

Serifel® NG

Biological Fungicide

Intended for Use in Foliar Applications, or Applications to Soil or Growing Media

For prevention, control, or suppression of soil and foliar diseases affecting greenhouse-, container-, and field-grown ornamentals, vegetables, and fruits, including fruit and vegetable transplants grown for the consumer market, and other labeled field- and greenhouse-grown crops



Active Ingredient:

Bacillus amyloliquefaciens strain MBI 600*† 11.0%

Other Ingredients: 89.0%

Total: 100.0%

* **Serifel NG Biological Fungicide** contains a minimum of 5.5 x 10¹⁰ colony forming units (CFU) per gram

† Formerly named *Bacillus subtilis* strain MBI 600

EPA Reg. No. 71840-8

EPA Est. No.

**KEEP OUT OF REACH OF CHILDREN
CAUTION/PRECAUCIÓN**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See inside for complete **First Aid, Precautionary Statements, Directions For Use,** and **Conditions of Sale and Warranty.**

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

Batch Code: [Located on physical container]

Net Weight:

BASF Corporation
26 Davis Drive, Research Triangle Park, NC 27709

FIRST AID	
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).	

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION. Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Protective eyewear

Mixers/loaders and applicators must wear a NIOSH-approved particulate respirator with any N, R, or P filter with NIOSH approval number prefix TC-84A; or a NIOSH-approved powered air purifying respirator with an HE filter with NIOSH approval number prefix TC-21C. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

For terrestrial uses: **DO NOT** apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment washwater or rinsate.

In Case of Emergency

In case of large-scale spill of this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

Directions For Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. **DO NOT** apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval (REI). The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of **12 hours**.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas (that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water) is:

- Coveralls
- Chemical-resistant gloves (made of any waterproof material)
- Shoes plus socks
- Protective eyewear

Product Information

Serifel® NG Biological Fungicide contains bacteria that colonize developing root and shoot systems of plants, preventing, controlling, or suppressing by competition disease organisms such as *Botrytis*, *Fusarium*, *Rhizoctonia*, and *Pythium*, as well as those organisms causing powdery mildew and anthracnose. Protection against root and soil borne pathogens is extended throughout the growing season as the bacteria grow with the roots.

In addition, **Serifel NG** has been shown to increase the amount of nodulation by nitrogen-fixing bacteria when used on many legumes. This improvement in nodulation is a result of a healthier root system, allowing more sites for nodules to form from nitrogen-fixing bacteria added to or already present in the soil.

Serifel NG is for use in soil or growing media, and for foliar applications to field- and greenhouse-grown crops, including fruit and vegetable transplants grown for the consumer market. Apply **Serifel NG** using conventional application equipment as well as irrigation systems commonly used for chemigation.

Application Instructions

FOR USE AS A SOIL OR GROWING MEDIA TREATMENT

Apply **Serifel NG** as a water-based slurry to soil or growing media for prevention, control, or suppression of plant root pathogens *Rhizoctonia spp.*, *Pythium spp.* and *Fusarium spp.* **Serifel NG** can be tank mixed with other registered insecticides, nematicides, fungicides or fertilizers. Prior to mixing, determine physical compatibility by mixing proportional quantities of the products in water.

DO NOT mix **Serifel NG** with any product containing a label prohibition against such mixing. When tank mixing **Serifel NG** with any other soil or growing media treatment products, observe the most restrictive of the labeling limitations and precautions of all products used in mixtures. **DO NOT** exceed label application dosage rates.

Application Rates:

For field and greenhouse post-plant applications:

(Reference Tables 1 and 2). Mix 0.2 – 0.4 oz. of **Serifel NG** in 100 gallons of water (15 – 30 g/1000 L). Use the higher rate when environmental conditions are favorable for disease development. Constant agitation is required to maintain **Serifel NG** in suspension. Apply evenly with conventional application equipment to thoroughly soak the growing media or soil through the root zone.

Begin applications during or after seeding, sticking of cuttings, or transplanting to pots, trays or containers, or when environmental conditions are favorable for disease development. For optimal prevention, control, or

suppression, use every 21-28 days throughout the growing cycle.

FOR USE AS A FOLIAR TREATMENT GREENHOUSE AND FIELD CROPS

Serifel NG provides broad spectrum prevention, control, or suppression of several foliar diseases, including *Botrytis*, powdery mildew, and anthracnose. **Serifel NG** is most effective as a preventative treatment. Apply when environmental conditions are favorable for disease development, but prior to disease onset. **Serifel NG** can be tank mixed with most fungicides, insecticides, and fertilizers, but determine physical compatibility prior to use by mixing proportional quantities of the products in water.

DO NOT mix **Serifel NG** with any product containing a label prohibition against such mixing. When tank mixing **Serifel NG** with any other registered foliar treatment products (insecticides, fungicides, fertilizers, etc.), observe the most restrictive of the labeling limitations and precautions of all products used in mixtures. **DO NOT** exceed label dosage rates.

Application Rates:

Field Crops: (Reference Table 1). Apply **Serifel NG** at a rate of 1.0 – 2.7 lb/acre at 7- to 10-day intervals as needed. Use the stated higher rates of **Serifel NG** and the stated shorter application intervals when severe disease pressure is anticipated. Mix and apply **Serifel NG** in a sufficient volume of water to ensure uniform dispersion of product in the spray tank and thorough coverage of foliage and shoot tissue. Minimum application volume is 50 gal/acre (467 L/hectare). Constant agitation of the spray mixture during mixing and application is necessary to maintain uniform suspension.

Greenhouse Crops: (Reference Table 2). Apply **Serifel NG** at a rate of 0.4 – 1.2 oz/1000 ft² at 7- to 10-day intervals as needed. Use the stated higher rates of **Serifel NG** and the stated shorter application intervals when severe disease pressure is anticipated. Mix and apply **Serifel NG** in a sufficient volume of water to ensure uniform dispersion of product in the spray tank and thorough coverage of foliage and shoot tissue. Minimum application volume is 1 gallon per 1000 ft² (4 L/100 m²). Constant agitation of the spray mixture during mixing and application is necessary to maintain uniform suspension.

Conversion chart

Teaspoons		Ounces
0.3 tsp	=	0.05 oz
0.4 tsp	=	0.07 oz
0.6 tsp	=	0.1 oz
1.2 tsp	=	0.2 oz
2.5 tsp	=	0.4 oz
3.1 tsp	=	0.5 oz
Tablespoons		Ounces
2.5 tbsp	=	1.2 oz

Uses and Application Rates for Selected Crops

Table 1: Field Crops

Crop	Use	Diseases	Rates
Flowers, Bedding Plants, Ornamentals, and Tropical Plants	Post-plant applications to soil.	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp., and <i>Fusarium</i> spp.	0.2-0.4 oz/100 gal [*]
	Foliar	Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Podosphaera</i> spp., <i>Oidiopsis</i> spp., <i>Sphaerotheca</i> spp., and <i>Erysiphe</i> spp.)	1.0-2.7 lb/acre ^{**}
Trees and Shrubs: Conifers, Deciduous Trees, Shrubs, and other trees and shrubs	Post-plant applications to soil.	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp., and <i>Fusarium</i> spp.	0.2-0.4 oz/100 gal [*]
	Foliar	Powdery mildew (<i>Podosphaera</i> spp., <i>Oidiopsis</i> spp., <i>Sphaerotheca</i> spp., and <i>Erysiphe</i> spp.)	1.0-2.7 lb/acre ^{**}

^{*} Thoroughly soak soil through root zone

^{**} Minimum application volume is 50 gal/acre (467 L/hectare)

Table 2: Greenhouse Crops

Crop	Use	Diseases	Rates
Brassica (cole) Leafy Vegetables: Broccoli, Cabbage, Cauliflower, Brussels Sprouts, Collards, Kale, Mustard Greens, Kohlrabi, and other brassica (cole) leafy vegetables	Soil or growing media	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp., and <i>Fusarium</i> spp.	0.2-0.4 oz/100 gal [†]
	Foliar	Powdery mildew (<i>Erysiphe polygoni</i>)	0.4-0.9 oz/1000 ft ^{2**}
Bulb Vegetables: Onion, Garlic, Shallots, and other bulb vegetables	Soil or growing media	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp., and <i>Fusarium</i> spp.	0.2-0.4 oz/100 gal [†]
	Foliar	Botrytis neck rot (<i>Botrytis</i> spp.) Botrytis leaf blight (<i>Botrytis squamosa</i>) Powdery mildew (<i>Erysiphe</i> spp.)	0.4-0.9 oz/1000 ft ^{2**}
Cucurbit Vegetables: Cucumber, Cantaloupe, Melon, Muskmelon, Squash, Watermelon, and other cucurbit vegetables	Soil or growing media	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp., and <i>Fusarium</i> spp.	0.2-0.4 oz/100 gal [†]
	Foliar	Powdery mildew (<i>Sphaerotheca</i> spp. and <i>Erysiphe</i> spp.)	0.4-1.2 oz/1000 ft ^{2**}
Flowers, Bedding Plants, Ornamentals, and Tropical Plants	Soil or growing media	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp., and <i>Fusarium</i> spp.	0.2-0.4 oz/100 gal [†]
	Foliar	Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Podoshiera</i> spp., <i>Oidiopsis</i> spp., <i>Sphaerotheca</i> spp., and <i>Erysiphe</i> spp.)	0.4-1.2 oz/1000 ft ^{2**}
Fruiting Vegetables: Pepper, Tomato, Eggplant, and other fruiting vegetables	Soil or growing media	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp., and <i>Fusarium</i> spp.	0.2-0.4 oz/100 gal [†]
	Foliar	Powdery mildew (<i>Leveillula taurica</i> , <i>Oidiopsis taurica</i> , <i>Sphaerotheca</i> spp., and <i>Erysiphe</i> spp.) Gray mold (<i>Botrytis cinerea</i>)	0.4-1.2 oz/1000 ft ^{2**}
Leafy Vegetables (Except Brassica Vegetables): Lettuce, Celery, Spinach, Parsley, and other leafy vegetables (except brassica vegetables)	Soil or growing media	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp., and <i>Fusarium</i> spp.	0.2-0.4 oz/100 gal [†]
	Foliar	Powdery mildew (<i>Erysiphe cichoracearum</i>)	0.4-0.9 oz/1000 ft ^{2**}
Root and Tuber Vegetables: Carrot, Potato, Sweet Potato, Beets, Ginger, Horseradish, Ginseng, Turnip, and other root and tuber vegetables	Soil or growing media	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp., and <i>Fusarium</i> spp.	0.2-0.4 oz/100 gal [†]
	Foliar	Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.)	0.4-0.9 oz/1000 ft ^{2**}
Strawberry	Soil or growing media	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp., and <i>Fusarium</i> spp.	0.2-0.4 oz/100 gal [†]
	Foliar	Botrytis (<i>Botrytis</i> spp.) Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe</i> spp. and <i>Sphaerotheca macularis</i>) Anthracnose (<i>Colletotrichum</i> spp.)	0.4-1.2 oz/1000 ft ^{2**}

[†] Thoroughly soak soil or growing media through root zone

^{**} Minimum application volume is 1 gallon per 1000 ft² (4 L/100m²)

Chemigation:

General Requirements

- 1) Apply this product only through drip (trickle) or sprinkler, including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set or hand move, irrigation systems. **DO NOT** apply this product through any other type of irrigation system.
- 2) Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- 3) If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- 4) **DO NOT** connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
- 5) A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Specific Requirements for Public Water Systems

- 1) Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- 2) Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- 3) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 4) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- 5) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of

materials that are compatible with pesticides and capable of being fitted with a system interlock.

- 7) Apply **Serifel® NG Biological Fungicide** at the end of the water application, and in sufficient water for adequate coverage without excessive runoff. Set the metering pump to the selected label use rate. Agitate the pesticide supply tank throughout the application of **Serifel NG**.
- 8) **DO NOT** apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Drip (Trickle) Chemigation

- 1) The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- 2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- 4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- 5) The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- 7) Apply **Serifel NG** at the end of the water application, and in sufficient water for adequate coverage without excessive runoff. Set the metering pump to the selected label use rate. Agitate the pesticide supply tank throughout the application of **Serifel NG**.

Specific Requirements for Sprinkler Chemigation

- 1) The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- 2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the

irrigation system is either automatically or manually shut down.

- 4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- 5) The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- 7) Apply **Serifel® NG Biological Fungicide** at the end of the water application, and in sufficient water for adequate coverage without excessive runoff. Set the metering pump to the selected label use rate. Agitate the pesticide supply tank throughout the application of **Serifel NG**.
- 8) **DO NOT** apply when wind speed favors drift beyond the area intended for treatment.

Application Instructions

- 1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues, may cause product to lose effectiveness or strength.
- 2) Determine the treatment rates as indicated in the directions for use and make proper dilutions.
- 3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required.

mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. **DO NOT** burn, unless allowed by state and local ordinances. If burned, stay out of smoke.

STORAGE AND DISPOSAL

DO NOT contaminate water, food, or feed by storage or disposal.

Pesticide Storage

Store in a cool, dry place until used. **DO NOT** store this product near food, feed, seed, fertilizers, or other pesticides.

Pesticide Disposal

To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

Container Handling

Nonrefillable Container. **DO NOT** reuse or refill this container. Clean container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a

Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S EXCLUSIVE REMEDY AND BASF'S EXCLUSIVE LIABILITY, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE OF THE PRODUCT.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, EXEMPLARY, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** that may be varied only by agreement in writing signed by a duly authorized representative of BASF.

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BASF Corporation
26 Davis Drive
Research Triangle Park, NC 27709


We create chemistry