# Backyard Briefs

*A weekly column*
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What if one could find a product that helps plants and trees cope with drought, fight disease and also increase the plant's nutrition? Well believe it or not, such a beneficial aid has existed in nature since before plants began to live on land. They are a group of fungi that develop a mutually beneficial relationship with the roots of vegetation called mycorrhizal fungi (*mycor* meaning fungus, *rhiza* meaning root).

The fungi take food from the roots, in the form of sugar that the plant has produced through photosynthesis, and in return it does all the things I mentioned above. The fungus grows around root surfaces and within the root, and then extends filaments out into the soil. These fibers become an extension of the root system, which can increase the area the plant has accesses to by as much as 10 to 100 times. This increase in the amount of soil that a plant can access allows it to better cope with drought. However, mycorrhizal fungi perform many more services.

Typically these fungi breakdown minerals in the soil, such as phosphorous and iron, which improves the plant's nutrition. Mycorrhizae also attack disease organisms by releasing antibodies if the fungus encounters them in the soil. These beneficial fungi are also highly valued because they improve soil structure. The fungus fibers produce humus as they break down minerals and other matter in the soil. They also produce organic "glues" that bind the soil yet also leave air spaces. The result is a more porous soil that holds together, yet is aerated, allowing water to move through it, promoting additional root growth and encouraging soil animals such as earth worms that further improve the soil. All the while, the tree or plant is paying back the fungus for all its good work, by providing sugar that the fungus needs in order to survive.

There are thousands of different types of mycorrhizal fungi, and each different species forms partnerships with different plants. So the fungi that thrive in hardwood forests, for example, are very different than the fungi living in a grassland. Fungi, and many other beneficial organisms, occur throughout nature but, as you will hear more about in the next column, they can be degraded or destroyed in areas that have been disturbed.