

Love the Fungus Among Us!

In El Niño years when there is unusual warming of surface waters in the eastern tropical Pacific Ocean, North Texas often receives an abundance of spring rain. The volumes of water can flood gardens, wash away seeds and yellow the leaves on plants. Something else also happens in our gardens and lawns that we may not have noticed because it was happening within the soil: fungi grows and spreads.

There is a world of biology going on in fertile soil. Most of the time, fungi stay hidden while breaking down organic material. When conditions are right, like prolonged periods of wet and humid weather, fungi burst from the soil, like flowers in the spring. A fungus spreads spores into the air and dies when the sun comes out, or the soil dries up.

When people think of fungi, they think about their visible fruiting bodies: mushrooms and toadstools. Mushrooms are just a minor part of the fungus that inhabits the soil. Fungus is always found in soil, before mushrooms are visible, and is still there when the mushrooms are gone. The work of fungus happens in the soil, forming strands of fungal hyphae. These hyphae are thin, delicate, root-like structures that allow for the transportation of water and nutrients to plants.

Within the soil's ecosystem, fungus hyphae are like roads and highways connecting cities. The hyphae will connect with plant roots, creating a symbiotic relationship. Fungi make nutrients soluble, thus making them available for uptake by plants. The hyphae ensure that water, nitrogen, phosphorus, and essential trace elements transport to where they are needed. The fungi then access nitrogen from the plant. This mutually beneficial relationship is called mycorrhiza.

Most plants, including trees, turf grasses, annuals, and perennials, depend on some fungal activity to live. Fungal relationships improve drought and disease tolerance, reduce stress from weather, and accelerate a plant's growth rate at every stage. Even though one may not be fully aware of all those fungi do under the soil, gardeners can make sure to care for the delicate systems of fungi in all gardening practices.



John Ghent, Bugwood.org 5474521

Column stinkhorn
(Clathrus columnatus)



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Scurfy twiglet
(Tubaria furfuracea)



João Gonçalves, Agência para a Gestão Integrada do Fogo Rural, Bugwood.org

Beefsteak fungus
(Fistulina hepatica)



Gerald Holmes, Strawberry Center, Cal Poly San Luis Obispo, Bugwood.org 1570649

Chestnut bolete
(Gyroporus castaneus)



Joseph O'Brien, USDA Forest Service, Bugwood.org

Violet-toothed Polypore
(Trichaptum bifforme)



Norman D. Davis, Bugwood.org 11011498122

Solid-stemmed Panaeolus
(Panaeolus solidipes)

How can we grow and care for fungi?

Fungi is present in your soil already. You have healthy fungi if you have healthy perennials, trees and shrubs, and crumbly rich soil. With a bit of help, one can keep fungi thriving and multiplying.

Feed it mulch and compost - Fungi eats organic matter. Top your soil with organic pine straw, hardwood or bark mulches, fall leaves, or compost made with plenty of these items. Organic material from trees is ideal.

Consider a 'no-dig garden - Mechanically tilling your garden pulverizes fungi particles. Use hand tools to work the soil to ensure a healthy fungal network by disturbing the soil as little as possible.

Minimize the use of chemical fungicides – Chemical fungicides can harm soil fungi. Try alternative methods for fungal diseases on plants. Some natural alternatives include cinnamaldehyde (a derivative of cinnamon), neem oil, jojoba oil, and baking soda.

Use cover crops and crop rotation – Grass and legume cover crops capture nitrogen and provide winter protection for soil fungi. In vegetable gardens, onion, bean, and corn families are good partners to soil fungi. Rotate these crops to keep fungi thriving.

The benefits of fungi in organic gardens are largely unrecognized. While some fungi eat dead leaves, others eat live things like nematodes. All add benefit to the soil. Resist the temptation to get rid of the mushrooms that show up in your landscape. They are a sign of **healthy soil** containing lots of organic matter.