
Module 7

Establishing fruit trees

Fruit tree establishment

Both small-scale and large-scale fruit production systems must establish fruit trees in the field.

Commercial orchards	Mixed cropping systems	Contour	lines	Border	Home garden
Large-scale				Small-scale	

In this manual, we focus on mixed cropping systems and on contour and borderline planting, because they seem to be the most applicable for the intended target group. But other planting systems are also described, because they can be useful for any establishment of fruit trees on farms. The same planting principles for preparing the soil, making planting holes, and so on, apply for all farming systems.

Planting season for fruit trees

Trees should be planted during the onset of the long rains. Otherwise you must ensure that there will be adequate watering.

Planting holes

The common size of a planting hole is length x width x height = 60 x 60 x 60 cm (2 x 2 x 2 ft).

Soil mixture for planting holes

The only time you will be able to apply fertilizer or a nutrient directly to the roots of the fruit tree is when you plant out. It is advisable to use farmyard manure and commercial fertilizer only if it can be afforded. Incorporating as much fertile soil as possible is most important. Use a soil mixture similar to the one for nursery beds and containers.

Use sufficient well-rotted farmyard manure, fertile topsoil or compost:

- ?? Dig the hole and place all soil aside.
- ?? Fill the hole with 2 bucketfuls of farmyard manure and 4 bucketfuls of fertile topsoil or compost.
- ?? Make sure there are no sticks and stones in the planting hole.

Trainer's questions:

What is the best time for planting?

What are the most common fruit tree production systems in your area?

How do you use fertilizer or manure in planting fruit trees?

If you have limited quantities of farmyard manure and fertile soil—

Remove the topsoil and place it on one side of the planting

Dig out the subsoil and keep it separate on the other side. Make sure there are no sticks and stones in the soil.

Mix the topsoil with 2 large bucketfuls of well-rotted farmyard manure.



First fill the hole up to 3/4 with the topsoil and farmyard manure mixture.

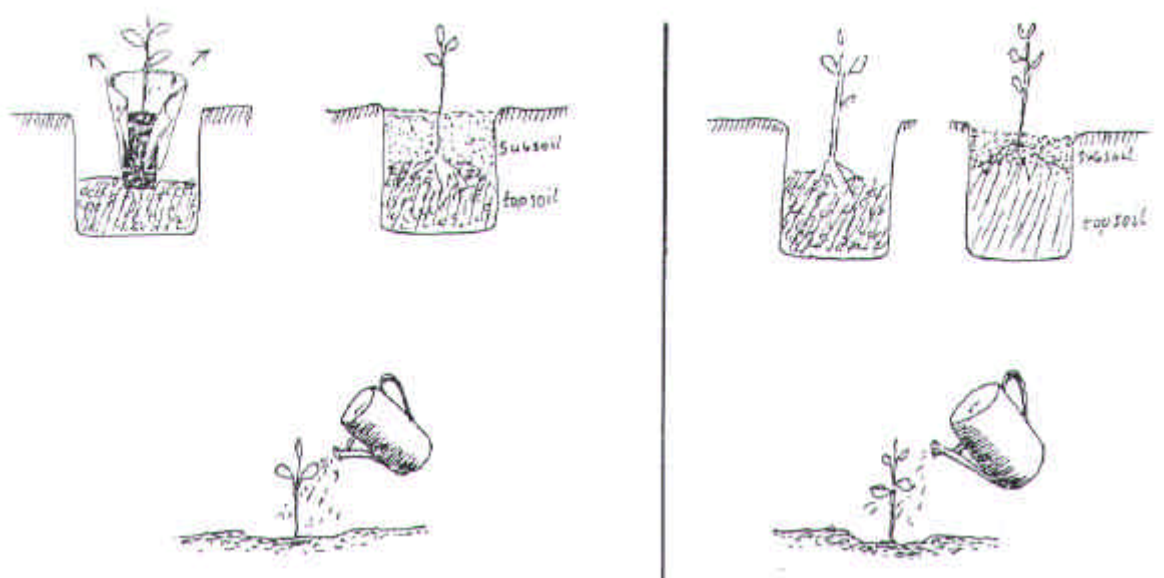


Return the subsoil. The topsoil should be at the bottom of the hole, the subsoil on top.

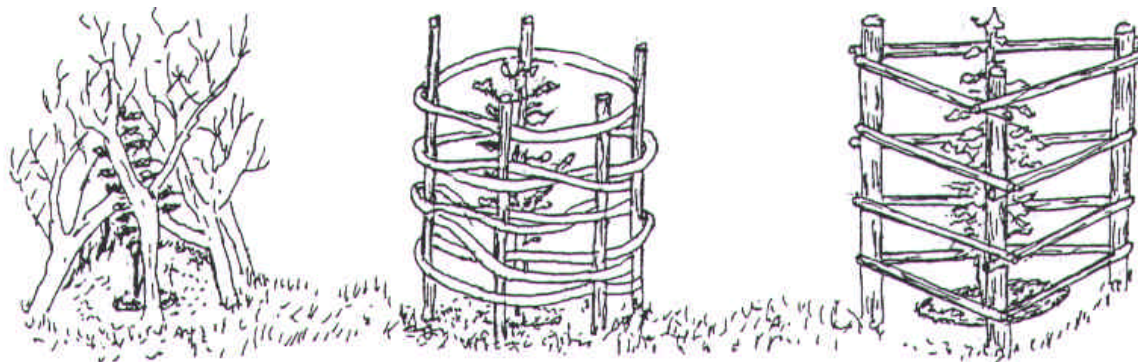
Planting a fruit tree

- ?? After returning your soil into the planting hole, add 2 bucketfuls of water to settle it.
- ?? Remove the fruit tree from the container, holding the tree at bottom and below the grafting or budding union.
- ?? Place the fruit tree in the centre of the planting hole.
- ?? Place the stem of the improved tree at the same depth as it was in the container. The grafting or budding union must be 15 to 20 cm above ground level. Do not cover the grafted or budded union with soil by planting the tree too deep in the hole.
- ?? Fill the hole with soil and water until all the soil is moist. This will take 3 to 4 bucketfuls.
- ?? Press the soil around the tree, creating good contact between the roots and the soil mixture.
- ?? If there is plenty of rain or strong wind, use a stick and tie the tree below the grafting union to the stick, without strangling it. Fix it as you do tomatoes.

- ?? Consider planting a windbreak along the plot. Avocado, banana, macadamia, tall pawpaw cultivars and fruits on trellising systems are especially vulnerable to wind damage.
- ?? If grazing is common in your area, protect the tree immediately and well from animals.
- ?? Weed in a ring around the planting hole.
- ?? Mulching is advisable. It helps retain the water in the soil. But as mulch also attracts insects, it is best to leave a mulch-free area of 10 cm around the stem of the planted fruit tree. Do not mulch in areas with termites, as these insects will be attracted by the mulch layer and may damage the roots of the tree.



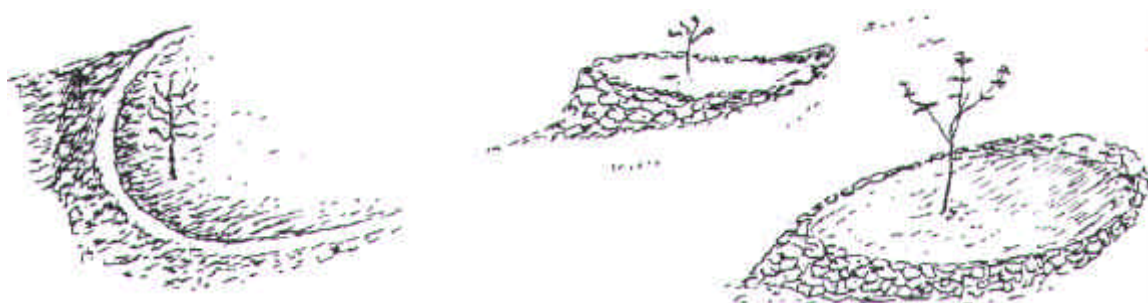
Planting a fruit tree from a container and bare rooted



Various means of protection from animal damage

Water harvesting catchments for fruit trees

If you are planting fruit trees on slopes or on contour lines, you can scoop the subsoil around the tree in a ring or a half circle. Establish micro water catchments, which hold rainwater and control erosion of fertile soil.



Water catchments for fruit trees

Fruit trees on contour lines

If you establish contour lines on your field, make sure they are properly designed according to the slope and landscape of your plot. Contact the relevant extension officer to help you measure the contour and spacing of the lines and prepare them.

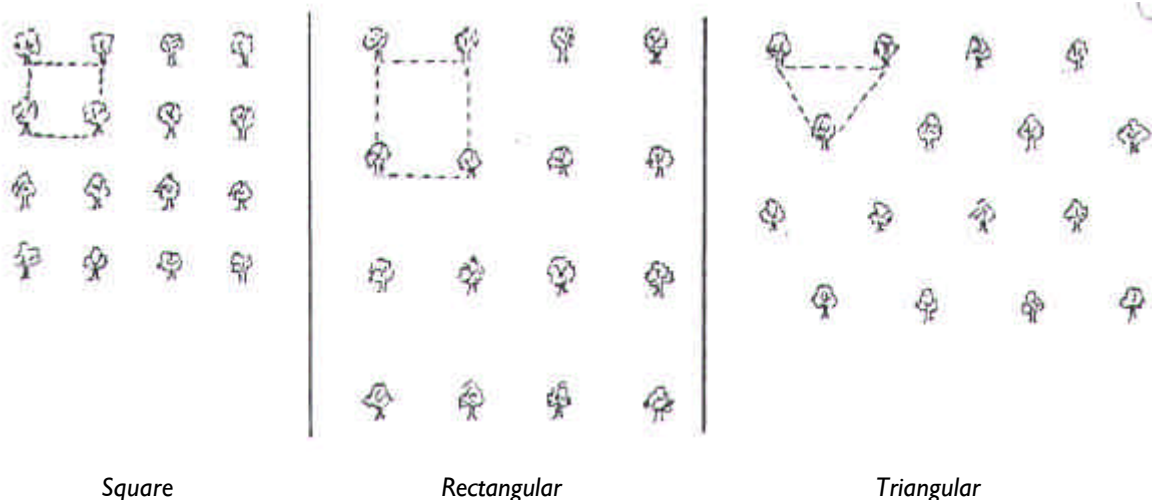
Plant fruit trees above the contour lines in the way described above. The trees should be planted at least 60 cm (2 ft) above the rim of a terrace or contour. The roots of the fruit trees will stabilize the soil structures.



Fruit trees on contour lines

Planting systems for fruit orchards

If you establish a large number of trees in one plot, you can plant in any of the systems shown here:



Square

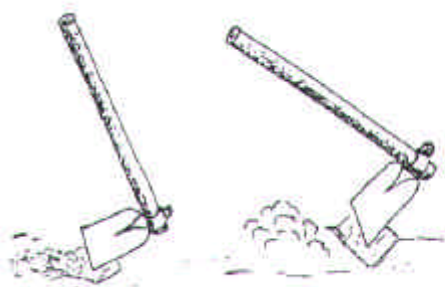
Rectangular

Triangular

Maintaining the fruit trees after planting

Weeding

- ?? Weed shallowly, being careful not to damage or disturbing the developing root system.
- ?? Use a fork hoe or scratch the soil with a normal hoe in a shallow angle, especially with bananas and shallow-rooted fruit trees.
- ?? Weed twice a month in the rainy season, once a month in the dry season.



Shallow weeding



Ring weeding

Formative pruning

You have an excellent chance to influence the shape of your newly established fruit tree. Aim to—

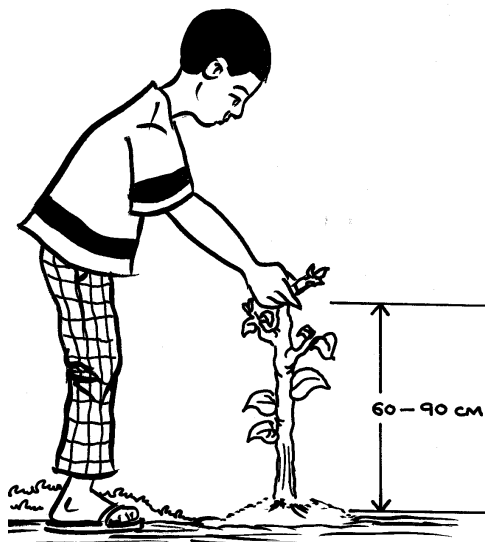
- ?? enable the tree to bear healthy, large, ripe fruits
- ?? allow sunlight to pass into the interior part of the canopy
- ?? make harvesting and maintaining the tree as easy as possible
- ?? avoid yields that alternate from season to season

Train the tree to a single stem

- ?? Remove all rootstock suckers frequently. They weaken the improved cultivar and will not bear improved fruits.
- ?? Avoid side branching below the height of 90 cm (3 ft).

Stimulate the development of main branches

- ?? To stimulate side branches to develop, pinch and partially break the top of the leader branch at a height of 60 to 90 cm (2–3 ft).



Shape the framework of the main branches

- ?? Allow 3 or 4 side branches to develop in different directions. These branches will form the basic framework of your fruit tree as it develops.
- ?? You can force the direction in which the branches grow by securing them with string, stakes or spreaders.



Plant protection

- ?? Watch for pests and disease and control where necessary.
- ?? Avoid pests and diseases by proper management in weeding and watering (see module 9 on plant protection).



Trainer's notes:

- ?? *Make sure that the participants are informed about the harmful impact of pesticides, fungicides and other agrochemicals on the soil, water bodies and the environment in general.*
- ?? *Encourage the use of preventive measures of pest and disease control using weeding, watering and other management practices that increase the health of the plants, making them more resistant.*