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Infoletter
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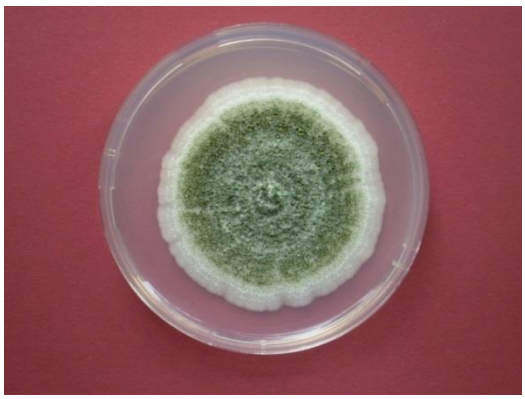
INFOLETTER

PRESTOP® biofungicide in integrated pest management

PRESTOP® is a biological fungicide for the control of damping-off and root diseases (*Pythium, Fusarium, Phytophthora* and *Rhizoctonia*) as well as for the control of the *Botrytis* grey mould and *Didymella (Mycosphaerella)* gummy stem blight on cucumber. Prestop is used as a soil application or as a foliar spray. It is based on the *Gliocladium* fungal strain J1446 which colonizes effectively the roots and foliar parts of plants preventing the attack of plant diseases.

Combining biological and chemical methods is a standard practice in modern plant protection. Prestop is an ideal partner in IPM programs providing many benefits: low risk for the development of resistance by pathogens, wide-range and long-lasting efficacy against pathogens, and safety for the user and the environment.



Gliocladium catenulatum J1446

PRESTOP® and chemical pesticides

Because the active ingredient of Prestop, *Gliocladium,* is a fungus, its efficacy can be disturbed by the simultaneous use of certain chemical fungicides. In practice, simultaneous use is not usually necessary, and Prestop can be easily combined with chemicals in rotational use.

The compatibility of Prestop with certain chemical active substances has been tested in a laboratory. The results are shown in Table 1.

PRESTOP® in IPM programs

1. Root applications

Certain chemical products can be used in soil applications with Prestop even during the same day. However, in practice the best results are achieved by using different products in rotation. In the case of a severe pathogen attack, Prestop can be applied at the same time with a compatible chemical product. The chemical product responds quickly to the problem, and the biological product gives a long-lasting effect against the disease.

2. Foliar applications

Sometimes a crop that is spraeyd with Prestop must be simultaneously sprayed with a chemical fungicide, for instance against powdery mildew. In that case it is especially important to make sure that the substances are compatible, because the *Gliocladium* fungus will be in direct contact with the chemical substance on a leaf surface. On the other hand, foliar insectisides do not usually affect the efficiency of Prestop.

PRESTOP® in combination with other biocontrol agents

The *Gliocladium* fungus is able to colonize the same root system as the *Streptomyces* ray bacterium, which is the active ingredient of the MYCOSTOP® biofungicide. In spite of this, it is recommended that in combination use in root applications different microbial products be applied in rotation, at different growth stages. For instance, Prestop applications can be done at seedling stage, and Mycostop applications can be begun after transplanting stage.

Prestop is an ideal product for crops when insect pests are controlled by biological methods. Prestop does not cause any harm to beneficials, pollinators or nematodes.

Table 1. Examples of the recommended intervals (days) between PRESTOP® and chemical fungicide treatments

Fungicides			
Active ingredient	**Recommended interval (days)**	**Active ingredient**	**Recommended interval (days)**
Azoxystrobin	2	Mepanipyrim	0
Benomyl	4	Metalaxyl-M	0
Benthiavalicarb-isopropyl + folbet	1	Myclobutanil	0
Bitertanol	2	Myclobutanil + cyclohexanone	0
Boscalid-kresoxim-methyl	0	Myclobutanil + quinoxyfen	1
Bupirimate	0	Penconazole	1
Carboxin	4	Phosetyl-AL	0
Chlorpyrifos-methyl	0	Phosetyl-AL + propamocarp	0
Copper oxychloride	0	Potassium iodide+ potassium thiocyanate+ Addit (Enzicur+adjuvant)	2**
Cyflufenamid	0	Prochloraz	7
Cymoxanil	0	Procymidone	0
Dithianon	1	Propamocarb-hydrocloride	0
Dodemorph-acetate	0	Propiconazole+prochloraz	7
Fenhexamid	0	Pyraclostrobin+boskalid	2
Fludioxonil	4	Pyrimethanil	1
Fludioxonil-cyprodinil	4	Quinoxyfen	0
Fluopyram	0 (1)*	Spinosad	0
Guazatine	2	Sulphur	1
Hymexazole	7	Thiophanate-methyl	2
Imazalil	2	Tolclofosmethyl	2
Imidacloprid	0	Thiram	4
Iprodione	4	Triadimenol	2
Kaliumhydrogencarbonat	0	Triflumizol	0
Krezoxym-methyl	0	Trifloxystrobin-propiconazole	4
Magnesium sulphate + orange oil (Prev-Magnum)	0	Vinclozolin	4
Mancozep	4		

0 (1)* An interval of 1 day is required when Prestop and fluopyram are applied in the same part of the plant. When root system is treated with fluopyram, Prestop can be sprayed in the foliage during the same day.

2 Prestop can be sprayed to the foliage two days after application of Enzicur. Re-application of Prestop is necessary after repeated Enzicur treatments.**

- **The recommended interval between applications of PRESTOP® and a chemical product not mentioned in the list is 7 days.**
- **PRESTOP® can be applied in mixtures with compatible products. However, the mixture should be applied immediately after preparation.**
- **Do not tank mix PRESTOP® with concentrated solutions of pesticides or fertilizers.**

Table 2. Examples of the recommended intervals (days) between PRESTOP® and insecticides, adjuvants, disinfectants, microbiological products and growth regulators.

Insecticides	
Active Ingredient	**Recommended interval (days)**
Buprofezin	0
Chlorpyrifos-methyl	0
Cypermethrin	2
Deltamethrin	0
Diazinon	0
Diclorvos	7
Fenbutatin oxide	2
Imidacloprid	0
Indoxacarb	0
Malathion	0
Mevinphos	0
Permethrin	2
Pirimicarp	0
Pyrethrins	0
Rape seed oil	0
Spinosad	0
Tebufenozide	0

Adjuvants	
Product name	**Recommended interval (days)**
Addit	0***
Silwet Gold	0
Greenfain	0

Beneficial insects and nematodes
PRESTOP® is compatible with beneficials and nematodes

Disinfectants
Prestop is compatible with Resiclean (concentration below 100 ppm). The recommended interval between the applications of other disinfectant products and Prestop is 1 day.

Microbiological products	
Active ingredient/product name	**Recommended interval (days)**
Bacillus thuringiensis	0
Beauveria bassiana	0
Lecanicillium muscarium	Prestop might have negative effect on the growth of *Lecanicillium* on the leaf surface
Other microbiological products applied in the growth substrate.	In order to avoid unnecessary competition between different microbes, use the products in rotation, for example at intervals of 7 days.

Growth regulators	
Product name	**Recommended interval (days)**
Pirouette	0

- 0*** Addit is compatible with Prestop at the maximum concentration of 0.25%. Higher concentrations of Addit are harmfull to Prestop.
- The recommended interval between applications of PRESTOP® and a chemical product not mentioned in the list is 7 days.
- PRESTOP® can be applied in mixtures with compatible products. However, the mixture should be applied immediately after preparation.
- Do not tank mix PRESTOP® with concentrated solutions of pesticides and fertilizers.