

ITEM 11610.0102 M - MYCORRHIZAL FUNGI MIXTURE
ITEM 11610.0103 M - ENDOMYCORRHIZAL FUNGI AND BACTERIA MIXTURE

DESCRIPTION.

This work consists of incorporating mycorrhizal fungi, nitrogen fixing and phosphorus solubilizing bacteria, and other beneficial substances into the soil in areas that will be planted or seeded.

MATERIALS.

Materials needed for this work include the following:

Mycorrhizal fungi mixture. This mixture shall be a dry granular product supplied in plastic packets each containing 85.05 grams of product. The packets shall not be stored for more than eighteen months following packaging and shall not be exposed to moisture, direct sunlight, or temperatures higher than 32 degrees Celsius (90 degrees Fahrenheit) or lower than 0 degrees Celsius (32 degrees Fahrenheit) prior to incorporation into the soil. Each packet shall containing the following:

1. A minimum of 1000 live spores of vesicular-arbuscular endomycorrhizal fungi including *Entrophospora columbiana*, *Glomus etunicatum*, *Glomus clarum* and *Glomus* sp.
2. A minimum of 60 million live spores of the ectomycorrhizal fungus, *Pisolithus tinctorius*.
3. Acrylamide copolymer water absorbent gel.
4. Water soluble dried *Yucca schidigera* extract.
5. Water soluble dried *Ascophyllum nodosum* (sea kelp) extract.
6. Water soluble dried leonardite humate (humic acid) extracts.

Endomycorrhizal fungi and bacteria mixture. This mixture shall be a dry granular product supplied in resealable plastic pails. The product shall not be stored for more than eighteen months following packaging and shall not be exposed to moisture, direct sunlight, or temperatures higher than 32 degrees Celsius (90 degrees Fahrenheit) or lower than 0 degrees Celsius (32 degrees Fahrenheit) prior to incorporation into the soil. Each kilogram of this mixture shall contain the following:

1. A minimum of 33,068 live spores of vesicular-arbuscular endomycorrhizal fungi including *Entrophospora columbiana*, *Glomus etunicatum*, *Glomus clarum* and *Glomus* sp.
2. A minimum of 1,322,751,323 live spores of nitrogen fixing and phosphorus solubilizing *Bacillus* sp.
3. Water soluble dried *Yucca schidigera* extract.
4. Water soluble dried *Ascophyllum nodosum* (sea kelp) extract.
5. Water soluble dried leonardite humate (humic acid) extracts.

Water. Water shall be as specified in NYSDOT standard specification section 712-01.

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CONSTRUCTION DETAILS.

Mycorrhizal fungi mixture. One 85.05 gram packet of mycorrhizal fungi mixture shall be used for each 0.30 meter of root ball diameter of trees and shrubs to be planted. The mixture shall be incorporated into the soil as follows:

1. After placing a tree or shrub, fill the planting hole with the specified planting soil to a level 0.08 meter to 0.10 meter below the top of the root ball.
2. Evenly spread the specified quantity of mycorrhizal fungi mixture in a 0.20 meter wide ring around the outside edge of the root ball.
3. Add the specified planting soil to meet the level of the top of the root ball.
4. Thoroughly mix the mycorrhizal fungi mixture into the top 0.20 meters of soil within the 0.20 meter wide ring around the outside edge of the root ball.
5. Firmly tamp soil around the root ball, and water until the root ball and all the soil in the planting hole is saturated.

Endomycorrhizal fungi and bacteria mixture. 146 grams of endomycorrhizal fungi and bacteria mixture shall be used for each square meter of area to be planted or seeded with groundcovers or herbaceous plants. The mixture shall be incorporated into the soil immediately before planting or seeding as follows:

1. Prepare the area to be planted or seeded as specified elsewhere in the contract documents (do not add plants, seed, or mulch at this time.)
2. Evenly spread the specified quantity of endomycorrhizal fungi and bacteria mixture on the soil surface throughout the entire area.
3. Thoroughly mix the endomycorrhizal fungi and bacteria mixture into the upper 0.10 meters of soil throughout the entire area to be planted or seeded.
4. Plant or seed the area as specified elsewhere in the contract documents.
5. Water the entire area until the soil is moistened to a depth of 0.30 meters.

METHOD OF MEASUREMENT.

Mycorrhizal fungi mixture will be measured by the number of approved 85.05 gram packets of mycorrhizal fungi mixture that are applied in accordance with the contract documents and the directions of the Regional Landscape Architect. The Contractor will be required to submit all empty packets to the Engineer in Charge for counting and verification at the end of each day.

Endomycorrhizal fungi and bacteria mixture will be measured by the number of kilograms of endomycorrhizal fungi and bacteria mixture applied in accordance with the contract documents and the directions of the Regional Landscape Architect. The Contractor will be required to submit all empty containers to the Engineer in Charge for counting and verification at the end of each day. Endomycorrhizal fungi and bacteria mixture will not be paid for if host plants are not

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installed (or seed is not expected to germinate) within three months of incorporating the mixture into the soil.

BASIS OF PAYMENT.

The unit price bid per packet of mycorrhizal fungi mixture or per kilogram of endomycorrhizal fungi and bacteria mixture shall include the cost of all labor, equipment, materials, and incidentals including water necessary to complete the work as specified.

DISAPPROVED
BY EI 12-001