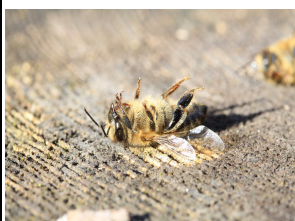




12 EASY STEPS TO CARBON RICH SOIL

FOR A VIGOROUS GARDEN THAT IMPROVES YOUR SOIL, CLEANS THE AIR, AND LESSENS CLIMATE CHANGE, FOLLOW THESE EASY STEPS. As the health of your soil improves, your plants will flourish and pull more carbon dioxide from the air while storing carbon in the ground—building richer, darker, more fertile soil. Soils can store more carbon than the atmosphere and vegetation combined. For every ton of carbon your plants’ roots store in the soil, more than three tons of carbon dioxide is removed from the air. Your healthier, more fertile soil will not just grow more vibrant plants and nutritious fruits and vegetables but also minimize plant disease and blight and hold at least 30% more water, making your garden virtually drought resistant.



DON'T USE HERBICIDES AND PESTICIDES

Fertile soil depends on healthy soil life-forms. Herbicides and pesticides kill not only “bad” bugs like aphids, snails, and slugs but also “good” bugs like earthworms, ladybugs, and bees, not to mention butterflies, birds, lizards, and other creatures. The more life-forms in your soil, the more vigorous your garden, and the more resistant your plants are to blight and disease.



DON'T COMPACT YOUR SOIL

Stick to designated paths. Walking on soil causes compaction and hurts and kills soil life-forms, which require small underground pockets of air and water. Healthy, “living” soil is spongy, because beneficial soil life-forms have built tiny pockets to capture air and water. Healthy soil absorbs and holds at least 30% more water than weak or dead soil. Indeed, this productive, spongy soil makes your garden virtually drought resistant. If your soil is compacted, aerate it with a pitchfork or shovel being careful to disturb the soil structure as little as possible. A machine can also be rented that puts air holes in the soil.



LEAVE LEAVES ON THE GROUND

In the Fall, rather than raking up, bagging, and throwing away all your leaves, pine needles, and other organic debris, leave all or some of them on the ground (depending how thick the cover is)—they’re “free mulch” and will increase the life in your soil and the health of your garden. This is a case where less (less work) is more (a thriving garden). In the Spring, some of the leaves can be used as mulch as noted in step below.



MULCH

Cover exposed soil in your garden with one to three inches of mulch, which could be leaves depending upon your choice for aesthetic design. Mulch moderates soil temperatures, feeds valuable soil life-forms that build fertile soil, saves water, prevents disease and weeds, all of which will benefit your plants and increase their resiliency and drought resistance.



DON'T DIG UP OR TILL

Don't dig up or till your garden. This disturbs or kills soil fungi, worms, and other beneficial microbes while unnecessarily releasing carbon dioxide into the air. Dig a sufficient hole only to plant something. Placing compost on top of your soil, covered by mulch, and following the other tips noted here will begin building the living soil your plants need.



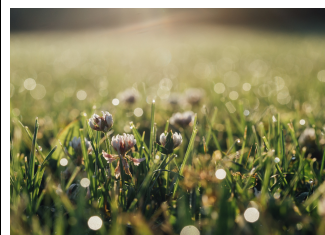
REMOVE ALL OR SOME OF YOUR LAWN AND PLANT REGIONAL NATIVES

Regional native plants are best. They evolved to thrive in our soils and climate and, unlike lawns and popular exotic plants, they require less water and support Minnesota's endangered bugs—like butterflies, grasshoppers, and beetles—along with the birds and other creatures that eat these bugs. Consider converting your lawn in stages as opposed to all at once.



ENCOURAGE FUNGI IN YOUR SOIL

Soil fungi (or mycorrhiza) work with and “extend” roots, maximizing plants’ ability to draw nutrients from the soil. Applying compost or compost extract to your soil will encourage and support soil fungi, which are vital to the health of your plants and soil.



PLANT COVER CROPS

Cover crops, or plants in the legume, grass, and forb families, nourish and rebuild depleted soils by increasing soil life and aeration along with nitrogen, phosphorous, and other vital plant nutrients. Among the many cover crops are white clover, field peas and oats, fava beans, barley, wheat, and wild rye.



GROW NUMEROUS AND DIVERSE PLANTS

The greater the diversity and number of plants, the healthier the soil. This is because the biodiversity of plant life above ground mirrors the biodiversity of soil life-forms below ground. Deep-rooted perennials, such as many native Regional grasses, are especially beneficial, as they work with larger volumes of soil, forming networks with more fungi, bacteria, and microbes.



USE COMPOST

Compost can be made by mixing about 20% kitchen food scraps with about 80% wood mulch, leaves, shredded newspaper or cardboard into a pile or bin in your backyard. Keep the compost slightly damp at about 50% moisture. Add red wiggler worms to the pile every Spring. Worms, beetles, fungi, and other soil microbes will eat the waste, transforming it into excellent compost. Apply compost to the bottom of planting hole and the surface of your soil. For best results, cover composted soils with mulch. Also use compost any time you're turning the soil to reinvigorate the soil-food-web ecosystem. Use compost in your potting soil and raised garden bed mixes. Inoculants and biochar could also be added to increase carbon sequestration rates.



MAKE COMPOST EXTRACT

Use your compost to make a liquid extract fertilizer. Applying such an extract is the fastest way to improve soil health. Add a few trowels of compost to a bucket of water, stir vigorously, then promptly pour it around your plants. This not only boosts the life in your soil and increases plant vigor but also suppresses plant disease and bug blight. Preference order of source of compost 1) your backyard, 2) from an outdoor pile at nursery or garden center and 3) quality packaged compost in which nutrients are metabolized by microbial life in the compost and are readily available to your plants.



DON'T USE SYNTHETIC FERTILIZERS

Synthetic fertilizers kill life in the soil. Plus, they are basically made from fossil fuels. As plant roots begin to rely on synthetic fertilizer for nourishment, the roots stop working with natural soil life forms, which causes them to die off. Salts from synthetic fertilizers also harm or kill soil microbes. This weakens and destroys soil life forms, making plants increasingly dependent on manmade chemicals.

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Steps endorsed by Healthy Soil expert Russ Henry from Minnehaha Falls Landscaping & our 2019 Festival Soil Nerd

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