Ecological Gardens & Companion Planting

by Charlie Nardozzi at GardeningwithCharlie.com

Ecological gardening includes garden practices that build healthy soil, preserve pollinators, create habitats for birds and wildlife and protects and enhances plant growth through finding the right plant partners or companion plants.

Tenets of Ecological Gardening

Looks at total yard/environment

Protects and builds the soil fertility

Mimics and enhance natural systems.

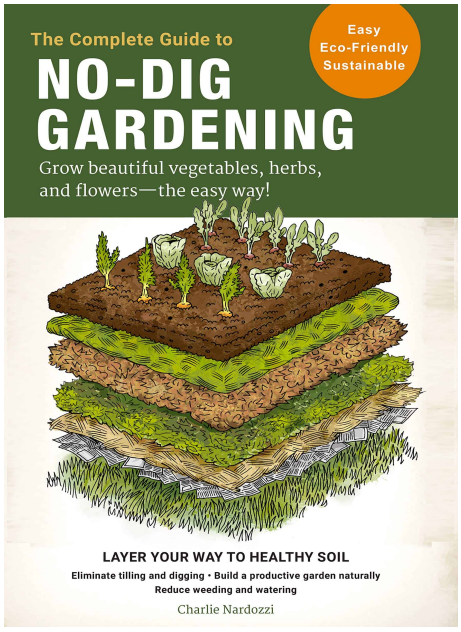
Reduces labor

Uses local resources

Building the Soil

No Dig Gardening:

-Soil is a living ecosystem with billions of microbes that help create water and air channels.



-Healthy soil transports nutrients and water to plants and shares them with other plants

-No dig means not tilling, turning or digging the soil so not to disturb this microbial ecosystem.

-Build no dig beds with layers of locally sourced, organic materials, such as hay, straw, chopped leaves, grass clippings from untreated lawns, compost and composted manure.

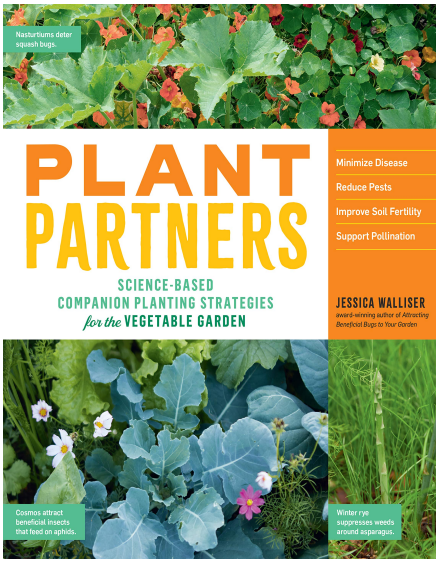
-Maintain no dig beds by always having something growing in the bed or covering the bed with organic materials to protect the microbes in winter.

-No dig sequesters carbon in the soil reducing global warming.

-No dig is easy for the gardener to create and maintain.

Companion Planting

Based on research written about in the new book 'Plant Partners' by Jessica Walliser.



Benefits:

Share Space

Share Nutrients

Control Insects

Control Diseases

Control Weeds

Share Space

-Growing Vertically opens up new spaces in the garden to grow other plants. Plants, beyond the traditional beans and peas, can be grown vertically such as cucumbers, summer squash and zucchini.

-Companion plants, such as pole beans growing up corn or sunflowers, can be used to save space and be productive

-Interplanting means planting crops with compatible growth types such as strawberries under asparagus and root crops with onions. Their tops don't compete for light and their roots grow at different depths in the soil so don't compete for nutrients.

-Polyculture means mixing many different plants together to create a “jungle” of

growth. This usually includes different types of greens as well as root crops, herbs and broccoli family plants.

Share Nutrients

-Plants are paired to share nutrients such as peas with lettuce, kale with edamame and cowpeas with tomatoes. Peas, cowpeas and other legumes fix nitrogen in the soil that other nearby plants, such as lettuce, kale and tomatoes, use to grow.
-Cover crops are used in the No-Dig system to build soil, feed microbes and protect the soil in winter.
-The key to no dig cover crops is to choose those plants that either die off in winter with freezing temperatures, such as buckwheat, or naturally are annuals in your climate such as sorghum. No tilling under is needed with these cover crops. Simply cover the dead plants in spring with a layer of compost and plant.

Control Insect Pests

Trapping with other plants

Masking plants vs repelling insects

Luring pests away

Trapping:

Perimeter- Use plants or varieties, such as hubbard winter squash, desired by certain insects that can fly and travel, such as squash vine borers, planted on the perimeter of your garden to trap them. Destroy the plants or control the insects on the trap plants.

Interplanting- Plant alternate rows of desired and trap crops together for pests that don't move very far. For example, plant radishes next to pak choi to trap flea beetles on the radishes and hot peppers next to sweet peppers to trap pepper maggots on the hot peppers

Timing- Make sure the trap crop is set out and established before the desired crop so the pest finds the trap crop first.

Masking Scents

Certain plants emit an odor that masks the scent of the plant insects are looking for. Companion planting these plants in the garden confuses adult insects so fewer eggs are laid because fewer plants are found.

Examples of scent masking

-Nasturiums grown with summer squash and zucchini to confuse squash vine borers and

squash bugs

-Basil grown with tomatoes to confuse tomato hornworms

-Dill and cilantro grown with potatoes to confuse Colorado potato beetle

-Mint family plants grown with Brassicas to confuse cabbageworm butterflies

Luring Beneficials

Lure beneficial insects into your garden by creating a garden habitat that they enjoy. Grow a mix of herbs, flowers, shrubs, berries, flowers and vegetables together.

Some examples of habitats to create:

-Beetle Banks: Ornamental grasses, such as bluestem, attract black, ground beetles to the garden. They feed on slugs, snails, aphids and many other insects. Create a beetle bank raising the soil about 1 foot high in a 4 foot diameter circle. Plant the grasses in the raised area.

-Low Growing Perennials and Annuals- Low growing plants, such as mint, alyssum and thyme, to create habitats in the garden for beneficials to thrive

-Shelter: Incorporate hedgerows, shrubs, and even grassy areas and meadows as shelter for beneficial insects in your garden.

Control Diseases

Encourage soil biodiversity

Cover the soil/cover crops

Reduce insect damage

Rotate plant families

Increase air flow

Control Weeds

Annual weeds, such as amaranth and lambs quarters, can be shaded out so they don't take over by interplanting other vegetables together leaving little space for the weeds to grow.

Perennial weeds, such as bindweed, can be discouraged by planting grasses and perennial cover crops in the garden such as oats and clover.

Some examples of good weed control combinations include;

-Tall veggies, such as tomato, eggplant, pepper, with white clover as a perennial cover crop. Clover is also a legume that fixes nitrogen for the veggies to use. White clover is a creeper and smoothers out weeds trying to grow. Be careful not to let it spread too far into the garden.

-Mustard and Summer Squash. Mustard releases chemicals in the soil that discourage disease and weed growth and can smoother some annual weeds.

-Fall Oats with tall veggies and berries. Oats shade out weeds and releases chemicals to discourage their growth.