

## NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

By John Ferguson

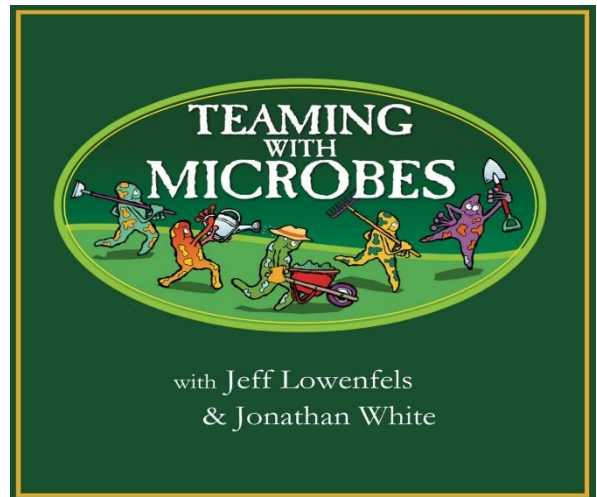
[Jeff Lowenfels now has a series of podcasts on soil biology.](#) Jeff is the author of several books every serious gardener should read and understand. Jeff has done a great job of explaining science in an easy-to-understand form for the average gardener.

We know today that the microbes in the soil are the most important element in having healthy flowers, fruits, and even grass. The books below explain how and why these microbes keep our plants healthy and free of disease.

**Teaming with Microbes**, A Gardener's Guide to the Soil Food Web, 2nd Edition, by Jeff Lowenfels & Wayne Lewis, Timber Press, 2006, ISBN-13:978-0-88192-777-1

**Teaming With Fungi: The Organic Growers Guide to Mycorrhizae**, by Jeff Lowenfels, Timber Press, 2017, ISBN: 978-160469-729

**Teaming With Bacteria: The Organic Growers 90Guide to Endophytic Bacteria and the Rhizophagy Cycle**, by Jeff Lowenfels, Timber Press, 2022, ISBN: 978-1-64326-139-3





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I ran across a question about cyanide in leaf litter composting the other day. Many plants have cyanide in their leaves like red maples, prunus species (plums, cherries, peach, apricots, nectarines) to name a few. This is part of the plants natural defense or immune system to protect it from being eaten.

This type of organic cyanide is far less dangerous than artificial hydrogen cyanide that is a waste product of many industries. The small amount of cyanide present in the leaves rapidly decomposes in a few days when they fall off the tree and hit the ground.

In healthy soil or in a composting pile they break down even faster. The beneficial microbes love to eat (digest) the cyanide breaking the molecule apart to get to the nitrogen they need to grow. As the microbes live and die the nitrogen is released to feed our plants.

I read another article this week on peatmoss, comparing it to coir as a potting medium. Coir is fibers from the outer husk of coconuts; hence it is a renewable resource and peat is not.

Peat forms in peat bogs from the slow decomposition of wetlands plants and accumulates at less than one millimeter per year (4/1,000 inch). This is only one inch in 300-600 years.

As we discussed last week, preserving our peat bogs is essential to help fight climate change. Today we have many choices for our potting medium that work better, are sustainable, and help reduce carbon in the atmosphere.

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Many of these are - rotted sawdust, compost, composted mulch, composted bark, and even wood chips. Many of these works as good or better than peatmoss, cost less to use, give better results and are renewable.

As we learn more about soil microbes and the biology of plants and soils, we now know why some of these alternatives work better than peatmoss. Peatmoss with its acidity, often kills off many of the beneficial microbes that make plants healthy and prevents disease. As a result, we often experience more disease and pest problems when we grow plants in peatmoss.

As an example of using an alternative potting media, for decades I grew ferns in hanging baskets hanging on my patio cover. I used our coarse aged native mulch as a potting medium for the ferns. I would mix in a little Microlife™ fertilizer with the aged native mulch at planting time. When I would water, I would use a dilute solution of Ocean Harvest mixed in.

The ferns were easily twice as large as the ones grown in peatmoss. They were not only larger, they had better color, grew faster, and zero problems with pests or disease. I never understood why until soil biology became better understood.

We now know from soil microbiology that ferns are a fungi loving species. Peat moss does not support the fungi that ferns need but the aged native mulch is full of beneficial fungi. Ocean Harvest (organic liquid fertilizer) has fish emulsion in it which is a fungal food. As a result of not using peatmoss, I had healthier and more beautiful ferns.

The above makes common sense. Think about when we take a walk in the forest, where we see ferns growing directly out of rotten logs! Rotten logs are decomposed by fungi.

As the Bible tells us, "Study nature and let it teach you."

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