

MACROLOPHUS- SYSTEM

TECHNICAL DATA SHEET



Targets

- Greenhouse whitefly (*Trialeurodes vaporariorum*)
- Tobacco whitefly (*Bemisia tabaci*)
- South American tomato moth (*Tuta absoluta*)
- Spider mite
- Aphid (less)
- Leafminer (less)
- Thrips (incl. *Echinothrips americanus*)

Crops

- Tomato
- Eggplant
- Pepper

Registration number

- AUT: Pfl. Reg.Nr. 2887
- FRA: 2012-7106
- LVA: Nr 0446
- NOR: 2015.28 (bugs)
2015.27 (nymphs)
- ESP: N° OCB 0378
- TUR: 7984

What is Macrolophus-System?

- Bright green mirid bug
- *Macrolophus pygmaeus*
- Efficient against whitefly (*Bemisia* and *Trialeurodes*) and *Tuta absoluta*
- Also eats spider mites, moth eggs and aphids
- Preventative protection against unexpected infestations
- Adapted to crops with glandular leaf hairs

Mode of action

- Adult predatory bugs and nymphs search actively for their prey and suck it empty
- Adult *Macrolophus* predate on whitefly eggs, larvae and pupae, on *Tuta absoluta* eggs and young larvae as well as on aphids
- Consumes about 50 whitefly eggs every day
- Nymphs effectively control red spider mite infestations
- By using alternative food sources (Nutrimac™ and Artemac™), the population of *Macrolophus pygmaeus* will grow, even in the absence of prey

Product specifications

| Product | Package size | Package content |
|--------------------------|--------------|-----------------------------------|
| Macrolophus-System 500 | 250 ml | 500 bugs vermiculite carrier |
| Macrolophus-N-System 500 | 250 ml | 500 nymphs vermiculite carrier |

Note: not available in N- & S-America.

Storage

Use immediately upon receipt. If not possible, product can be briefly stored horizontally at 8-10°C. Always respect the use-by-date.

Dose rate

| Mode | Dosage | Area | Repeat |
|---|------------------------------------|------------|---------------------------------------|
| Preventative (Greenhouse and tobacco whitefly) | 0.5-1 ind./m ² | Full field | in 2-4 releases, 1-2 week interval |
| Preventative (<i>Tuta absoluta</i>) | 1.5-2 ind./m ² /release | Full field | in 2-4 releases, 1-2 week interval |
| Curative (Spider mite) | 100-500 ind*/hotspot | Hotspots | when necessary |

*nymphs of *Macrolophus pygmaeus* (Macrolophus-N-System) in support of *Phytoseiulus persimilis* (Phytoseiulus-System)

Instructions for use

Release moment

- Due to the slow population build up, the bug has to be released early in the season within 1.5-2 months after planting
- In combination with parasitic wasps (like *Encarsia* sp.) for whitefly control
- Use Macrolophus-N-System (nymphs) in spider mite hotspots in support of Phytoseiulus-System (*P. persimilis*)

Release method

- Apply in release points (10-20 points / 1.000m²), 50-80 bugs per release point
- Sprinkle the bugs on horizontal leaves to avoid them falling on the floor
- Or use the Biobox and pour 1 cm thick layer of the material in each box to allow easy movement of the bugs

Additional feeding

Boost the population in the release points and enhance its dispersion and maintenance in the crop:

- spot feeding application of Nutrimac (*Ephestia* eggs) during 6 weeks after first release of *Macrolophus*
- or row application of Nutrimac Plus (*Ephestia* egg + *Artemia* cysts) during 8 weeks after first release of *Macrolophus*
- apply during 6-8 weeks Artemac (*Artemia* cysts) full field after the application period of Nutrimac (Plus)

Release conditions

- Optimum temperature for a good establishment is 20°C/68°F
- At lower temperature the development time is longer (90 days) and will stop at 10°C/50°F
- Temperatures above 30°C/86°F and 40°C/104°F are lethal for eggs and nymphs respectively

Life cycle and appearance

| Egg | Larva | Nymph | Adult |
|---|--|--|--|
| <ul style="list-style-type: none"> • 100-250 eggs in 4 weeks • not visible with naked eye • embedded in leaf, vein or stalk • egg-laying sites are slight brown • hatch in 15 days* <p>* 25°C/77°F</p> | <ul style="list-style-type: none"> • yellow –green • duration: 3 days* | <ul style="list-style-type: none"> • bright green • wing primordia • duration: 15 days* | <ul style="list-style-type: none"> • 3-3.5 mm long • bright green body, small black dot in the middle • colourless hind-part • long legs and antennae • base of antenna is black • dark bar behind each eyes • life span: 30-40 days* |
|  |  |  |  |

Monitoring

Pest suppression

- Punctured eggs, larvae and pupae of whitefly are recognised by a small hole where the bug has injected its rostrum.
- After sucking out its prey, only the skin remains intact. Sometimes empty preys collapse.

Macrolophus population

- The first weeks *Macrolophus* can hardly be found in the crop. It will take at least 4-8 weeks to see first evidence of population establishment, such as moulted skins, young nymphs, black dots of excrements and signs of predation.

Warning on feeding damage

Macrolophus pygmaeus can occasionally cause crop damage such as poor fruit set, flower drop, irregularly formed flowers, fruit or trusses and feeding spots on fruit. Please be cautious when the following conditions occur:

- *M. pygmaeus* population is too large, i.e. 100 individuals on the entire plant or 50 individuals in the head of the plant
- There is no prey available
- There is reduced fruit set caused by unfavourable climatic conditions or strong vegetative growth
- In sensitive crops and varieties, e.g. cherry tomatoes and small-truss tomato types