

MYCORRHIZAL FUNGI: LET YOUR PLANTS PROSPER

Finding the right mycorrhizae for cannabis and employing properly will set your plants on the right track for **big, healthy buds**.

by Chris Bond

If you have done any shopping in a hydroponic store, garden center, or at any number of online sources, chances are you have come across mycorrhizae advertised or featured on a product label. It has been one of the most talked about and written about amendments or growing aids over the last 10-15 years. Learning about what it is, its benefits, and just what it can do to help you get fuller and healthier cannabis plants will help you decide if you should incorporate it into your cultivation regimen.

What are Mycorrhizae?

Mycorrhizae (mycorrhiza is the singular form of the word) are beneficial fungi that develop symbiotic relationships with plant roots. While their benefit has more recently become better known to growers, they have been helping plants to grow for hundreds of millions of years. In fact, these types of fungi served as early plants' root systems until they evolved on their own. Mycorrhizae were around when plants were transitioning from aquatic life into land-based organisms. Some plants, like orchids, could not even survive without mycorrhizae colonizing its root system. The very word mycorrhizae is a conjunction of two Greek words meaning "fungus root": mykes (mushroom or fungus) plus rhiza (root).

Types of Mycorrhizae

There are hundreds, possibly thousands, of different species of mycorrhizae, all of which fall under one of five different types:

- **Arbuscular mycorrhizal fungi (AMF)** is by far the most commonly occurring mycorrhizae type, with about 90 percent of all plant life on Earth receptive to it.
 - **Ectomycorrhizal fungi (EMF)** occur in conjunction with about five percent of plant species on earth, most of which are hardwood trees.
- The remaining five percent of plant species are served by three very host-specific types of fungi:
- **Orchid mycorrhizae fungi** are, not surprisingly, only found on orchids.
 - **Ericoid mycorrhizae fungi** are found in the soils around acidic plants, such as heaths, heathers, azaleas, and blueberries
 - **Monotropoid mycorrhizae fungi** are found among coniferous trees in areas that do not get much light.

Only the AMF type of mycorrhizae is beneficial to cannabis.

How Mycorrhizae Work

Regardless of the type, mycorrhiza works with plants by forming a symbiotic relationship. The fungi attach themselves to the plant roots and work like an extension of the plant, being able to draw in moisture and nutrients such as nitrogen and phosphorus from outside the plant's root zone. The mycorrhizae help the plant process these nutrients, acting as a buffer and releasing them to the plant in doses that are beneficial. In exchange, the mycorrhizae take the carbohydrates that the plant makes through photosynthesis that they need to survive from the plant as needed. Each type of mycorrhizae works with its host in largely the same manner, but with subtle, custom differences.

AMF work by piercing through the roots into the cellular wall. They then develop their network (the arbuscle) all around and within the root system where the exchange of nutrients takes place. They reproduce themselves asexually and continue to expand inside of and outside of the plant's root system. This is how mycorrhizae operate around cannabis roots. ECM do not penetrate the roots, but instead just surround the roots. This type of mycorrhizae reproduces through fruiting bodies above ground, appearing as commonly occurring mushroom varieties such as truffles or porcini. Orchid mycorrhizae assist orchid development by providing needed carbon; monotropoids work this way too around the coniferous trees they help to support. Ericoid mycorrhizae help acid-loving plants by breaking down nitrogen into forms the plants can use.

How Mycorrhizae Benefit Cannabis Plants

There are several ways that mycorrhizae will help you to grow amazing cannabis plants. From extending your plant's reach for food, to increasing buds, mycorrhizae will make your cannabis plants prosper. Because the mycorrhizal web that develops around your plant's root system increases the ability for your plant to find and draw water, minerals, and nutrients, the amount of fertilizer needed is reduced. You can do more with less.

The increased support system created by mycorrhizae will allow your plants to grow healthier and more robust faster. This means that the time needed during the vegetative phase is reduced, getting to bud development faster. Not only will the buds develop sooner on plants inoculated with mycorrhizae, but they will be bigger and more resinous, along with higher trichome density and an increased terpene profile.

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Below the surface, the matrix of fungi and plant roots plays a strong defense to disease. The increased root system is a better physical barrier to pathogens but also the cell walls of a healthy root system are more difficult for diseases to pierce through to invade. Plants with healthy mycorrhizae/root symbiosis are better equipped to withstand drought, transplant shock, and overall stress as they are healthier plants overall.

How to Incorporate Mycorrhizae Into Your Cannabis Cultivation

Adding mycorrhizae into your cannabis cultivation regimen is quite easy. Many commercially available soil and media mixes already have it mixed right in. You can also supplement by adding additional mycorrhizae or by encouraging further development of those you already have.





Keep in mind that unless the mycorrhizae are in direct contact with your cannabis plant roots, they will die, so it is important to make sure whatever form you add mycorrhizae to is fully incorporated into the media to increase the chance of contact with the developing and expanding root system.

As already mentioned, there is no shortage of product out there already inoculated with mycorrhizae to help your cannabis plants prosper. The benefit to these commercial formulations is they contain the proper type of mycorrhizae to benefit your plants in concentrations and quantities that should get them where they need to be quickly once deployed. It is important to note that since fungi are living organisms, product should be used as close to the production date as possible. Old and outdated mycorrhizae products are not likely to have the benefits that their labels lay claim to. There are some DIY methods to help encourage mycorrhizae if you are unable to obtain any commercial versions.

The AMF type of mycorrhizae is the most abundant on the planet and the type that benefits cannabis. Healthy, natural soils that support plant life will contain some number of mycorrhizae. You can incorporate some of this soil into the compost or media you are already using. This is not a method recommended by many as you do not know what else you may be introducing into your system or to your plants, but it can work. You can also encourage further expansion and development of mycorrhizae colonies by adding carbohydrates to your soil. This can be as simple as adding some sugary substance such as fruit juice or maple syrup to your soil. This too has its risks because it might attract unwanted pests. Use either of these two methods with caution and monitor closely.

Whether you opt to obtain your own or purchase a commercial formulation of mycorrhizae for your cannabis plants, incorporating it properly is key. You can incorporate it while mixing your media for seeding or transplanting, you can add some to each individual pot, or you can dip the roots of each individual plant into a formulation containing mycorrhizae. Whichever method you choose, it is of utmost importance that contact with roots is ensured in order for your cannabis plants to take advantage of all the great and positive benefits of mycorrhizae. 🍄

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