

**MetaGrow F** has a large and diverse fungal population to build higher level soil health and plant beneficial functions. Use **F** after establishing a well-functioning soil microbe population with **MetaGrow ST** or **5X+** with microbe food sources.

**MetaGrow F** is the perfect product to complete the Regenerative Farming soil restoration process.

The fungal components of soil microbe populations are often the last to successfully colonize and perform their important plant beneficial functions. We often see well farmed regeneratively farmed soils that have successfully rebuilt their soil bacterial population, diversity and function; but even after 20 plus years of their program the essential fungal population component is still missing.

**MetaGrow F** microbes are grown at our plant from a microbe culture that is completely different from (but complementary to) our other vermiculture based products. The microbes in **F** come from a higher trophic level source than earthworms, which is naturally fungal-dominant and supports other higher trophic levels of soil life such as beneficial nematodes and arthropods.

In addition to fungi and Mycorrhizae, **MetaGrow F** also includes a broad spectrum biology including bacteria, archaea, actinomycetes, yeast, micro-algae, and bacteria phages.

### PLANT BENEFICIAL FUNCTIONS

Microbe populations in **F** include:

**Nitrogen Fixing** - 20 different species of Nitrogen fixing microbes at total populations of  $1 \times 10^8$ /ml – both free Nitrogen fixers as well as Rhizobium N-fixers for legumes.

**Phosphorus Solubilizing** - more than a dozen species at total populations of  $1 \times 10^9$ /ml including endophytic fungi which perform much of the plant phosphorus delivery. Many competitor microbe inoculant products are missing these vital workers.

**Cation Chelating** - dozens of Siderophore microbe species at total populations of  $1 \times 10^9$ /ml improve plant nutrient status of **Potassium, Calcium, Magnesium, Manganese, Molybdenum, Copper, Iron and Zinc**.

**MetaGrow F** also contains organic acids, amino acids, vitamins, enzymes and plant bioactive compounds. These bioactive compounds are built up in our **MetaGrow** products so the plants respond right after application. Competitor microbe products have to produce these compounds over time after application (which ours also do) which means our products provide faster and more effective plant response than competitor inoculants.

- Liquid shelf-stable product that mixes easily for irrigation and foliar use
- Compatible for tank-mixing with all fertilizer inputs
- Suitable for organic crop production. CDFA-Organic listed.
- Proven on over 70 different crops on every soil type to improve soil health and crop production

## Establishing diverse fungi in the microbial community provides many crop benefits:

- Supplies and builds soil organic matter (SOM) – 1% SOM increases in a year are not uncommon;
- Extends the root network and effectiveness, which improves drought tolerance and nutrient efficiency;
- Improves soil structure and porosity, which:
  - Improves soil oxygen exchange for healthier roots and microbe metabolism;
  - Increases soil water infiltration rates which reduces erosion, runoff and ponding of water — enabling earlier planting;
  - Improves soil moisture holding capacity of lighter textured soils;
- Increases soil Cation Exchange Capacity (CEC) which improves soil nutrient retention and plant nutrient availability;
- Provides plant growth factors for increased germination rate, stronger and faster emergence with more uniform stands;
- Reduces the frequency and severity of plant diseases by improved nutrient status and natural plant defense processes.

## Application Guidance

**MetaGrow F** can be used as a seed treatment, root dip, in-furrow at planting, transplant water, irrigation injection and foliar application.

Typical irrigation rate is 2 to 4 gallons per acre, monthly during the irrigation season or just before important crop growth phases. It's also recommended on crop and cover crop residue to aid decomposition and future nutrient availability.

For best results, apply together with **MetaGrow MFOOD** or **CFOOD** (0.5 lbs per gallon of **F**) and with other components of a balanced biological fertility program. Please refer to the product label for additional information ([metagrow-f-label.pdf](#)) and follow the advice of a qualified agronomist.

## Food Safe Production Process

MetaGrow microbes are grown at our facilities from a diverse range of microbe cultures sourced from all over the world. No manure or waste product is used in our source materials. We utilize an intensively aerobic production process which assures pathogens and other plant toxins are not present. MetaGrow products are tested and certified free of pathogens. There are no application restrictions on re-entry or days to harvest.

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## SGS MetaGrow Principles

SGS MetaGrow inoculants are designed to correct various imbalances in soil health, while also providing an extremely broad spectrum of microbes that repopulates the entire beneficial soil microbe biology and many different microbe species for each plant beneficial function. As a result of this diversity, MetaGrow products work well on all soils and all crops.

SGS MetaGrow crop programs lower the total cost of inputs by reducing the need for fertilizer and pesticides. When plants achieve proper biologically supported nutrition most pest and disease problems just don't occur.

At SGS we believe that healthy plants **direct** healthy soil biology to actively **deliver** the nutrients they need, when needed and in the proper balanced proportion.

## Plant Directed Microbe Delivered Nutrition