

FRUIT TREE GUILD

LAYERS & CATEGORIES



**WHITE EARTH TRIBAL AND COMMUNITY COLLEGE
COMMUNITY EXTENSION**

What is a Tree Guild?

In nature, communities of trees and other plants work together to help each other grow, such as providing extra nutrients, physical protection and support, and other natural functions. By occupying different layers, both above and below the soil, there is less competition as each has their own niche (space). By mimicking nature's regenerative designs, we can increase and diversify the food we grow with less cost and effort through perennial plantings.

TREE GUILDS



7 LAYERS

1. CANOPY
2. LOW (DWARF) TREE
3. SHRUB
4. VERTICAL-VINING
5. HERBACEOUS
(NON WOODY, ABOVE-GROUND PLANTS)
6. GROUND COVER
7. RHIZOSPHERE
(ROOT ZONE)

1. CANOPY

The 'canopy' occupies the upper most layer of the Fruit Tree Guild in full sun and is the main, tallest tree in the guild community. The canopy can consist of a stand-alone tree or when linked with a group of other fruit trees in addition to the other layers to create a food forest.

TIP: GROWING ZONES

When purchasing trees and other plants, select ones that grow well in your plant hardiness zone. Our campus gardens are located in Zone 3b (-35F to -30F).



The leaves of the tree canopy filter sunlight and rain drips off the ends of the leaves to the understory below. Many of the undergrowth shrubs, such as service berry, huckleberry, gooseberry, currant, and blueberry thrive in this partial sun landscape, as do hardy kiwi vines, and alpine strawberries.

Local tree nurseries can be a good source of information for cultivars that do well in your area.

2. LOW (DWARF) TREE

If your space is limited, dwarf fruit tree varieties are compact versions (typically 8-10 feet tall), which take up a smaller footprint in your tree guild. Often, they are easier to care for and reach maturity earlier (2-3 years vs. up to 8 years) than larger trees.

Many of your favorite fruits can be purchased as dwarf trees.

- “Freedom” Apple
- “Honey Crisp” Apple
- “Sweet Sixteen” Apple
- “Granny Smith” Apple
- “Carminé Jewel” Cherry
- “Romeo” Cherry
- “Evans” Cherry

How are dwarf trees created?

Joining with a compatible rootstock with desirable characteristics, dwarf fruit trees are created through a process called ‘*grafting*’, which joins cuttings with budding tips to the upper portion of the parent tree.

Tip: Pay attention to the traits of the tree. Choose those which do well in your plant hardiness zone and look at its disease resistant qualities, if it is self fertile or needs a partner tree to bear fruit, and its pruning requirements.

3. SHRUB

Small to medium size, shrubs (in general) are upright, small, woody species of plants, which are perennial and have persistent woody stems above the ground. Usually distinguished from trees by their height (typically less than 10' tall) and as having multiple stems (none dominant) with no main trunk below (although there are exceptions).



Examples:

- Aronia (Chokeberry)
- Juniper
- Viburnum
- Elderberry
- Raspberry
- Gooseberry
- Currant
- Cherry

OFTEN CALLED A “BUSH”, THEY CAN BE DECIDUOUS OR EVERGREEN.

4. VERTICAL-VINING

A productive use of space, vining plants utilize a host plant (typically, the main canopy structure) to carry themselves vertically through the guild. Vining, annual vegetables can be planted in temporary spaces where perennials will be added in the future or until the main canopy is strong enough to provide adequate support.



Examples:

- Grapes
- Hardy Kiwi
- Scarlett Runner Beans
- Ground Nuts
- Nasturtiums (Climbing)
- Clematis
- Hops (Dwarfing Variety)
- Vining Vegetables: Cucumber, Squash, etc.

TIP: Trellises can also be added to provide support for the extra heavy weight of vining plants loaded with fruit and to also guide their growth horizontally.

5. HERBACEOUS

The herbaceous plant layer consists of non-woody plants without a perennial stem (the stem will die back in the winter). Populated by a diverse variety of plants, this layer consists of annual forbs (a flowering herbaceous plant other than a grass), ferns, and grasses and can include many medicinally important plants, as well as as habitat and food for beneficial insects. *(Note: Fruit trees do not like grasses within their drip-line (area directly under their branches)).*



Examples:

- Bergamot
- Sunflowers
- Lovage
- Comfrey
- Asparagus
- Dill
- Hyssop
- Lupine
- Chives
- Clovers
- Bee's Friend
- Borage
- Plantain
- Nasturtiums
- Vegetables

TIP: Placement-Consider the amount of sunlight a plant will receive when planting herbaceous plants.

6. GROUND COVER

Low growing and spreading, the purpose of the ground cover is to provide a living mulch, which shields the soil from excessive temperatures, soil erosion caused by water runoff, and deters growth of unwanted weeds and spreading of grasses.



Examples:

- Strawberries
- White Dutch Clover
- Creeping Thyme
- Creeping Juniper
- Daffodils (Grass Barrier)
- Low-Growing Sedum
- Oregano (Clipped to manage height)
- Dianthus (a.k.a. Pinks)
- Chamomile
- Chickweed
- Mint (Can overwhelm planting if not contained)

TIP: The ground cover can provide a buffer area around the base of a tree to protect the trunk from potential damage from a mower or weed-wacker.

7. RHIZOSPHERE

Highly diverse, it is an extension of other layers, providing access to the soil web, which help to nourish vines, trunks, and leaves above ground and the growth of root crops. Plant types can include bulbs, taproots, and rhizomes (a.k.a., creeping rootstocks-a continuously growing horizontal stem which sends out roots and shoots from its nodes, through which it can produce new plants).



Breathing life into the soil: In this underground layer, plant roots, worms, bacteria and other living organisms in the soil food web assist in providing a path for water and air to penetrate the soil.

Examples: Potatoes, Shallots, Egyptian Walking Onion, Wild Leeks (Ramps), Carrots, Garlic, and Beetroot

- **Suppressors:** Plants that suppress the growth of unwanted grass/weeds through their own growth habit, which shades the ground or blocks growth. (e.g., Strawberries; White Dutch Clover; Daffodils)
- **Attractors:** Plants which attract pollinators and other beneficial insects. (e.g., Comfrey; Yarrow; Cosmos)
- **Repellers:** Plants which repel unwanted pests. (e.g., “*Alliums*”-Garlic, Chives, Perennial Onions; Marigolds; Lemon Balm)
- **Fixers:** These plants contribute to soil health by adding “*fixing*” nitrogen in the soil. (e.g., Purple & White Prairie Clover; Red Clover; Lupines; Beans; Peas)
- **Mulchers:** Plants that are used as cover crops to protect the soil and release nutrients as they decompose. (e.g., Comfrey; Hosta; Buckwheat)
- **Accumulators:** Plants which ‘mine’ nutrients from deep in the soil and bring it to the surface where other plants can access them. (e.g., Comfrey; Borage; Chicory)

TREE GUILDS: 6 PLANT CATEGORIES

SUPPRESSORS



Oregano is both ornamental and edible and can be pinched back to maintain a low, bushy growth habit. It can tolerate light foot traffic.



Rhubarb's large leaves shade out other plants.

Strawberries will send out runners and fill in over time.

ATTRACTORS

Wild Columbine



Borage

Garlic Chives



Bee's Friend



Calendula



Wild Bergamot (Bee Balm)

Comfrey



REPELLERS

- Emitting a sulfur (onion) odor, alliums such as chives, garlic chives, shallots, and leeks can help to repel cabbage worms, aphids, slugs, and carrot flies by masking the scent of other plants.



Bugs are repelled by the compound citronella in Lemon Balm.

Cultivated leeks emit an onion-like odor.



Chives



Garlic



Onions



Garlic Chives

NITROGEN FIXERS



Garden Beans and Peas



Purple and White
Prairie Clover



Lupine



Red Clover

MULCHERS



Borage



Hosta



Comfrey



ACCUMULATORS

Storage adds trace minerals to the soil.



Comfrey (Bocking 4)

Comfrey draws up nutrients from deep in the ground through the roots and then into the leaves.

Chop & Drop:
Decomposing leaves release nutrients into the soil.



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LAYERS AND CATEGORIES

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Community Extension

www.wetcc.edu/extension.html

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