2020-6003
2021-01-29

GROUP	BM02	FUNGICIDE

SERIFEL®

Fungicide
WETTABLE POWDER

COMMERCIAL

ACTIVE INGREDIENT: *Bacillus amyloliquefaciens* strain MBI 600 – not less than 5.5 x 10^{10} viable spores per gram

POTENTIAL SENSITIZER

REGISTRATION NUMBER: 30054 *PEST CONTROL PRODUCTS ACT*

READ THE LABEL BEFORE USING

IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT, CALL DAY OR NIGHT 1-800-454-2673

Date of Manufacture:

Net Weight: 50g - 10 kg

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, ON L5R 4H1
Telephone No.: 1-877-371-2273

Manufactured by:
BASF Corporation
801 Dayton Avenue
Ames, Iowa 50010
USA

SERIFEL®

GENERAL INFORMATION:

SERIFEL® is an agricultural biological fungicide product formulated as a wettable powder for the suppression or partial suppression of various fungal diseases.

The active ingredient in **SERIFEL** is *Bacillus amyloliquefaciens* strain MBI 600. **SERIFEL** can be applied as a foliar spray for labelled field crops or as an in-furrow treatment for potato. To maximize disease efficacy, apply **SERIFEL** in a regularly scheduled protective spray program and use in a rotation program with other fungicides. For best results, **SERIFEL** should be applied preventatively in low to medium disease pressure situations. For improved performance or under higher disease pressure situations, use **SERIFEL** in rotation with other registered fungicide products.

Integrated Pest Management

SERIFEL should be integrated into an overall disease and pest management program. Cultural practices known to reduce disease development should be followed. Consult your local extension specialist, certified crop advisor and/or BASF representative for additional IPM strategies established for your area. **SERIFEL** may be used in agricultural extension advisory (disease forecasting) programs, which recommend application timing based on environmental factors favourable for disease development.

DIRECTIONS FOR USE:

Application Instructions

Apply rates of **SERIFEL** as instructed with ground equipment. Equipment should be checked frequently for calibration. Avoid heavy irrigation shortly after application of **SERIFEL**. If heavy rainfall or irrigation occurs shortly after application, reapplication of **SERIFEL** may be necessary.

Under low-level disease conditions, the minimum application rates can be used while maximum application rates and shortened spray schedules are recommended for severe or threatening disease conditions.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT apply by air.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Apply **SERIFEL** in sufficient water to ensure thorough coverage of foliage, bloom, and fruit. Thorough coverage is required for optimum disease control. Maintain agitation of the product during the application process. The product mixture should be applied shortly after mixing.

DO NOT store mixed suspensions of **SERIFEL** overnight.

Application Rate:
Carrot, Potato and Sugar Beet

Crop	Suppression of Target Diseases	Product Use Rate per Application	Application Directions
Carrot	Partial suppression of leaf blight (*Alternaria dauci*)	0.25-0.5 kg/ha	For **leaf blight, early blight** and **leaf spot**, begin applications shortly after emergence or transplanting but prior to disease development and continue on 7- to 10-day intervals if conditions are favourable for disease development. For **powdery mildew**, begin applications prior to infection and continue on 5- to 7-day intervals if conditions are favourable for disease development. Use the highest rate and the shortest interval when conditions favour high disease pressure.
	Partial suppression of powdery mildew (*Erysiphe heraclei*)	0.5 kg/ha	
Potato	Early blight *(Alternaria solani)*	0.25-0.5 kg/ha	
	*IN FURROW USE Partial suppression of soilborne Rhizoctonia stem canker or black scurf *(Rhizoctonia solani)*	0.25-0.5 kg/ha	
Sugar beet	Cercospora leaf spot (*Cercospora beticola*)	0.28-0.5 kg/ha	

***Instructions for In-furrow use to suppress soilborne Rhizoctonia in Potatoes**
Use 0.25-0.5 kg/ha of **SERIFEL** in furrow to suppress soilborne Rhizoctonia canker or black scurf caused by *Rhizoctonia solani* in potato. Refer to the chart below to determine the rate per 1000 m of row, based on various row spacings. Apply at planting as an in-furrow spray by directing spray pattern to uniformly cover seed pieces and surrounding soil. The spray pattern should be a 10-20 cm (4 to 8 inch) band that is applied to the seed piece prior to being covered with soil.

Use a minimum volume of application of 50L of water per hectare.

Product Rate (kg/ha)	Product Rate (kg per 1000 metres of row)				
	81 cm (32”) rows	86 cm (34”) rows	91 cm (36”) rows	96.5 cm (38”) rows	101 cm (40”) rows
0.25 – 0.5	0.020-0.041	0.022-0.043	0.023-0.046	0.024-0.048	0.025-0.051

Apply **SERIFEL** as a water-based suspension alone or with other registered pest control products and fertilizers labeled for in-furrow via standard agricultural application machinery.

Mix **SERIFEL** with a water volume appropriate for the crop and application type. Use the highest rate and consider mixing with other registered pesticide products when conditions favour heavy disease development.

Making a pre-slurry suspension of **SERIFEL** may help disperse **SERIFEL** and improve equipment compatibility at lower application volumes.

Maintain agitation of product during the application process. Apply the product mixture shortly after mixing.

Lettuce

Crop	Suppression of Target Diseases	Product Use Rate per Application	Application Directions

Lettuce	Botrytis grey mould (*Botrytis cinerea*)	0.25-1.0 kg/ha	For **Botrytis grey mould, downy mildew,** and **white mould** begin applications prior to infection and continue on 7- to 10-day intervals if conditions are favourable for disease development. Use the highest rate and the shortest interval when conditions favour high disease pressure.
	Partial suppression of white mould (*Sclerotinia sclerotiorum*)	0.3-1.0 kg/ha	
	Partial suppression of downy mildew *(Bremia lactuacae)*	0.25-1.0 kg/ha	

Fruiting Vegetables

Crop	Suppression of Target Diseases	Product Use Rate per Application	Application Directions
Peppers	Botrytis grey mould (*Botrytis cinerea*)	0.25-0.5 kg/ha	For **Botrytis grey mould, early blight** and **powdery mildew**, begin application shortly after emergence or transplanting and continue on 7- to 10-day intervals if conditions are favourable for disease development. Use the highest rate and the shortest interval when conditions favour high disease pressure.
	Powdery mildew *(Leveillula taurica)*	0.5 kg/ha	
Tomato	Early blight *(Alternaria solani)*	0.25-0.5 kg/ha	
	Botrytis grey mould (*Botrytis cinerea*)	0.25-1.0 kg/ha	

Crop Group 9 Cucurbit Vegetables Group

Crop	Partial suppression of Target Diseases	Product Use Rate per Application	Application Directions
Cucumber	Downy mildew (*Pseudoperonospora cubensis*)	0.25-0.5 kg/ha	For **downy mildew** and **powdery mildew**, begin applications prior to infection and continue on 7- to 10-day intervals if conditions are favourable for disease development. Use the highest rate and the shortest interval when conditions favour high disease pressure.
Cucurbit vegetables crop group 9* Cucumber	Powdery mildew *(Sphaerotheca fuliginea [*syn. *Podosphaera xanthii]*)	0.25-0.5 kg/ha	
* **Cucurbit vegetables** including cultivars, varieties and/or hybrids of: chayote, Chinese waxgourd, citron melon, cucumber, cherkin, edible gourd, (includes hyotan, cucuzza, hechima, Chinese okra), Momordica spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumbers), Muskmelon (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon and snake melon), pumpkin, summer squash (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini), winter squash (includes butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash), and watermelon.			

Berries and Small Fruits

Crop	Suppression of Target Diseases	Product Use Rate per Application	Application Directions
Caneberries (CSG 13-07A)*	Botrytis grey mould (*Botrytis cinerea*)	0.25-0.5 kg/ha	For **Botrytis grey mould**, begin applications prior to infection and continue on 2- to 10-day intervals if conditions are favourable for disease development. Use the highest rate and the shortest interval when conditions favour high disease pressure.
Bushberries (CSG 13-07B)**	Botrytis grey mould (*Botrytis cinerea*)	0.25-0.5 kg/ha	
Grape	Botrytis grey mould (*Botrytis cinerea*) Powdery mildew (*Erysiphe necator*)	0.25-0.5 kg/ha	For **Botrytis grey mould**, begin applications prior to disease development when conditions favour the development of botrytis such as during early bloom, bunch pre-closure and veraison. For **powdery mildew** begin foliar applications at bud break or prior to onset of disease. Repeat applications if needed on 5 – 10-day intervals. Use the highest rate and the shortest interval when conditions favour high disease pressure.
Low growing berries (CSG 13-07G)***	Botrytis grey mould (*Botrytis cinerea*)	0.25-0.5 kg/ha	For **Botrytis grey mould**, begin applications prior to infection and continue on 7- to 10-day intervals if conditions are favourable for disease development. Use the highest rate and the shortest interval when conditions favour high disease pressure.

* **Caneberries** including cultivars, varieties and/or hybrids of: Blackberry (including Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hullberry, lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora, mures deronce, nectarberry, Northern dewberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, Southern dewberry, tayberry, youngberry, zarzamora), Loganberry, Raspberry (black or red), Wild raspberry.

**** Bushberries** including cultivars, varieties and/or hybrids of: Aronia berry, blueberry (highbush and lowbush), buffalo currant, Chilean guava, currant (black, red), elderberry, European barberry, gooseberry, highbush cranberry, edible honeysuckle, huckleberry, jostaberry, juneberry, lingonberry, native currant, salal, and sea buckthorn.

*****Low growing berries** including cultivars, varieties and/or hybrids of: bearberry, bilberry, blueberry (lowbush), cloudberry, cranberry, lingonberry, muntries, partridgeberry and strawberry.

Under low-level disease conditions, the minimum application rates can be used while maximum application rates and the shorter spray intervals are recommended for severe or threatening disease conditions.

Apply **SERIFEL** in sufficient water to ensure thorough coverage of foliage, bloom, and fruit. Thorough coverage is required for optimum disease control. Maintain agitation of product during the application process. The product mixture should be applied shortly after mixing. DO NOT store mixed suspensions of **SERIFEL** overnight.

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

SERIFEL DOES NOT require a buffer zone.

Additives and General Tank Mixing Information

For information on the potential to tank mix **SERIFEL** with other products, contact your local distributor or BASF representative. Not all varieties and cultivars have been tested with possible tank mix combinations. Local conditions can also influence crop tolerance and may not match those under which BASF has conducted testing. Physical incompatibility, reduced disease control, or crop injury may result from mixing **SERIFEL** with other products. Therefore, before using any tank mix (fungicides, insecticides, herbicides, liquid fertilizers, biological control products, adjuvants, and additives), test the combination on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of application. Consult a BASF representative or local agricultural authorities for more information concerning additives.

Mixing Order

1. Water. Begin by agitating a thoroughly clean sprayer tank 3/4 full of clean water. The pH of the spray solution should be between 4 and 9. The product mixture should be applied shortly after mixing. DO NOT store mixed suspensions of **SERIFEL** overnight.
2. Agitation. Maintain constant agitation throughout mixing and application.
3. Inductor. If an inductor is used, rinse it thoroughly after each component has been added.
4. Products in PVA bags. Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
5. Water-dispersible products (such as **SERIFEL**, dry flowables, wettable powders, suspension concentrates, or suspo-emulsions).
6. Water-soluble products.
7. Emulsifiable concentrates (such as oil concentrates when applicable).
8. Water-soluble additives (such as AMS or UAN when applicable).
9. Remaining quantity of water.

Make sure that each component is thoroughly mixed and suspended before adding tank mix partners. Maintain constant agitation during application.

General Restrictions and Limitations - All Crops

- Crop Rotation Restriction: There are no crop rotation or plant back restrictions for **SERIFEL**.
- Preharvest Interval: **SERIFEL** has a 0 day preharvest interval for all labeled crops.
- There are no livestock feeding restrictions for **SERIFEL** treated plants and produce.

PRECAUTIONS:
KEEP OUT OF THE REACH OF CHILDREN. May cause sensitization. Avoid contact with skin, eyes or clothing. Avoid breathing dust or spray mist. Wear waterproof gloves, long-sleeved shirt, long pants, eye goggles, socks with shoes and use a NIOSH-approved mist filtering respirator or NIOSH-approved mist filtering mask when mixing/loading, applying and during all clean-up and repair activities. Wash thoroughly with soap and water after handling the product. Remove contaminated clothing and follow manufacturer's directions for cleaning/maintaining personal protective equipment (PPE) before reuse.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings

RESTRICTED ENTRY INTERVAL (REI):

DO NOT enter or allow worker entry into treated areas for 4 hours or until sprays have dried, unless wearing appropriate personal protective equipment including waterproof gloves, long-sleeved shirt, long pants and socks with shoes.

ENVIRONMENTAL PRECAUTIONS:

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID:
If swallowed:
Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing:
Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled:
Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes:
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 centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:
Treat symptomatically.

STORAGE:
To prevent contamination, store this product away from food or feed. Store in a dry area for up to 3 years from Date of Manufacture.

DISPOSAL:
For recyclable containers: Do not reuse this container for any purpose. This is a recyclable container and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on the disposal of unused, unwanted product, contact the provincial regulatory agency or the manufacturer. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER:
This pest control product is to be used only in accordance with the directions on the label. It is an offense under the *Pest Control Products Act* to use a control product in a way that is inconsistent with the directions on the label.