

Actino-Iron® The Ultimate Fungicide For Soil Incorporation

Actino-Iron® Biological Fungicide

Actino-Iron® Biological Fungicide is a high concentration of patented beneficial bacteria on an iron and humic acid carrier. This powerful new product effectively suppresses a wide range of soil borne diseases including *Pythium*, *Phytophthora*, *Fusarium*, and *Rhizoctonia*. In fact, when used as a preventative, researchers have seen Actino-Iron® work as well or better than most chemicals. The benefits of Actino-Iron® don't stop there: Because of the special properties of the Actino-Iron® microbe combined with the iron and humic acid, treated plants will be larger and more vigorous, have a robust root system and benefit from long term greening.



Benefits

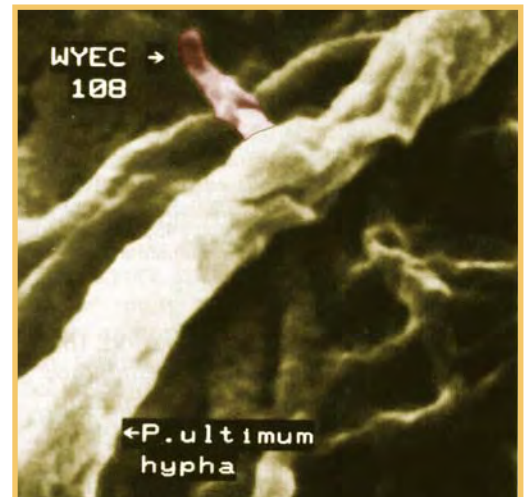
- Controls soil borne diseases including *Pythium*, *Rhizoctonia*, *Fusarium*, *Phytophthora* & *Verticillium*
- Contains complexed slow release iron
- Contains humic acid
- Enhances root systems
- Promotes plant vigor and strength
- Reduces loss, increases production

How it Works

Actino-Iron® contains a high concentration of the microorganism *Streptomyces lydicus* strain WYEC 108. When introduced into the soil this microbe colonizes and grows around the root system of plants. While settling in the root's rhizosphere the microbe forms a synergetic relationship, feeding off of the plant's waste materials while secreting beneficial and protective by-products. This combination of the colonization and the protective secretions forms a defensive barrier around the root system of the plant which in turn suppresses and/or controls soil pathogens. *S. lydicus* also has been shown to prey on certain pathogens, disrupting their cell walls and disabling them in the process. In addition, certain by-products of the microorganism (called siderophores) actually break down the iron contained in Actino-Iron® and makes it readily available to the plant. This "natural chelation" slowly releases the iron to the plant over an extended period of time. Because of the unique way the iron is released there is no fear of burning, even with iron sensitive plants. Finally, the microorganism uses the humic acid in Actino-Iron® as a food source enhancing it's ability to propagate in soil. This in turn allows it to survive in bulk, bagged or baled soil media for over two years so there is no fear of left over soil containing Actino-Iron® expiring. This symbiotic relationship between plant and microbe is the optimum balance for a natural, productive soil environment. Actino-Iron® makes it happen.

Other Features

- Low 4 Hour REI
- Non-phytotoxic, will not burn plants
- Survives in bulk, bagged or baled potting soil for up to two years
- Can be used in place of preventative fungicide application
- OMRI listed



Action-Iron® On The Hunt: Using an electron microscope the above magnified photo shows *Streptomyces lydicus* WYEC 108 attacking and disrupting the membrane of a *Pythium* strand.



Another Way
We Are
Helping You Grow

Directions For Use

Actino-Iron® is best used as a soil amendment. It can be incorporated into the growing media by the grower or it can be incorporated directly into a custom mix by a professional mix manufacturer. It is compatible with chemical fungicides, insecticides, fertilizers and other biological products. Actino-Iron® can also be applied as a top dressing or added at transplant. *Soil Incorporation:* Evenly blend Actino-Iron® into growing media at a rate of 5-lbs per cubic yard. *Top Dressing:* Use 1 tsp. of Actino-Iron® per 6" pot of 1 tblsp per gallon pot. Sprinkle evenly or scratch in near base of plant. Water in immediately afterwards.

Technical Information

Organism (Active Ingredient):

Streptomyces lydicus strain WYEC 108

Patented worldwide

General Description:

Saprophytic rhizosphere colonizing actinomycete

Diseases Suppressed:

Pythium, *Phytophthora*, *Fusarium*, *Rhizoctonia*, *Verticillium*, and *Sclerotinia*

Origin:

Isolated from the roots of a linseed plant

Temperature Tolerance:

Spores of *S. lydicus* WYEC 108 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) 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. lydicus can survive a pH range 4.0-10.0. The organism is active between 5.0 and 9.1

Longevity:

Actino-Iron®'s shelf life is guaranteed at 18 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. lydicus is compatible with all chemical fungicides and fertilizers. Bactericides at levels above 75 ppm should not be used as a drench in conjunction with it.

UV Sensitivity:

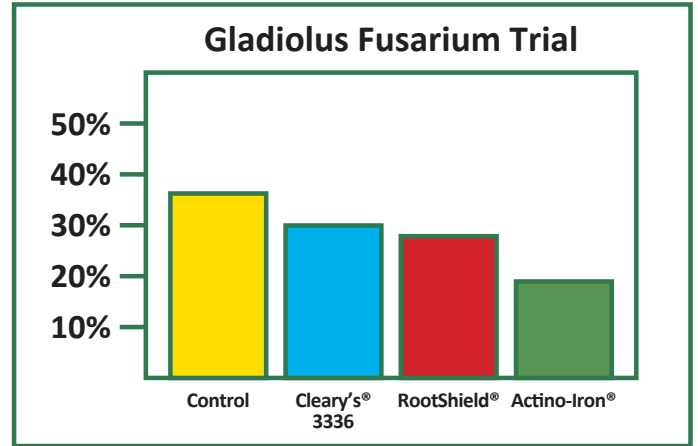
The bacterium is not UV sensitive.

By-Products:

Siderophore, chitinase, and several antibiotics

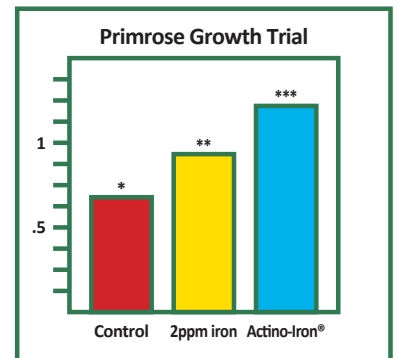
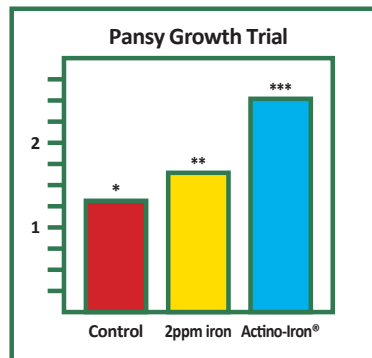
Actino-Iron® is as effective as chemical fungicides

(RIGHT)
Percent
corn
discolouration
from
Fusarium



(ABOVE CHART): "The Influence Of Microbial Inoculants On Corm Rot Of Gladiolas, 2000" Wade H. Elmer, University Of Connecticut Agriculture Experiment Station. Originally published by APS B&C Tests 2000

Actino-Iron® also enhances growth & root structure



Left column numbers denote dry weight (g). Each * denotes statistical difference
(ABOVE CHARTS) Northwest Actino-Iron® Trial by Michelle Miller at Soil & Plant Laboratory, Inc., West linn, OR

Actino-Iron® produces overall better plants

Impatiens *Phytophthora* Trial:

Left treated with Actino-Iron®, Right, Untreated.

Photo courtesy of Derald Harp, Ph. D., Texas A&M University Commerce, TX

