

Emerald Earth

Nature Does It Best

Authorized EM® Retailer

Benefits of EM® for Crops and Soils

EM® stands for Effective Microorganisms™, an all-natural blend of beneficial microorganisms. EM-1® Microbial Inoculant is made through a natural process of fermentation. Nothing has been genetically altered or chemically engineered. EM® is safe and easy to use and is listed as a fully organic product by OMRI. EM-1® is now being used in over 120 countries, and is resolving a broad variety of environmental problems.

The primary ingredients of EM® are comprised of three main genera: phototropic bacteria, lactic acid bacteria, and yeast. These naturally-occurring ingredients work synergistically together to secrete beneficial substances such as vitamins, hormones, enzymes, organic acids, bioactive minerals, and various antioxidants when in contact with organic matter.

The key ingredient in Effective Microorganisms™ that distinguishes it from other microbial blends is the phototropic strain of bacteria called *rhodopsuedomonas palustris*—an ancient group of beneficial microbes known to break down and digest toxic substances. This unique ingredient has been shown to produce a broad variety of antioxidant byproducts including: *inositol, ubiquinone, saponin, low-molecular polysaccharides, polyphenols, and chelates of minerals*. These antioxidant alliances act to promote natural defense systems that suppress the growth of detrimental bacteria.

EM-1® Microbial Inoculant was discovered by the horticultural biologist Dr. Teruo Higa. It was first marketed in Japan in 1982 for organic agriculture. EM-1® is now being produced in 54 countries and is being used for a broad variety of environmental-quality applications.

Summary of EM-1® Benefits as a Soil Amendment:

- Serves as a catalyst to naturally detoxify and enrich the topsoils—which increases plant growth, yield, shelf-life and overall nutritional quality.
- Improvement of soil quality substantially reduces the growth of weeds and herbivore insects, thus gradually eliminating the need for toxic herbicides, pesticides, and synthetic fertilizers.
- Promotes photosynthesis and strengthens the vigor of plants, thus increasing their ability to withstand drought, floods, and temperature extremes.
- Naturally remediates harmful substances—such as heavy metals, salinization, and agrochemicals—while restoring the microbial diversity of the topsoils.
- Increases soil temperature through microbial activity, which enables greater cultivation in colder regions.
- Improves soil aggregation, permeability, and water holding capacity—thus reducing overall water usage.
- Helps prevent the erosion of fertile topsoils—and can even convert desert and sodic environments into arable land.
- Detoxifies, conserves, and improves the overall quality of water and the runoff tributaries.



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