

PRESTOP®

Biological Fungicide

To control *Pythium*, *Phytophthora*, *Rhizoctonia* and *Fusarium*.

For *drench* and *growing media treatment* on all protected edible crops (including strawberry), protected non edible crops and outdoor strawberry.

To control *Didymella* and *Botrytis*.

For *foliar* use on protected cucumbers, protected peppers, protected tomatoes, protected ornamentals, protected seedling production of all edible and non edible crops and protected and outdoor strawberries.

Effective disease control in conventional and organic growing systems

Compatible with biological and Integrated Pest Management programmes (IPM)

Safe for operators, the environment and beneficial insects (when used as directed)



PRESTOP®

Biological Fungicide

Prestop is a registered biofungicide for the moderate control of 'gummy stem blight' *Didymella* (*Mycosphaerella*) 'grey mould' (*Botrytis* sp.), 'damping-off' and root diseases caused by *Pythium*, *Phytophthora*, *Rhizoctonia* and *Fusarium* spp. on all protected edible and non-edible crops and outdoor strawberries.

Prestop contains living spores and mycelium of a specific strain (J1446) of a naturally occurring soil fungus *Gliocladium catenulatum*.

Prestop is formulated as a wettable powder and contains 2×10^8 colony forming units (cfu) per gram or 32% w/w of the fungus.

Prestop for environmentally friendly horticulture

- Contains a specific strain of a naturally occurring soil fungus.
- A reliable tool to control soil-borne and foliar diseases.
- Effective in both organic and inorganic based growing media.
- Usable in organic production (subject to certification body approval).
- Compatible with biological and integrated pest management programmes.
- Low risk of resistance.
- Safe for humans, the environment and beneficials (when used as directed).

How does Prestop work?

The active component *Gliocladium catenulatum* J1446 has multiple modes of action:

- Competition for living space. It deprives plant pathogenic fungi of living space and nourishment by colonising plant roots or foliage in advance of pathogens.

- It attacks harmful fungi (Hyperparasitism). Enzyme activity plays an important role and is involved with breaking down fungal walls.



Gliocladium catenulatum J1446 in product development.
G. catenulatum J1446 sporulating on *Rhizoctonia solani* in dual culture on PDA agar. (Verdera)



The hyphal interaction between *Gliocladium catenulatum* J1446 and *Rhizoctonia solani* in dual culture demonstrated by scanning electron microscope. Appressorium-like structures of *G. catenulatum* attach to a hypha of *R. solani*, which shows that hyperparasitism is involved. (Verdera)

Prestop will help to:

- Minimise chemical fungicide residue.
- Aid disease resistance prevention as Prestop provides different modes of action to conventional products.
- Control some diseases not well controlled by other means.
- Minimise risk to the environment from chemical fungicides.
- Reduce the risk to operators by replacing chemical fungicides (however label precautions must be followed).
- Improve yield when used as a growing media treatment by colonising roots and aiding plant growth.
- Enable disease control where there would be issues with the harvest interval if a chemical fungicide was used.

USE OF PRESTOP

Mixing and Application

Prestop must always be diluted in water. First cream Prestop with a small amount of water and then agitate carefully until evenly mixed. Then dilute to the final concentration.

PLEASE NOTE

This leaflet includes a summary of the Prestop recommendations and has been adapted from the approved product label. For full label information see the product label or the product manual insert.

Foliar Applications

Prestop gives moderate control of gummy stem blight (*Didymella* sp.) (*Mycosphaerella*) on cucumber, and grey mould (*Botrytis* sp.) on tomato, pepper, cucumber, strawberry, ornamentals and seedling production of all edible and non-edible crops (protected) and outdoor strawberry.

Apply as a high volume spray at a rate of 100g in 20 litres of water to just before run off to ensure thorough coverage of the foliage paying particular attention to stems when applying for *Didymella* sp. and wounds when applying for *Botrytis*.

Strawberries

Apply one to three applications at 7 day intervals during flowering.

Tomato, Pepper and Cucumber

Apply the first treatment soon after transplanting or at the latest immediately after de-leafing and reapply every 3-4 weeks.

As a guide 10 litres of dilute spray should treat 500 plants.

Ornamentals and seedling production of all edible crops and all non-edible crops (protected)

Treat cuttings at striking (after rooting) and seedlings at emergence, repeat at 3-4 week intervals.

Didymella control on cucumber

Prestop has shown outstanding control of *Didymella* (*Mycosphaerella*) in cucumbers in comparison to chemical controls when used as a stem or foliar treatment.

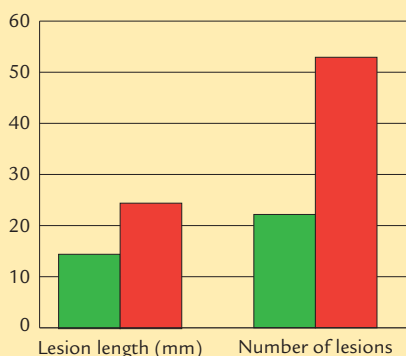
Didymella on cucumber – lesion number and size

Key

Green: Prestop treatment
Red: Chemical fungicide.

Results from 3 treatments at 4 week interval from natural infection of *Didymella* on cucumber.

(Canadian work)



Botrytis stem rot on tomato and pepper.

“A reduction in both the number and size of lesions are seen from stem applications and localised lesion treatments when used as a stem or foliar treatment”.



Drench Applications

For the moderate control of damping off and root diseases caused by *Pythium*, *Phytophthora*, *Rhizoctonia* and *Fusarium* spp.

For use on all edible crops and all non-edible crops (protected) and outdoor strawberry.

Prestop may be applied by drenching, through drip irrigation or by mixing into the growing medium.

Prestop should be used preventatively. The growing medium should be treated at sowing, transplanting and or the planting stage.

Repeat the treatment at intervals of 4 to 6 weeks using the shorter interval under conditions of moderate to high disease pressure.

Drench of cucumber, tomato, pepper, strawberry and ornamentals

Use 100g Prestop in 20 litres of water and use between 40 and 50ml of diluted product per plant.

Drench of small seedlings

Use 100g Prestop in 20 litres of water and use between 1 and 2 litres diluted product per square metre.

Drench of container plants (pot plants) or root balls

Use 100g Prestop in 20 litres of water and use between 4 and 100 ml of diluted product per plant depending on the size of the container or root ball. Apply at 10% of the container volume.

Pythium damping off in rockwool

The infection can take place within hours of seeds being sown. Disease progression is usually very fast and the seedlings often die within a couple of days so prevention is essential. Prestop should be used at sowing, transplanting and/or planting stage. Treatment should be repeated at intervals of 4 to 6 weeks, use the shorter interval under conditions of high to moderate disease pressure.

Efficacy of *Gliocladium catenulatum* J1446 against *Pythium* damping-off



A Healthy
B *Pythium*
C *Pythium* + *G. catenulatum*

Prestop drench in the control of *Pythium* damping off on cucumber grown in rockwool.



Growing Media Incorporation

Incorporate Prestop at a rate of between 200 and 500g per cubic meter (1000 litres) of growing medium. Use the higher rate for where high disease pressure is expected.

Mix the powder with water before mixing to ensure even distribution adjusting the water volume according to the moisture content of the growing media.

Restrictions and warnings:

Not to be used on unrooted cuttings.

Micro-organisms have the potential to provoke sensitising reactions.

Compatibility

Prestop is a biological fungicide and may be affected by residues of or subsequent applications of other pesticide products. Consult Fargro for the latest information on compatibility of other chemical or microbial products within a pest or disease control programme.

Do not tank-mix Prestop with any chemical pesticides or concentrated fertiliser solutions.

Prestop does not harm beneficial insects and can be used in integrated pest and disease control systems.

Prestop has been used on a wide range of crops under a range of conditions and no phytotoxicity has been observed.



Resistance

Prestop has not been reported to have any disease resistance. However, it is good practice to use such products as components of Integrated Pest Management systems, alternating with other control measures. This is particularly important for sequential crops.

Storage

Prestop is a biological preparation containing dried living fungal spores and mycelium. Prestop will keep unopened for one year (from manufacture) if stored in cool, dry conditions below +8 °C.

Prestop powder is hygroscopic (will absorb moisture) and is supplied in sealed packages and therefore it is recommended to use the whole package immediately to prevent caking. Alternatively, the opened package can be closed tightly and frozen.



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Pack Sizes: 100g, 1kg.

Prestop is a 32% w/w wettable powder formulation containing mycelium and spores of *Gliocladium catenulatum* strain J1446 fungus, 2×10^8 cfu/g.

Always read the label. Use pesticides safely.

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