10-Minute University™
The Clackamas County Master Gardener Association in collaboration with and in support of the OSU Extension Master Gardener™ Program

Regenerative Gardening Practices for Healthy Plants and Soil

Healthy soil is essential for thriving plants. Regenerative gardening restores soil and boosts biodiversity, saving resources while improving plant health and carbon storage. For better urban gardens: 1) minimize soil disturbance, 2) keep soil covered, and 3) grow diverse plants.

Disturb Soil as Little as Possible

Soil consists of eroded rocks, decomposed organic matter, and organisms. Living things such as fungi, bacteria, and invertebrates help bind mineral particles into peds, which provide space for water and oxygen. Digging and tilling disrupt this structure, compacting the soil, impeding root growth, and reducing air and water movement. Tilling also brings weed seeds to the surface and can eventually create a hardpan layer that blocks roots and water.

These no/low-till practices reduce labor and improve soil structure:
Making a new bed

- Dig up persistent weeds such as ivy, blackberry, and bindweed, and cut other vegetation close to the ground
- Cover with mulch: Begin with a layer of nitrogen-rich plant material such as grass, leaves, or compost, followed by a carbon-rich layer such as straw or dried leaves.
- Top with at least 3” of arborist’s wood chips which will deter small-seeded weeds. If you have more persistent weeds, add a thicker layer of chips.
- Wait 3-6 months before planting.
- If the soil is highly compacted, loosen it with a broad fork. Plant cover crops, then mulch as described above.

Harvesting and maintaining a bed

- To weed, gently pry the roots from the soil.
- Harvest above-ground crops by cutting the plants at the base.
- Dig root crops with a hand tool, disturbing the soil only around the roots.
- When working with compost or cover crop seeds, use a tine fork.

Keep the Soil Covered

Keeping the ground covered with plants or organic materials suppresses weeds and protects soil from erosion by wind and rain. Organic mulches decompose over time, improving soil structure, increasing water storage capacity, and providing food and habitat for soil organisms.

There are many types of organic mulches that can be used to cover the soil. Apply straw (not hay, which contains seeds), arborist wood chips, leaves, or leaf mold to a depth of 3” to deter most small-seeded weeds.

Compost as a Mulch
Compost reuses yard and other types of waste materials. When added to the soil, it decomposes slowly, releasing nutrients. In dry conditions, compost can form a water-repellent crust. It is best to use drip irrigation in beds topped with compost as mulch.

Cover Crops as Mulch
Cover crops offer many benefits, including preventing nutrient leaching and soil erosion, adding organic matter and nitrogen to the soil, and providing habitat for beneficial insects and food for pollinators.

Plant cover crops in fall or spring by scattering seeds densely and using mixed varieties. Remove plants by cutting them at soil level before they fruit.

- Winter options: nitrogen-fixing crimson clover, fava beans, Austrian winter peas, and common vetch; daikon radish loosens compacted soil.
- Summer options: Buckwheat grows quickly and provides good coverage; lacy phacelia attracts pollinators; Sudan grass yields high biomass and an organic mulch; and cowpeas provide nitrogen and high biomass.

Plant a Diverse Variety
Cultivate a variety of plants to nourish people, animals, and soil life. Increasing garden diversity attracts helpful predators and parasitoids that support natural pest management. Try alternatives to traditional landscaping: plant fruit or nut trees instead of ornamentals, create native hedgerows, establish pollinator meadows for insects, birds, and other wildlife, interplant a variety of vegetables in one bed, and grow ornamental plants alongside vegetables and herbs.

Managing Nutrient Replacement
Test your soil before buying fertilizers. Vegetable beds need replenishment because harvests remove nutrients. Plant cover crops to replace lost nutrients. Supplement with an organic nitrogen source, such as feather or blood meal, where needed. Ornamental beds lose few nutrients and may benefit from ½" of compost as mulch every year or two to feed soil microbes.

Resources
Cover Crops for Home Vegetable Gardens, https://cmastergardeners.org/wp-content/uploads/2022/10/cover-crops-for-home-vegetable-gardens.pdf
Gardening with Mulches, https://cmastergardeners.org/wp-content/uploads/2022/02/gardening-with-mulch.pdf
Mulching Woody Ornamentals with Organic Materials, https://extension.oregonstate.edu/catalog/ec-1629-mulching-woody-ornamentals-organic-materials