



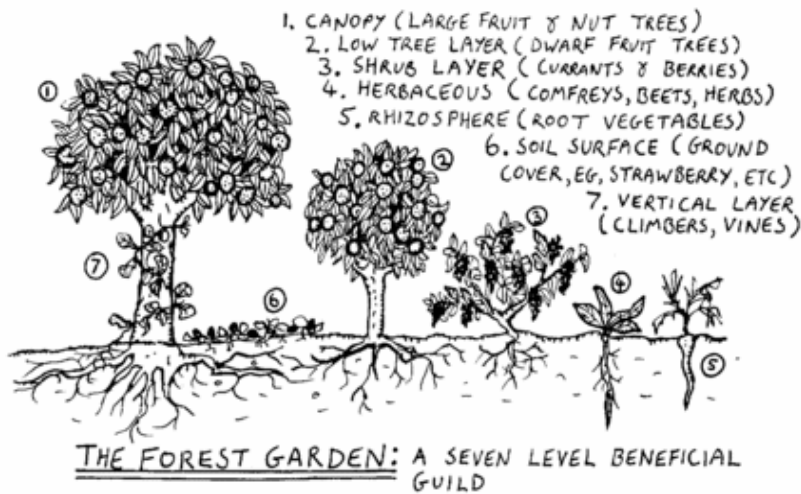
# FOOD FOREST DESIGN

## INTRO TO FOOD FORESTS

The ecological orchards planted by the Philadelphia Orchard Project are examples of a style of planting called Food Forests or Edible Forest Gardens. The basic idea is to create a functioning, diverse ecology in the orchard that mimics a natural forest. By working with nature instead of against it, these orchards are healthy and productive with less intensive maintenance required by their stewards. The food forest terminology originates in Permaculture, a movement of sustainable design, but many indigenous cultures across the world have traditionally grown food in a similar manner.

## THE SEVEN-LEVEL ORCHARD

A Food Forest consists of far more than rows of fruit trees. Like a natural ecology, many layers of plants grow together in a Food Forest. Seven different levels can be identified:



By planting a multi-layered orchard, positive relationships are created between plants (see multiple functions, below). All ecological niches are occupied, so there are fewer opportunities for weeds to grow. With yields from so many layers, overall production is increased. Yields can also be harvested from other layers in the short term before fruit and nut trees mature.

## ORCHARD DIVERSITY

In addition to a diversity in plant levels, a food forest features a diversity of plant choices within each level. For example, instead of just planting apples in the low tree level, the orchard might feature apples, pears, cherries, and more unusual choices like figs, persimmons, and paw paws. If one crop fails in a particular year, this diversity ensures that the orchard will still be productive. Pests are also often very plant specific, so a diverse orchard becomes a less attractive target.



## MULTI-FUNCTIONAL PLANTS

Food Forest plants often serve more than one of the following functions:

**FOOD:** Fruit, nuts, culinary herbs, greens, mushrooms, edible flowers, roots, and shoots. Diversity of production makes for a long season of harvest. Don't forget value-added items like jam, juice, and cider!

**MEDICINE:** Herbs, barks, mushrooms, etc. For teas, tinctures, extracts, and poultices.

**SOIL-BUILDING:** Through a relationship with soil bacteria, certain plants (mostly in the legume family), actually pull nitrogen from the air and fix it into the ground, thus fertilizing themselves and the plants around them. Other plants are nutrient-accumulators with roots that pull essential nutrients from deep in the soil and make them available to the plants around them. Fungi also have vital ecological functions in soil, helping to protect plants from disease, transporting nutrients, and more.

**PEST CONTROL:** Some flowering plants, especially those from the umbel and aster family, serve as a nectary, attracting beneficial insects that help control potential pest problems. Other plants make good habitat for beneficials to live and lay their eggs. Other strong aromatic plants, especially in mint and onion families, are good at confusing and repelling pests.

**OTHER:** Woody plants can be harvested or coppiced for fuel and some yield valuable timber for construction or furniture-making. Trees and other orchard plants provide many environmental benefits, including absorbing carbon and other pollution, reducing stormwater runoff, and providing shade for neighborhood cooling. Beauty in flowers, foliage, and fruit is another important function of food forests.

## LIVING SOIL

One of the most important aspects of creating a functioning orchard ecology is creating healthy, living soil. Worms, insects, fungi, bacteria, and many micro-organisms have vital roles in supporting happy, productive plants. There is actually a greater total mass of life below the surface than what is seen above. One technique for encouraging healthy, living soil is sheetmulching, a particularly valuable approach for city lots with poor, weed-covered soil. The basic idea is to cover the surface with a layer of cardboard or newspaper topped with many layers of organic materials like fallen leaves, compost, and salt hay. The newspaper or cardboard serve to choke out existing weeds or grass, then decompose along with the other organic materials to provide abundant food and habitat for worms and other soil life.

### Recommended Eco-Orchard Books

Creating a Forest Garden, Martin Crawford  
Edible Forest Gardens, Dave Jacke & Eric  
Toensmeier  
Gaia's Garden, Toby Hemenway

### Recommended Horticultural Books

The Holistic Orchard, Michael Phillips  
Growing Fruit Naturally, Lee Reich  
The Pruning Book, Lee Reich  
The Backyard Orchardist, Stella Otto  
The Backyard Berry Book, Stella Otto

### Recommended Eco-Orchard Plant Sources

[www.treeauthority.net](http://www.treeauthority.net)  
[www.primexgardencenter.com](http://www.primexgardencenter.com)  
[www.phillyorchards.org](http://www.phillyorchards.org)

[www.raintreenursery.com](http://www.raintreenursery.com)  
[www.cumminsnursery.com](http://www.cumminsnursery.com)  
[www.onegreenworld.com](http://www.onegreenworld.com)