

What's Killing Your Lawn?

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Chances are, you are. Before you get defensive I asked what's killing your LAWN not your GRASS. What's the difference you ask? Grass is only one member of the community that is your lawn. Besides the grass, there is soil and all the things that live in it. Yes there are some soil bacteria and fungi that are bad for your grass, but most of them are benign and some are beneficial. Keeping the soil microbes that make up the biggest part of your lawn community healthy is the best way to keep your grass healthy.

What do the bacteria and fungi in the soil do for your lawn? One thing is to cycle nutrients; they break down dead plants and release nitrogen, phosphorus and other nutrients to the grass in your lawn. Soil bacteria and fungi are also constantly at war with each other, producing chemicals that kill other bacteria and fungi. If you have ever been given an antibiotic that ended with –mycin it was based on a compound made by soil bacteria. Some fungi hunt nematodes. Just having a lot of soil microbes, particularly those that live on dead plants, takes up space and crowd out the microbes that make grass sick.

Soil microbes also help build good soil structure. Good soil is made up of clumps that soil scientists call peds. When soil has good structure it has the paradoxical quality of being well drained and holding moisture. This happens because the relatively big pores between peds allow water to drain from the soil, but very small pores within the peds hold moisture. This is important because when the big pores empty of water, they fill with air so all the oxygen breathing plants and animals in the soil have something to breathe. Yes, I said plants breathe oxygen. You see after plants, including the grass in your lawn, make food from the sun and carbon dioxide, they do the same thing with it that we do – they burn it the presence of oxygen to power their metabolism.

One thing that scientists have found is that good, healthy, diverse, well balanced communities resist invasion. This holds true for forests, coral reefs and lawns. Most lawn 'weeds' have a competitive advantage over grass in poor soils. Dandelions have long tap roots to reach deep water that grass can't, so does better in soils that don't hold moisture. Clover is a pea relative that hosts nitrogen fixing bacteria in roots, so does better in nutrient poor soils.

So let's review. If you keep your lawn healthy by taking care of the soil microbes your grass will get the nutrients, water and oxygen it needs to be strong, healthy, and out-compete weeds. Your grass will also be protected from many of the pests and disease that might plague it. Why haven't you heard about this from the lawn care profession? They tell you to spread fertilizer, water and aerate to keep your grass healthy. But how did turf grass get fertilized, watered and aerated when it was a wild plant just over 300 years ago? Microbes. The problem is that there is no money in microbes, but the academics that study soils and turf will tell you soil microbes are your friends.

How do you take care of your soil friends? Work less on lawn care. "Cut it high and let it lie" is a catchy expression to remember to set your lawn mower high and leave the clippings on the lawn. Those clippings have just the right amount nutrients to regrow the grass that has been cut. Now, the tricky part. You know those leaves the trees lose in the fall, leave them on the lawn. Don't rake them, run

over them with your lawn mower. Those leaves have 3 pounds of slow release nitrogen per 1,000 square feet – exactly what some grass care companies have said your grass needs. What’s more, those grass clippings and leaves have carbon, which most commercial fertilizer doesn’t. Contrary to what the ads tell you, fertilizer does not ‘feed’ your grass or other plants. The whole point of plants being green is that they make their own food, so plant ‘food’ doesn’t have carbon in it. But soil microbes need to eat carbon compounds to get the energy they need to live their lives.

Now, I’m not going to tell you that just switching to mulching your grass clippings and leaves is going to turn your lawn into a green, weed free fairway; you also need patience. It takes time to rebuild the microbe population after years of abuse. It takes even longer to rebuild soil structure after it’s been lost. Giving the lawn a 1 inch blanket of compost is a good way to start weaning it off chemicals. You may have to do this for a few years as the soil recovers. Compost not only provides the nutrients the grass needs and the carbon the microbes need, it also contains the microbes themselves. The Virginia Cooperative Extension Services has several publications to help you change to a simpler, cheaper, and better way to care for your lawn that is also better for the environment. There are also a few commercial organic lawn care companies out there that will do it for you. Of course you could also do better for the environment and solve many of your lawn care headaches by giving up on grass altogether.

<http://pubs.ext.vt.edu/426/426-325/426-325.html> How to compost.

<http://pubs.ext.vt.edu/430/430-402/430-402.html> Grass cycling.

<http://pubs.ext.vt.edu/430/430-521/430-521.html> Leaf cycling.