

MYCORRHIZAL INOCULANTS

Speed the Recovery of Disturbed and Burned Areas

Mycorrhizal fungi are naturally occurring organisms that form symbiotic relationships with nearly all plants including grasses, forbs, shrubs and trees. They function as a collection system for their host plants, accessing moisture and nutrients up to 50 times more efficiently than non mycorrhizal plants.



May 2001

Slide Area #1, Big Sur, CA - Located 2 miles north of the photo on the right. This area was reseeded in 1997 *without* a Mycorrhizal Inoculant.



May 2001

Slide Area #2, Big Sur, CA - Revegetated with AM120 Mycorrhizal Inoculants in fall of 2000.

More Efficient Use of Soil Nutrient Resources

Seeds inoculated with AM 120 Mycorrhizal Inoculant establish strong healthy roots systems much quicker than non inoculated seed. Mycorrhizal fungi develop complex webs known as "Hyphae" throughout the soil far beyond the reach of the plants roots.

They release enzymes and chelating agents that convert immobile nutrients into available plant food. Greater capture of many nutrients and increased leaf chlorophyll are some of the well documented effects of Mycorrhizae.



RTI

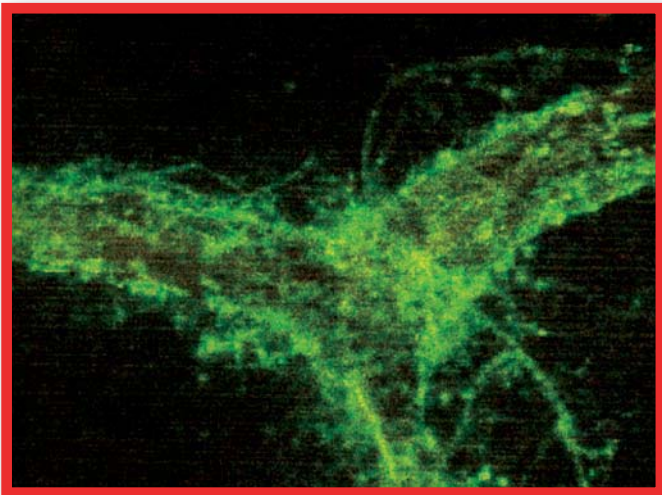
GLOMALIN

A natural soil glue produced by
Arbuscular Mycorrhizal Fungi (AMF)

Discovered by NRCS soil scientists in 1996, *Glomalin* was noted by two characteristics. The first was the apparent abundance of this material that was produced by AMF and the second was the "toughness" of its molecular structure. It was observed that higher levels of *Glomalin* improved water infiltration, increased soil permeability to air, promoted greater root development, higher microbial activity and greater resistance to surface sealing (crusts) and erosion (wind/water).

Carbon Sequestration

Mycorrhizal fungi produce miles of filament or hyphae throughout the soil to transport moisture and nutrients back to their host plants. These organisms are totally dependent



An arbuscular mycorrhizal fungus colonizing a root. Hyphae are the thread-like filaments. The green coating on hyphae is Glomalin.

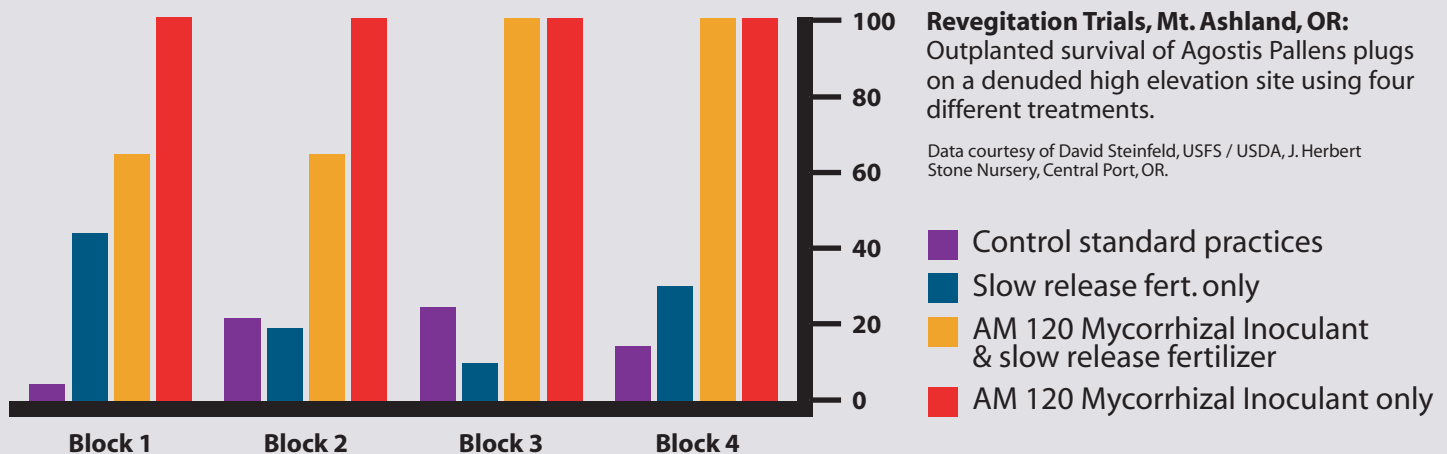
upon plants to supply them with their primary food source of carbohydrates. It is estimated that the amount of carbon filtered from the atmosphere is increased by over 40% or several hundred tons per acre when a fully functioning mycorrhizal network is in place.

Burned Area Revegetation; Does it Need Mycorrhizal fungi?

Wildfires have historically played a necessary function in many ecosystems; converting dry vegetation into available nutrients and allowing a healthy rebirth of plant species to occur.

With the intervention of highly effective fire suppression technology, many of these fire dependent sites have been protected for unnatural periods of time. This allows fire fuel to build and when fire occurs, temperatures from the fires are much higher, impacting a greater amount of damage to the flora and fauna.

Whether a "Mycorrhizal Inoculant" should be used can be generally determined by an assessment of the temperatures that occurred on the site. If soil temperatures exceeded 140° F throughout the rootzone, both the seed bank and the mycorrhizal component will be affected. If temperatures ran cooler during the burn, allowing plants to re-sprout and seeds to germinate, the presence of adequate levels of mycorrhizae are likely to remain in the soil.





Soil Structure Assessment, Monterey CA #1:

A soil plug extracted from the Big Sur site treated **with AM 120 Mycorrhizal Inoculant** demonstrates the improved structure and resistance to erosion created by a strong mycorrhizal presence.

AM 1 2 0



Soil Structure Assessment, Monterey CA #2:

A soil plug extracted from the Big Sur site that was reseeded in 1997 **without a Mycorrhizal Inoculant**. Exposure to precipitation rapidly destroyed all structural integrity.

Drought Protection

Mycorrhizal Hyphae are five times smaller than the tiniest root hairs; allowing them to enter very tiny spaces within the soil. They also have a much larger surface area than non-inoculated roots, providing greater moisture absorption from the same amount of soil.

Weed Suppression

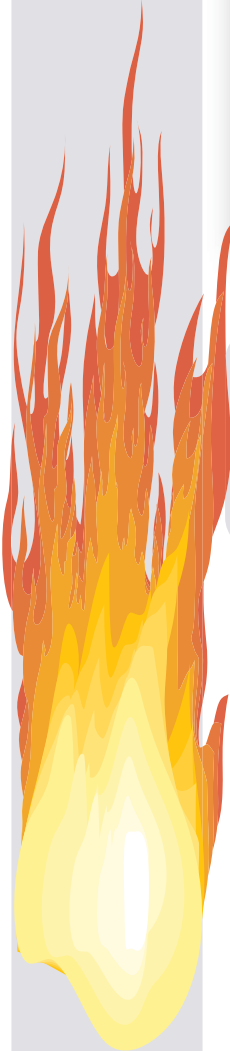
As well colonized ecosystems become self-sustaining, the more efficient uptake of plant nutrients and moisture by mycorrhizal plants can reduce the presence of less efficient non-Mycorrhizal ruderals.

Improved Soil Structure

Glomalin is a recently discovered glue like compound that is excreted by mycorrhizal fungi throughout the root zone. It binds soil particles and improves aggregation, allowing much greater absorption of precipitation and reducing the potential effects of soil erosion.

Conclusion:

Reseeding with **AM 120** is a sound management decision to increase native vegetation cover and help protect natural ecosystems.





AM 120 Mycorrhizal Inoculant applied through hydroseeding equipment.



Mycorrhizal filaments or hyphae develop throughout the soil, capturing moisture, nutrients and providing improved structure.

AM 120 Mycorrhizal Inoculant USED FOR:

- Broadcast Applications
- Hydroseeding
- Drill Seeding

Symbios USED FOR:

- Seed Coating
- Aerial Applications



AM120 applied through seed drill.



Symbios Aerial Grade Mycorrhizal Seed Coating.



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