

Apply Colossus To Every Stage Of Your Crop

Directions For Use

Soil Application:

- * Use 3-6 oz. of Colossus per acre.
- * Apply in furrow directly on the seed piece. Follow up applications can be applied through irrigation or soil application right before a rain event.
- * Apply at planting and up to two more times during the growing season.

Foliar Spray:

- * Use 3-9 oz per acre per spray.
- * Do not tank mix with copper hydroxide at any rate higher than the lowest labeled rate (1.25-lbs per acre for Kocide 3000. May be different for other brands but metallic copper would be the equivalent).

Compatibility

- * Product can be tank mixed with other fungicides, fertilizers, stimulants and other biologicals.
- * Do not tank mix with any form of peroxide or copper sulphate
- * Compatibility has not been tested with all forms of copper.
- * Can be rotated with peroxides or other coppers.

Features & Benefits

- Significantly increases yield
- * Enhances root and top growth
- * Complexes iron bound in the soil
- No PHI or REI
- Non-phytotoxic and no residue
- 100% water soluble - no clogging
- Approved for organic use

For Use On

Potatoes, strawberries, fruiting vegetables, tomatoes, ornamentals, leafy greens, tree fruit and nuts, as well as other fruit, vegetable and row crops



Colossus is not harmful to bees or other beneficial insects

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**UNLEASH
YOUR FULL
POTENTIAL**



**A powerful yield
boosting microorganism
discovered in an Idaho
potato field**

Colossus[®]

BENEFICIAL STREPTOMYCES

Natural Microbe for Better Crops

Colossus is a high concentration of the beneficial plant microorganism *Streptomyces nigrescens* strain MR541. When applied, this unique microbe colonizes the plants roots and foliage producing beneficial by products that aid in plant vigor, growth and yield.

History

The **Colossus** microbe was discovered in an Idaho potato field during a lengthy search for beneficial soil microbes in the Pacific Northwest. It stood out among the thousands of isolates for its ability to colonize plants' roots as well as its production of a myriad of beneficial secondary metabolites.

How it Works

Some of the primary compounds produced by this organism are:

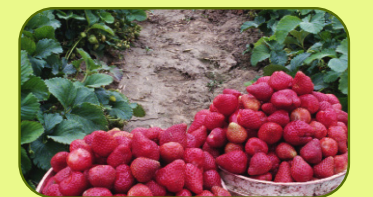
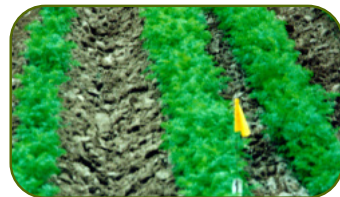
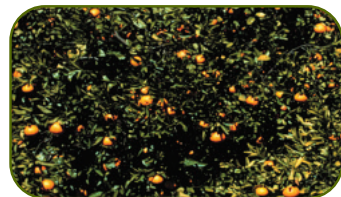
Siderophores

Siderophore is greek for "iron carrier". These microscopic compounds are produced at low levels by many types of soil microorganisms and are essential for nutrition in plants. The natural level of siderophores in the soil is usually too small for plants to utilize effectively. That is why even in pH blanced soils plants can demonstrate low levels of iron or other essential metals that may lead to poor growth and yield reduction. The **Colossus** microorganism produces elevated levels of siderophores, many times more than normal microorganisms. This allows the plant to draw the normally unavailable iron and nutritive metals from the soil as needed. The most impressive fact about this process is that the plant can continue to take up iron even high pH soils, a condition that normally locks up nutrients. Crop essential metals that can be complexed for plants by the **Colossus** microbe are iron, zinc, boron, molbdenem and manganese.

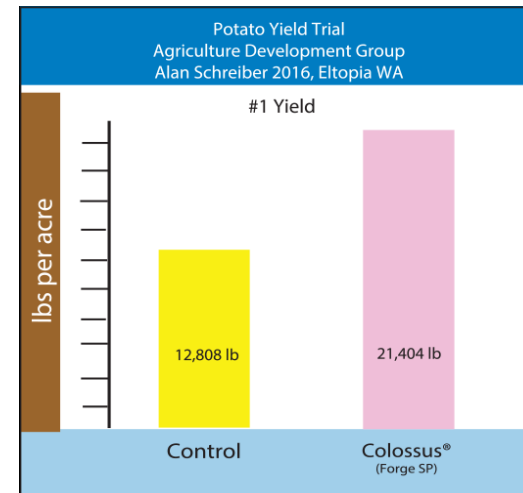
Chitinase

Chitinase is an enzyme that acts as a biostimulant, improving nutrient uptake (like solubilizing minerals), promoting root growth, and increasing drought resistance by constricting stomata. Chitinase is also involved in degrading chitin from dead organisms which enhances soil health thereby reducing overall chemical dependency.

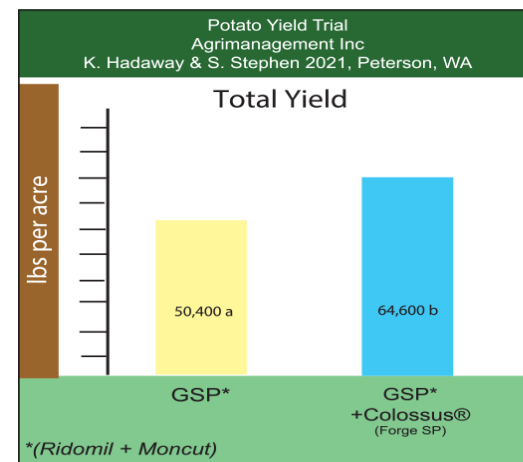
Colossus is also labeled for most vegetables and fruit crops including strawberries, blueberries, peppers, tomatoes, cucurbits and much more...



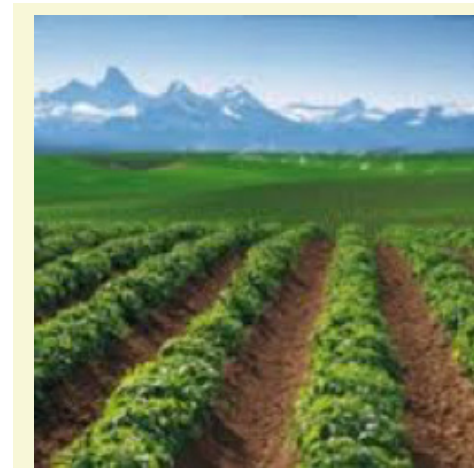
Above: Electron microscope photograph of *Streptomyces sp.*



Colossus works as a stand alone product (40% increase in yield vs untreated)



Colossus is powerful as tank mix partner (22% additional yield)



Though *Streptomyces nigrescens* MR541 was isolated from the soils of an Idaho potato field, it has the ability to colonize a wide range of host plants and thrive in various environments.

Technical Information

Organism (Active Ingredient):

Streptomyces nigrescens strain MR 541

Patent pending by Blacksmith BioScience

General Description:

Saprophytic rhizosphere colonizing actinomycete

Purpose

Colonizes the rhizosphere and produces metabolites beneficial to plant growth, yield & root production

Origin:

Isolated from the soil of an Idaho potato field.

Temperature Tolerance:

Spores of *S. nigrescens* are regularly frozen at very low temperatures for storage. Temperatures above 140° F will sterilize the spores. Germinated spores (which occur, for instance, when spores are added to growing media) can survive the same temperature range as long as there is adequate moisture and a food source such as peat, bark or humates available.

PH Tolerance:

S. nigrescens can survive a pH range 4.0-10.0. The organism is active between 5.0 and 9.1 pH.

Longevity:

The spore shelf life is guaranteed at 12 months. Germinated spores can survive much longer if there is a food source, moisture and minimal microbial competition (such as in bagged potting soil). Storing in refrigerated conditions may extend the shelf life.

Chemical Compatibility:

S. nigrescens is compatible with all chemical fungicides and fertilizers. Consult manufacturer for bactericide and chlorine compatibility.

UV Sensitivity:

The bacterium is not UV sensitive.

By-Products:

Siderophores, chitinase, ampicillin, carbenicillin, cephaloridine, lincomycin, norfloxacin, oleandomycin, penicillin, polymyxin