

# PreFeRal® WG

2 x 10<sup>9</sup> CFU/g *Paecilomyces fumosoroseus* strain Apopka 97  
Recognition number: 9001/B

**PreFeRal® wg is a new biological insecticide that provides excellent control of the greenhouse whitefly in protected cultures of tomato, cucumber and ornamentals.**

## **PreFeRal® wg: A BIOLOGICAL INSECTICIDE**

- PreFeRal® wg contains spores of a highly-efficient, naturally-occurring strain of the entomopathogenic fungus *Paecilomyces fumosoroseus*.

## **PRODUCT DESCRIPTION**

- PreFeRal® wg is a Water dispersible Granule (WG)
- PreFeRal® wg contains 2 x 10<sup>9</sup> CFU/g (CFU = Colony Forming Units)
- PreFeRal® wg is supplied per 500 g in a plastic reclosable container

## **COMPOSITION**

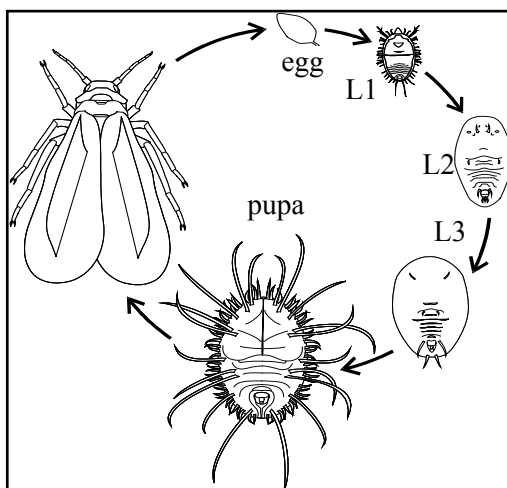
Active ingredient : <i>Paecilomyces fumosoroseus</i> strain Apopka 97.....	20 %
Inert ingredients : .....	80 %
Total : .....	100 %

## **ADVANTAGES**

**PreFeRal® wg:**

- \* highly efficient against the greenhouse whitefly (*Trialeurodes vaporariorum*);
- \* infective for all stages (eggs, larvae, pupae, adults);
- \* not harmful to humans, mammals, plants or the environment;
- \* not harmful to most beneficial organisms, including bumblebees;
- \* can be integrated into a biological pest control program.

## LIFE CYCLE of the greenhouse whitefly (*Trialeurodes vaporariorum*)



## MODE OF ACTION

1. PreFeRal® WG contains spores of a naturally-occurring strain of the fungus *Paecilomyces fumo-soroseus*. This fungus is highly efficient against the greenhouse whitefly and can infect all stages (egg, larva, pupa and adult) of this harmful insect.
2. The spores adhere to the different stages of the whitefly. After germination, the fungus penetrates the whitefly, which ultimately results in the death of the insect.
3. The fungus grows inside the host (internal proliferation). Under optimal conditions, the fungus forms mycelium and sporulates on the outside of the insect cadaver (external proliferation).
4. Under suboptimal conditions, the mycelium will not become visible on the outside of the insect. The fungus will cause 'silent mortality' which can be recognized as deformed insects which turn brown.
5. PreFeRal® WG will not immediately kill all insects, but will gradually reduce the whitefly population.

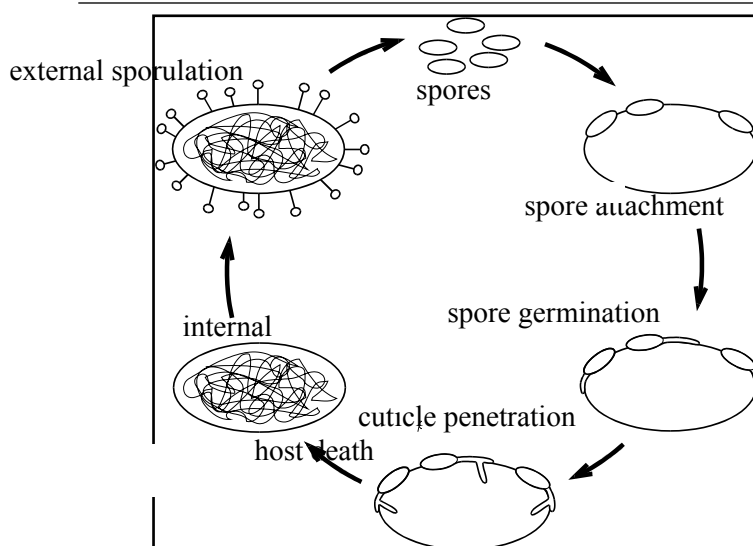
## APPLICATION TECHNOLOGY

- The application method of PreFeRal® WG depends on the crop and the number of whiteflies present.
- **SPRAYING:** PreFeRal® WG should be applied with conventional spraying equipment. PreFeRal® WG works as a contact insecticide. In order to obtain an efficient insect control, the undersides of the leaves should be properly covered. It is recommendable to use sufficient quantities of water. The volume of water needed depends on crop development. Usually, selection of high spray volume will provide the best results. It is recommended to apply 2000 - 3000 L/hectare on full-grown and 1000 L/
- The optimal pH of the water should be between pH 4 - pH7.
- **Integrated Pest Management program:** PreFeRal® WG can be used in combination with beneficials such as *Encarsia formosa*, *Eretmocerus eremicus* or *Macrolophus caliginosus*. This makes of PreFeRal® WG an outstanding correction agent when biological control needs some extra help with whitefly control. This is called "Integrated Pest Management" (IPM).
- **Integrated Resistance Management program:** PreFeRal® WG can be applied in combination with selective whitefly insecticides as a part of an Integrated Resistance Management program (IRM).

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## INFECTION SEQUENCE of *Paecilomyces fumosoroseus*

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## APPLICATION RATE

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- Put the required quantity of PreFeRal® WG in a bucket with a small amount of tepid water (max. 20°C) and stir it from time to time for one hour into a thin paste. Then wait one hour for the sediments to settle down and use only the top water column, which now will contain all the fungus spores. Mix this solution with the required amount of water in the spray tank. Do not put the tank in the direct sun or in a warm place.
- Dose/ Concentration:  
Protected tomato cultures:  
100 g/ 100 L water  
  
Protected cucumber cultures:  
100 g/ 100 L water

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## APPLICATION GUIDELINES FOR OPTIMAL RESULTS

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Since PreFeRal® WG is a living biocontrol agent, its performance depends on having adequate conditions. Following these guidelines will help you to get the best results with PreFeRal® WG.

### **Environmental Conditions:**

The most efficient whitefly control is obtained when the temperature in the greenhouse is between 20 and 28°C and when humidity remains above 80 % for at least 12 hours per day. The longer high humidity is maintained, the more effective the product can be. For optimal insect control, applications should be made in the late afternoon or early in the evening.

### **Spraying technique:**

PreFeRal® WG is a contact insecticide, therefore it is advisable to provide a good coverage of the undersides of the leaves. A good spraying technique is required; a sufficient amount of water and a sufficiently high pressure are also crucial.

### **Insect Pressure:**

PreFeRal® WG is most efficient when application is initiated at the first sign of insect presence. Scout crops closely for whitefly presence and use yellow sticky traps to monitor them.

### **Timing of Application:**

Applications on an actively evaporating culture will provide the best results due to a higher relative humidity on the leaf surface.

### **Compatibility with Pesticides:**

PreFeRal® WG may be affected by fungicides. Therefore, these must be used with great care. It is recommended to wait minimum 7 days between a PreFeRal® WG application and a fungicide treatment. Do not make tank mixes of PreFeRal® WG with fungicides.

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## STORAGE AND DISPOSAL

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**Storage and Stability:** PreFeRal® WG can be stored in a dry place, at 2 - 6°C for maximum 6 months if the product remains in its original and sealed container.

**Disposal:** Rinse the empty container thoroughly with water and add the rinsing water to the spraying solution in the tank. Empty containers can be disposed of with other household waste. NEVER use an empty packaging again for other purposes.  
To avoid residues after application, calculate the required spraying suspension volume accurately.

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## WARRANTY

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BIOBEST N.V. warrants that the material contained herein shall substantially be conform to the chemical and biological composition stated herein. The foregoing warranty is in lieu of all other warranties, EXPRESSED AND IMPLIED, including the implied warranties of MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE which are expressly disclaimed. In no event shall BIOBEST N.V. be liable for any injury, loss, or damage, direct, indirect, incidental,

**Important!**

**Always read the entire label and instructions before use.**

**Make sure the product is authorized in your country and crop.**