

MACROLOPHUS- (N)-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-(N)-System?

- *Macrolophus pygmaeus*
- Bright green mirid bug
- Efficient against whitefly (*Bemisia* and *Trialeurodes*) and *Tuta absoluta*
- Also eats spider mites, moth eggs and aphids
- 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™ Plus and Artemac™), the population of *Macrolophus pygmaeus* will grow, even in the absence of prey

Product specifications

| Product | Package size | Package content |
|----------------------|-----------------------|-------------------------------------|
| Macrolophus-System | 240 ml ⁽¹⁾ | 500 bugs Honeycomb paper carrier |
| Macrolophus-N-System | 250 ml bottle | 500 nymphs Vermiculite carrier |

⁽¹⁾ Packaging consists of a fully biodegradable cup and lid

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 (Whitefly) | 0,5-1 ind./m ² | Full field | 2-4 releases 1-2 week interval |
| Preventative (<i>Tuta absoluta</i>) | 1,5-2 ind./m ² | Full field | 2-4 releases 1-2 week interval |

Application

Release moment & conditions

- Due to the slow population build up, *Macrolophus*-System has to be released early in the season within 1,5-2 months after planting
- Optimum temperature for a good establishment is 20°C/68°F
- At lower temperature the development time is longer (up to 90 days) and will stop at 10°C/50°F
- Temperatures above 40°C/104°F are lethal for eggs and nymphs
- Use in combination with parasitic wasps (e.g. *Encarsia*-System) for whitefly control
- Use *Macrolophus*-N-System (nymphs) in spider mite hotspots in support of *Phytoseiulus*-System (*P. persimilis*)

Release method & conditions

Macrolophus-System

- Apply Macrolophus-System in one row per bay.
- Open the cup at the end of a release row, on the facade side. Move towards the beginning of the row, whilst holding the cup at the upper part of the plant. Adjust your pace of moving and/or tapping on the cup by keeping a close eye on the amount of adults flying out to ensure an even spread of *Macrolophus* in your crop.
- Pieces of honeycomb paper can be taken out whilst moving down the row to release more individuals. Place the pieces of honeycomb paper equidistant from each other in the crop to release remaining individuals (some nymphs might be hiding here as well).
- Being 100% biodegradable, the packaging can be left in situ and cleaned out, together with the plants, at the end of the crop. Few nymphs may remain in the cup, which can then also disperse into the crop.

Macrolophus-N-System





- Sprinkle the nymphs on horizontal leaves or in a Bio-Box to avoid them falling on the floor.
- In case of use of the Bio-Box, divide the material over 7-8 boxes in 1 cm thick layers, to allow easy movement of the nymphs.

Additional feeding

Boost the population growth and enhance its dispersion and establishment in the crop:

- Apply Nutrimac™ Plus in the full release row for a minimum of 4-6 weeks after first release of Macrolophus-(N)-System.
- Apply Artemac™ full field during 6-8 weeks after first release of Macrolophus-(N)-System. It is advised to use a dose rate of 500-1.000 gr/ha/week depending on the population growth.
- For optimal establishment and population growth in the crop, delay pruning in the release row.
- Optional: In case of weak population growth, apply extra feeding with Artemac™ once every 2-3 weeks with a dose rate of 500-1.000 gr/ha/week.

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 on stalk - Egg-laying sites are light brown - Duration: 15 days* | <ul style="list-style-type: none"> - Yellow-green color - Duration: 3 days* | <ul style="list-style-type: none"> - Bright green color - 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 - Long legs and antennae - Base of antenna is black - Life span: 30-40 days* |
|  |  |  |  |

*At an average temperature of 25°C (77°F)

Monitoring

- 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.
- 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

Macrolophus pygmaeus can occasionally cause crop damage such as poor fruit set, flower drop, irregularly formed flowers, fruit or trusses and feeding spots on fruits. 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's 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

DISCLAIMER

Use plant protection products safely. Please read the label and product information before use. Please consult the instructions for use to prevent potential harm to people and environment.