

Sustainable & Edible Landscaping

Sustainable Gardening- 'Eco Friendly' Gardening

- Recognizes the fact that humans are using resources faster than they can be replaced
- Integrates environmental factors to create a more sustainable future: i.e. organic practices and use of native plants
- Uses minimal inputs; labor, water, fertilizer and pesticides

Permaculture

- A design system for sustainability in all aspects of human endeavor (including gardening), based on the idea that a healthy ecosystem is self-maintaining
- Incorporates many models for gardening and landscaping, including the food forest model
- Permaculture is a broader term that includes sustainable gardening, but also extends to the entire habitat- housing, animal husbandry, power systems, etc.

Food Forest/ Forest Garden

- Low-maintenance, plant based production system based on natural woodland ecosystems, integrating fruit and nut trees, shrubs, herbs, vines and annual and perennial vegetables
- Layered plantings with diversity encourage a healthy ecosystem to develop

Sustainable Gardening is gardening with minimal inputs of labor, water, fertilizer and pesticides. The goal is to work with nature, not against it! A sustainable garden will use organic and integrated pest management practices, and in ornamental gardens, will include the use of native and adapted plants. A sustainable garden also accepts that you are sharing your garden with other inhabitants, which may mean accepting a few weeds or a little insect damage now and then.

Starting out- what can you grow with the minimum of inputs? First, you must know what your growing site is like.

1. What is your soil like? Does it drain well? Is it wet in winter? Does it contain organic matter, or is it mostly mineral/clay soil. When you dig in your soil, do you find lots of earthworms? Do you see fine white threads (mycelium of beneficial fungi) through it? Have you ever tested the soil for pH and/or nutrients? Most plant problems are caused by planting in soil that does not suit them.
2. What is the light and sun exposure? In the summer, how many hours of direct sun does your site receive? Does it get more winter sun?
3. What are the prevailing wind patterns? Are you protected from wind? Do you get the outflow winds in the winter?
4. What is the air drainage like? Are you in a valley bottom? On a ridge? On a slope? Do you tend to get frost when nobody else does?

Once you have observed your site, you can better choose plants that will thrive there. Even when planting native plants, knowing the soil type, drainage and light exposures can mean the difference between success and failure.

Improving your site

Even if you have less than ideal soil, you can improve what is there over time by mulching. Adding organic mulch on top of the soil will improve the soil structure over time as it breaks

down. Recycling your yard waste and kitchen scraps by composting them and adding the compost back to the soil returns nutrients to the system, improves soil drainage and water retention capacity, and keeps those items out of landfills. Continually adding organic matter to the soil surface also encourages microbial activity to break it down, which in turn makes nutrients more available to plant roots.

Food production

Start by choosing plants that are adapted to your conditions. For fruit and nut trees and shrubs, choose disease-resistant varieties. Use the food forest model to layer your plantings, planting lower growing, more shade tolerant plants in between or near larger sun loving plants. Check for soil suitability; blueberries like a more acid soil than fruit trees, but can be planted in a little more shade than fruit trees. Remember that you have to work around your trees and shrubs to prune and harvest, so allow enough space for each plant. Young woody plants need water the first couple of years to become established. After that, water deeply when you do water. Keep soil mulched to conserve soil moisture and to continue to improve the soil structure.

Most annual vegetables will require supplemental water in the summer. Use drip irrigation and mulch to minimize water use. Rotate plant families to minimize soil borne diseases. Companion planting and cover cropping also help keep your vegetable garden healthy.

Lawns

For grass lawns, mow with a mulching mower, set to at least 2", for healthy grass. Mulching mowers return the clippings to the lawn in fine enough pieces that they quickly decompose and return their nutrients to the grass. Allow your lawn to go dormant in the summer. This is natural and does not hurt the grass. Apply lime or dolomite lime in the fall, along with a light layer of compost. If you do fertilize, do it in the fall with a slow release, organic based mix. New lawns can be planted in mixes such as 'EcoTurf' and 'Fleur de Lawn', tested by Oregon State University. These are a mix of low growing grasses and perennial flowers that can be mowed less frequently than grass lawns. The mixes do contain clover and yarrow, which stays green when the grass goes dormant in the driest part of summer. (Note: 'Eco Lawn' from White Flower Farm in CT does not work in our climate!)

Pest control practices

- Learn to accept some level of damage as long as the plants are healthy and you are still getting good harvests from your food producers
- Learn from your plants! Observe your plantings regularly for problems. Observation of your habitat is the foundation of permaculture.
- Research options for managing recurring pests and diseases- what is the most eco-friendly option?
- When using treatments, always follow the label directions
- For food plants, some proactive maintenance management can go a long way
- Use physical barriers to pests when practical
- If a plant is always having problems, consider replacing it with something more adaptable to the conditions

When integrating food producing plants with ornamentals, consider making your ornamental choices ones that are good companions to your food plants.

- Plants that attract beneficial insects that prey on pests

- Plants that provide year round nectar and pollen for pollinators
- Plants that repel pest insects
- Plants that provide food and shelter for songbirds (great insect eaters!)
- Nitrogen fixing plants or cover crops to improve the soil or capture micronutrients

Basic Requirements for Intensive Edible Landscapes:

To grow food plants well:

- Summer sun: 6-8 hours minimum from early April through September
- Air circulation: good air drainage and movement
- Soil without standing winter water

When designing a landscape that is primarily edible plants, ask yourself some basic questions:

- What do I like to eat that I can grow in our climate?
 - Would I want to produce just some or most of our fruits and vegetables?
 - Do I want to grow what I can eat fresh, or do I want to preserve some, too?
 - Am I here, do I have time to harvest when things are ready?
- What kinds of gardens/landscapes are attractive to me?
- Will I include hedges? Raised beds? Patios/decks? Water features?
- Do I like a “wild” garden or a more “formal/maintained” look?

These kinds of question will help you decide how much of your landscape will be edibles and how many ornamental natives or exotics you want to include. It will help you decide if you will have any lawn or hardscape included. It’s a good idea to draw a rough sketch of your land to help plan the lay out of your landscape. Include:

- Views you want to include
- Views you want to screen
- Areas with too much shade for edibles
- Areas where the soil is unsuitable or raised beds would need to be built
- Areas for possible outdoor living spaces
- Areas for utility functions (tool storage or compost areas)

Once you have a sketch with areas defined, you can begin planning your edibles. Plan on layering if your area is small, using taller elements like trees in such a way as that some lower growing plants can be grown under them without being too shaded.

Trees: Most food/fruit producing trees are deciduous, and can replace ornamental deciduous trees in the landscape. Some fruit trees have ornamental blooms, and some have good fall color. Most fruit trees are grafted, and come on a range of rootstocks that help determine size. Some forms to consider:

- Fruit fences/espalier (mini-dwarf and dwarf trees)
- Bush form/dwarf trees (mini-dwarf and dwarf trees)
- Larger tree forms (dwarf or semi-dwarf trees), planted in pleasing patterns rather than straight rows.

Choose disease resistant varieties when possible. When planting, consider access for pruning, picking, and spraying. Match the tree to your soil type and irrigation



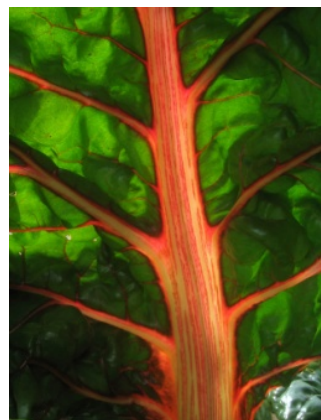
Espalier

abilities. Check to make sure you have correct cross pollination.

Shrubs: Most fruiting shrubs are also deciduous. They can range in size from very dwarf blueberries, to elderberries which may grow to 12'-15'.

Groundcovers: These include some evergreens, including cranberries and lingonberries, and some herbaceous plants such as strawberries (day neutral).

Perennials: Rhubarb, asparagus, sunchokes, and artichokes are all ornamental during the growing season, and die to the ground in winter. There are perennial chards and French sorrel, for greens year round.



Rainbow Chard

Vines: Most vines will need a support system; a trellis, fence, or pergola built to support the weight of the vine and the fruit. The best known fruiting vines are grapes and kiwis. Hops, grown for beer or medicinal purposes, is another easy vine.

Herbs: Shrubby herbs such as rosemary and thyme work well in sunny locations. Chives are attractive in flower and a long term source of flavor. They will self-seed. Fennel and lemon balm are also perennial herbs, but will self-seed to the point of invasiveness if not managed. Mint and comfrey will tolerate more shady locations.

Annuals: Colorful lettuce, kale, and chard varieties can be grown in the landscape easily; tucked among flowers in a flower bed, or among fruiting trees and shrubs where there is enough sunlight.

Right Plant, Right Place

Good choices for dry, sandy soil:

- Grapes, Seaberry, Autumn Olive, European Olive (rarely ripens fruit here), Fig, Rosemary, Thyme, Lavender
- With summer irrigation, dry sandy soil is also great for most fruit trees

Good choices for rich, acidic soil: Blueberry, evergreen huckleberry, cranberry, lingonberry, tea (*Camellia sinensis*)

- Except the tea, all of these are *Vacciniums*, all need summer moisture in the soil, and integrate well with conifers and rhododendrons in mixed landscapes.

Good choices for partial shade (tolerate but don't need shade):

- Shrubs- Elderberry, blueberry, gooseberry and currant, evergreen huckleberry, red huckleberry, tea (*Camellia sinensis*)
- Trees- Paw Paw, American Persimmon, Elma's Special Plum
- Groundcover or herbaceous- Woodland strawberry (*Fragaria vesca*), mint, rhubarb
- Vines- Arctic Beauty Kiwi, *Schisandra* or Magnolia Vine, Akebia



Quince in flower

Tolerant of some winter wet:

- Trees- Pears on semi-dwarf rootstock, quince, plums, hazelnuts
- Shrubs- Black currant, elderberry, aronia (chokeberry)

Showy flowers:

- Some apples (Mott's Pink, Pink Pearl) and crabapples, peaches, medlar, quince, Mountain Ash crosses
- Some blueberry cultivars (Sunshine Blue, Toro), tea, rosemary

Fall foliage color:

- Asian Pears, persimmons
- Blueberries
- Many red wine grapes

Beneficial insect attractors:

- Woody Plants:
 - Pussy willows (early pollen)
 - Mahonia (Oregon grape family)
- Perennials:
 - Ajuga (tolerates shade)
 - Crimson thyme
 - Yarrow
 - Comfrey
 - Lemon balm
 - Penstemons
 - Mint family
 - Coneflowers
 - Sedums
- Annuals
 - Buckwheat
 - Cosmos
 - Borage
 - Alyssum
 - Dill, coriander



Resources

- Sustainable Gardening The Oregon-Washington Master Gardener Handbook EM 8742
- The Ann Lovejoy Handbook of Northwest Gardening: Natural-Sustainable-Organic Ann Lovejoy
- Plants of the Pacific Northwest Pojar and McKinnon
- Gardening with Native Plants of the Pacific Northwest Arthur Kruckeberg
- Designing and Maintaining Your Edible Landscape Naturally, Robert Kourik
- Edible Landscaping, Rosalind Creasy
- WSU Extension online, bulletins on attracting pollinizers and beneficial insects