

Nesidiocoris-System

In recent years, the predatory mired bug *Nesidiocoris tenuis* has become an important player in the battle against whitefly in vegetable production, such as tomato and eggplant.

Both larval and adult stages of this predator are very voracious and can cover considerable distance in the crop to seek its prey.

WHITEFLY

Adult whitefly measures about 1 mm and is covered with a white waxy powder. The most common species in greenhouse production are *Bemisia tabaci* (tobacco whitefly) and *Trialeurodes vaporariorum* (greenhouse whitefly).

Female whitefly deposits its oval-shaped eggs of 0.2 mm on the underside of leaves. The larva that hatches is mobile during a few hours until it finds a suitable place to settle on the leaf. From that time and in subsequent larval stages and pupal stage, it does not move anymore. The four larval stages look very similar, but differ clearly in size. After the fourth stage, an adult greenhouse whitefly emerges from the pupa through a T-shaped exit hole. The pupal and adult stages have clearly identifiable morphological characteristics, which help to determine the whitefly species. Development period from egg to adult depends on host plant and temperature. On tomato, development takes 20 days at 27°C or 38 days at 17°C. Fertility also depends on temperature and host plant. At 17°C, a female lays about 100 to 150 eggs on tomato, 250 to 300 eggs on cucumber and 450 to 600 eggs on eggplant.

Both larvae and adults suck plant juice. Extra plant juice absorbed by whitefly larvae is secreted as honeydew (sugar solution). Honeydew fouls leaves and fruit, which then become unmarketable. Often, sooty mould grows on the honeydew, which interferes with photosynthesis and respiration of the plant. Moreover, whitefly can transmit several viruses.

NESIDIOCORIS TENUIS

Nesidiocoris tenuis is a predatory mired bug that can be found in nature in the Mediterranean region and on the Canary Islands.

There are five nymph stages before molting into an adult stage. Only the adult is able to fly. *Nesidiocoris* has a large appetite and feeds on several species of insects and mites. The larvae of whitefly are its primary prey but *Nesidiocoris* also feeds on several species of insects and mites. The larvae cycle depends largely on host plant and prey. Hairy plants like tomato or eggplant are most preferable. On tomato, it takes the nymph of *Nesidiocoris* seven days to emerge from an egg and 14 days to develop to an adult. *Nesidiocoris* has a shorter life cycle when it feeds on eggs or larvae of whitefly or moth than on thrips or mites. *Nesidiocoris* can feed on plant juices, which can cause damage to stems and leaves. However, this situation only occurs when population of *Nesidiocoris* is high (especially if concurrent pest population is low). This can be avoided by accurately estimating the pest population in the crop to introduce the right quantity of beneficial insects.

APPLICATION

Nesidiocoris tenuis has no negative impact on other beneficial insects used against whitefly. In order to optimize control of whitefly, a combination of *Nesidiocoris* with whitefly parasitoids such as *Eretmocerus mundus*, *Eretmocerus eremicus* and *Encarsia formosa* is the best strategy.

Introduce *Nesidiocoris* in whitefly hotspots or in location where outbreaks are expected or detected in previous seasons. The introduction of these bugs in spider mite hotspots also gives excellent results.

Introduce *Nesidiocoris* at an average rate of 0.5 bugs /m². In order to increase chances of mating, it is better to release *Nesidiocoris* in a few spots instead of spreading it over the entire greenhouse; this can be done making piles of approximately 20 to 30 bugs on leaf or in a Biobox. Initial introduction rate should not exceed 1-1.5 *Nesidiocoris* /m². If necessary, a second introduction of 0.3 to 0.5 *Nesidiocoris* /m² can be done over the entire production area.

Development of *Nesidiocoris* is influenced by temperature and photoperiod; warm temperatures and long days speed up development. Therefore, it is recommended to introduce *Nesidiocoris* during spring and summer. Decreasing day length and temperatures slow down development rate and predatory activity of *Nesidiocoris*.

NESIDIOCORIS-SYSTEM

Biobest offers *Nesidiocoris*-System in bottles containing 500 predatory bugs (adults and final nymph stage) in a mixture of vermiculite and tobacco leaf.

Nesidiocoris-System can be stored for a couple of days at a temperature of 8-10°C.

WARNING

Nesidiocoris can exceptionally cause crop damage (such as poor fruit setting, flower drop, feeding spots on fruit, irregular shaped flowers, clusters and fruits) when the following conditions occur:

- A large population of *Nesidiocoris* in the crop: 100 or more bugs per plant or 50 bugs in the apical zone;
- Few or no prey available;
- Reduced fruit set caused by unfavorable climatic conditions or strong vegetative growth;
- Sensitive crops and varieties, e.g. cherry tomatoes and small-truss tomato types.