

MYCORRHIZAL FUNGI

What is Mycorrhizal Fungi?

The word mycorrhizal is derived from the Latin words *myco* and *rhiza*. *Myco* means fungus and *rhiza* means root. The history of mycorrhizal fungi goes back millions of years and has even been found in fossils. The mycorrhizal fungi is a group of fungi that form a symbiotic relationship (mutually beneficial) with plant roots of living plants - from garden vegetables all the way up to the oldest trees. Each specific fungi have their own characteristics while sharing the characteristic of helping the host plant. Mycorrhizal fungi forms a network of filaments that enhances (by a factor of several hundred to several thousand times) the plants ability to gather water and nutrients with the additional benefit increasing the plants resistance to disease.

Why you should treat your plants.

Mycorrhizal fungi occurs naturally in soils and in undisturbed soils mycorrhizae is readily available to the plants. However in urban settings, agricultural soils or damaged soils, the populations of mycorrhizae have been reduced or completely destroyed. This is especially true when soils are moved, compacted, have fertilizer or pH imbalances or are low in organic matter. In addition, commercial potting mixes in which transplant trees are grown are often sterile and do not contain beneficial mycorrhizal fungi.

Mycorrhizal fungi studies and experiments have been on going for years and the benefits for plants that have formed a symbiotic relationship with mycorrhizal fungi is evident. Until recently there has been no way to re-introduce the fungi to soils with insufficient numbers. Developments in propagating mycorrhizae has resulted in mycorrhizal fungi being available for purchase so that you can inoculate your new plants, bedding plants and seeds.

Although most plants use the mycorrhizal fungi relationship, there are a few plants that don't rely on mycorrhizae in their natural environment and these plants are "weedy species". These plants can get the upper hand following soil disturbance further reducing the numbers of available fungi to any remaining or introduced seedlings.

Other Benefits.

Besides helping plants to gather nutrients and moisture, mycorrhizal fungi also works to improve soil structure. Mycorrhizal filaments produce humic compounds and organic "glues" that bind soils into aggregates and improve soil porosity. Soil porosity and structure promotes aeration, water movement into soil which improves root growth. Mycorrhizal fungi also improves plant survival, growth, flowering, fruiting, resistance to disease and invasion of non-mycorrhizal fungi. Mycorrhizal fungi attack pathogen or disease organisms entering the root zone - it is in the fungi's best interest to protect it's host plant. For example, excretions of specific antibiotics produced by mycorrhizal fungi immobilize and kill disease organisms. Some mycorrhizal fungi offer some protection to plants from *Phytophthora*, *Fusarium* and *Rhizoctonia* organisms.

How to inoculate your plants

Inoculating your plants is fairly easy. The inoculum can be incorporated into the planting hole at the time of transplanting, watered into porous soils, mixed into soilless mixes or directly dipped on root systems using gels. The form and application method of the mycorrhizal inoculum depends on your needs. It is really clear that any form of inoculant is highly effective on disturbed and stressed sites. Generally speaking, the inoculate will have a variety of fungi species to treat a range of plant types. Always follow package directions.

