

# Beneficial Insects

TECHNICAL DATA SHEET



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Nymphs and adults predate on all stages of two-spotted spider mites and other Tetranychus species. They consume approximately 20 eggs, 20 larvae and nymphs or 5-7 adults/day, eating hundreds of spider mites during their total lifespan. At 68°F (20°C), they lay more eggs, produce more females, and develop faster allowing the predator population to increase faster than their prey.

## Product Specifications

Item N°	Commercial name	Specifications
301442	Phytoseiulus-System - 2,000	<ul style="list-style-type: none"> <li>250 ml bottle: 2,000 mites</li> <li>Carrier: sawdust</li> </ul>
301057	Phytoseiulus-System - 10,000	<ul style="list-style-type: none"> <li>1 L tube: 10,000 mites</li> <li>Carrier: sawdust</li> </ul>
301370	Phytoseiulus-System - 20,000	<ul style="list-style-type: none"> <li>1 L bottle: 20,000 mites</li> <li>Carrier: sawdust</li> </ul>
701228	Phytoseiulus-System - 100,000	<ul style="list-style-type: none"> <li>1 L tube: 100,000 mites</li> <li>Carrier: sawdust</li> </ul>

## Storage

Use immediately upon receipt. If not possible, product can be briefly stored horizontally at 43-46°F (6-8°C).

## Rates

Mode	Dosage	Area	Repeat
Preventative	2-6 ind./m <sup>2</sup>	Full field	Weekly/Bi-weekly
Curative (early detection)	6-20 ind./m <sup>2</sup>	Full field	3-4 times, 1 week intervals
Curative (late detection)	min. 20 ind./m <sup>2</sup> min. 100 ind./m <sup>2</sup>	Hot spots and surroundings	Weekly, as needed, until control is achieved

Everything you need to grow

## PHYTOSEIULUS-SYSTEM

*Phytoseiulus persimilis*

### Features

- Predatory mite
- Highly voracious and very mobile
- Rapid development
- Capable of cleaning spider mite hotspots

### Targets

- Red spider mite
- Two spotted spider mite

### Crops

- All crops



# PHYTOSEIULUS-SYSTEM

## Instructions

### Timing

Introduce *P. persimilis* in areas with pest history or at first sign of pest presence. Apply in hot spots and surrounding plants. In case of multiple hotspots, apply full field.

### Release method

- Warm the tube to room temperature, keeping it in a horizontal position.
- Before applying, gently roll or rotate the container a few times, so that the mites are evenly dispersed within the carrier.
- To open the bottle, flip the lid up. The lid is designed to deliver 3-5 mites in every stroke.
- Apply manually by pointing the open bottle down to release; bring it upright to reload, and repeat at every release point or use a Makita blower with Nutri-App (speed 1-2 only).
- Release bulk material preventively or curatively over the canopy of the plants or area you wish to treat (susceptible varieties, affected and surrounding plants).
- If plant canopies are not touching or connected, make sure to apply onto every plant.
- If carrier over foliage is undesirable, use Bio-Boxes, hang them from the crop or pots and add the desired amount of product inside.

### Release conditions

An effective biological control with *P. persimilis* becomes difficult under dry (critical humidity <70%) and warm conditions (critical

average temperatures <54°F and >95°F (<12°C and >35°C). In case of dry climate, it is possible to spray water below the leaves of the plants to provide the necessary humidity for the eggs to hatch (making sure the plant is dry before the end of the day). Avoid the use of sulphur, or reduce it to a minimum. (Burn no more than 24 hr/week.)

## Monitoring





### Spider mite populations

- First spider mites spots appear in spring or early summer when hibernating adults become active again.
- The first hotspots develop in dry and warm areas of the greenhouse, such as close to heating pipes, places with higher sun radiation and concrete at the base of the posts.
- Due to the fast development of spider mite populations and their ability to disperse rapidly, it is crucial to release predatory mites as early as possible.

### Phytoseiulus and efficacy

- All stages of *P. persimilis* can be found in the spider mite spots after a 1-week min.
- Efficacy can be measured by the presence of sucked out eggs, mobile stages of the prey and a reduction in mobile stage of the prey and new growth without damage. Observing a mix of different stages of Phytoseiulus is a good sign of promising installation and control.

## Life cycle and appearance

Egg	Larva	Pupae	Adult
<ul style="list-style-type: none"><li>• 50-60 eggs in 3 weeks*</li><li>• Oval shaped, light pink</li><li>• 0.30 mm (twice the size of spider mite eggs)</li><li>• Hatch in 2-3 days</li></ul>	<ul style="list-style-type: none"><li>• Light pink</li><li>• 3 pair of legs</li><li>• Do not feed</li><li>• Duration: 1 day</li></ul>	<ul style="list-style-type: none"><li>• Light pink to orange</li><li>• 4 pair of legs</li><li>• Duration: 3.5 days</li></ul>	<ul style="list-style-type: none"><li>• Pear-shaped,</li><li>• Orange to red</li><li>• Long legs</li><li>• 0.5 mm</li><li>• Life span: 30-35 days</li></ul>
			

\*At a temperature of 68°F (20°C)

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DISCLAIMER: These are general guidelines. Please read label and product information before use. For questions and/or recommendations, please contact your local advisor.