



Mycorrhizal Inoculation with **EndoMaxima**[®]

Definitions:

1. **Spores versus Propagules** - in the mycorrhizal packaging industry the term propagules includes the many pieces of fungal hyphae that failed to be screened out during the cleaning process. Some of these pieces could potentially germinate and inoculate while coming into contact with seed or living root tissues of a host plant.
2. **Spores** are the equivalent to the seed of a plant and are the most productive and viable materials for germinating and inoculating a host plant. At Soil Secrets we prefer to depend on Spores rather than Propagules for the objective of mycorrhizal inoculation! **EndoMaxima**[®] has a spore count per pound of 1,450,000, the highest of any mycorrhizal product in the industry.
3. **Species Diversity** – with the exception of crops in the Brassica family which won't associate with Mycorrhizal fungi, the most common crops planted worldwide that are annuals, semi annuals, legumes and grasses can be effectively inoculated with a single generalist species found on all continents. The species is *Glomus intraradices*. While additional species of these generalist can be included, the additional benefit if any will not justify the added cost. We therefore choose to help our clients value engineer the use of mycorrhizal products by keeping it simple, yet effective by using a single species. There are some plants that will not associate with *Glomus* or other Endo (vesicular arbuscular) type mycorrhizal fungi, needing an Ecto type instead. Examples are most but not all conifers, most but not all oaks and a few other plants in the woody plant category. **For the most part, Ecto associating plants are in the minority!**

Sugar Cane: Inoculating of sugar cane in Brazil and in Mexico with *Glomus intraradices* Mycorrhizae. Data shows that adding mycorrhizae at the time of planting can generate an increase in yield from 11 to 15%. Increased sugar content has been measured by using a brix method with a refractometer (no raw data is available on this).

- i. Typical sugar cane inoculation recommendations are for approximately 565,000 spores/acre be applied for best inoculation of all plants.

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- ii. Planting and Inoculation is typically done with about 12-15 germination points per linear meter which gives about 86,400-108,000 germination points (sticks) per ha or 36,000 to 45,000 germination points per acre.
- iii. **EndoMaxima**[®] is our highest spore count product yielding 1,450,000 viable spores of *Glomus intraradices* per pound (3200 per gram). With this product the grower can plant using 0.39 pounds of spores per acre which is 565,000 total spores; therefore 39 pounds will inoculate 100 acres for best results with Sugar Cane. For inoculating Sugar Cane, **EndoMaxima**[®] powder is best applied by diluting in water and applied on top of the sticks at time of planting.

Other Crops: For inoculating seed with most other crops, such as corn, soybeans, cotton, etc., **EndoMaxima**[®] can be dusted onto the seed pre-planting at a rate of 0.22 pounds per acre (319,000 spores per acre), or 22 pounds for 100 acres of crop. Seed can be placed with the spores into a mixing machine dry and the spores will stick to the seed.

Erosion Control, Mine Reclamation and Re-vegetation: For minimal yet effective inoculation it's suggested that each seed planted have at least 2 viable spores attached to the seed coat. Seed can be pretreated by mixing the spores with the seed in a cement mixer at the desired spore count per given seed count. For accurate calculation of pounds per acre of **EndoMaxima**[®] the total seed count per acre will need to be known. Inoculation can also be done by adding the spores into the mixing tank of a hydroseeding machine, along with the slurry of mulches, compost, tackifiers etc.

Sod and Sports Field Plantings: For best results we suggest using 1.5 pounds of **EndoMaxima**[®] per acre on all sport field grass species, regardless of planting from seed or from sod. This is 2,178,000 spores per acre or 50 per square foot. If seeding, coat the seed pre-planting by mixing seed with the Mycorrhizal spores in a cement mixer. Seed can also be planted with a hydroseeding mulch application, where seed and Mycorrhizal spores are mixed in the sprayers mixing tank. If Sod, mix the Mycorrhizal spores with water and spray onto soil surface before laying sod.

Landscaping Construction: For best results we suggest using at 1.5 pounds per acre, 1/2 oz per 1000 sq. ft. Mix with water and spray into planting holes or on the root ball of all plants. Can also be sprayed onto the seed bed for flowers and turf, before planting.

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