow up. As the fast-growing tap roots grow down, they meet the base of the bed and grow into the air space. Here, they will dry up and die, which stops the deep root growing - this is automatic root pruning. Instead, many fine roots will grow higher up.

When this is done, it becomes much easier to dig up seedlings for planting out, and roots are not damaged. No harm is done to the seedling. Just trim off the dead roots when it is time to plant out.
Subjects Related to the Air Nursery

Good benefits can be had from the information in this book about making and using an air nursery. However, this information is also linked to other methods. For extra benefits let's read, learn and practice from other related chapters.

Agroforestry, Living Fence, Fruit Orchard and Soil Conservation chapters

The air nursery is for growing strong, healthy plants. Information on how and where to plant fruit and multi-purpose seedlings for better production and less work is given in these chapters.

Home Nursery chapter

Around the homestead you need to plant many different plants for different functions. Information on different nurseries to grow various types of plants is given in this chapter.