

MYCORRHIZAL FUNGI

Never mind if you can't spell it - you can probably benefit from using mycorrhizal fungi in your garden.

Mycorrhizal fungi are small forms of vegetable life that live in the soil and form symbiotic relationships with many of the plants we like to cultivate. (Fungi now have their own classification, and are no longer classified as "plants", as they lack stems, flowers, roots, and leaves, and cannot manufacture chlorophyll.)

The relationship is symbiotic, not parasitic, since both the fungus and the host plant benefit. These fungi live in or on the roots of their hosts, and spread their fine thread-like hyphae into the soil, from which they can extract essential elements such as phosphorus, potassium, and nitrogen, as well as water, all with great efficiency. If the soil is undisturbed, the hyphae can grow several metres long.

The host plant benefits by having its own root system augmented by a vast network of hyphae. Being so long, so numerous, and only a few thousandths of an inch in diameter, these hyphae present a huge surface to the soil, which is one reason why they absorb water and nutrients so efficiently. Differences between the cell membrane chemistry of the fungi and that of the host plant also contribute to the more efficient uptake of elements by the fungi.

The presence of mycorrhizal fungi can also increase the host plant's resistance to soil-borne diseases, and soil contamination by toxic metals.

As a result, the effective area of the host plant's root system is increased by several hundred times.

In a well developed system, the increase may be up to a thousand times.

The fungus benefits by receiving carbohydrates, such as glucose and sucrose from the host plant, and relies on doing so. Mycorrhizal fungi in the soil will die within a few weeks if no host plant is available for them to colonise.

A strong, well established plant growing in undisturbed soil probably already has mycorrhizal fungi associated with its roots, and is unlikely to benefit from additional applications of mycorrhizae.

However, new plantings are likely to grow faster, larger and stronger, and need less water and artificial fertiliser if treated with mycorrhizal fungi. This is particularly true if the plot has been well dug and then left unplanted for some time, since any naturally occurring mycorrhizae will have died, lacking a host plant.

Nursery grown plants raised in a sterile growing medium and treated with chemical fertilisers and pesticides will, of course, have no mycorrhizae living on them, and can benefit by adding a mycorrhizal fungus product when planting out. Given that mycorrhizal fungi colonise the roots of their host, the fungus product needs to be applied as closely as possible to the roots during planting.

Since the mycorrhizal hyphae are so fine and fragile, any disturbance of the soil once mycorrhizae have colonised a host plant will damage the established network, and set back development.

Heavily dosing the soil with chemical fertiliser is likely to inhibit the development of mycorrhizal fungi.

It is suggested that when using mycorrhizal fungi, organic fertilisers are preferable to inorganic chemicals.

If used with mycorrhizal fungi, chemical fertilisers should be applied at about 50% of the normal rate.

It is recommended that systemic fungicides should not be applied where mycorrhizal fungi are used, but contact fungicides are unlikely to harm mycorrhizal fungi.

Certain types of mycorrhizal fungus are specific to certain groups of host plants, so commercial mycorrhizal fungi preparations normally include a significant number of different fungus types.

Mycorrhizal fungi preparations are available either alone (eg Vitax Q4 Rootmore) or with fertiliser, (eg Vitax Q4 Plus), and are suitable for most flowers, vegetables, grasses, bulbs, fruit trees, shrubs, foliage plants, berries and nut trees. They are not suitable for brassicas, laurel, rhododendron, azalea, blueberry, cranberry and loganberry.