# Beneficial Insects
TECHNICAL DATA SHEET

biobest
SUSTAINABLE CROP MANAGEMENT

PLANTPRODUCTS
A member of Biobest Group

# ENCARSIA-SYSTEM
*Encarsia formosa*

**Female wasps will actively search for whitefly larvae in the crop and will lay their eggs inside the larvae. Encarsia can develop in any larval stage of the whitefly, but prefers the third and early fourth instar. When the parasitized larva pupates, it turns black. A new adult emerges through a round exit hole at the back of the pupa. During her life one female can parasitize around 250-450 whitefly larvae, and kills another 30-70 larvae by host-feeding. The females prefer the second larval stage for host-feeding.**

## Product Specifications

| Commercial name | Specifications |
|---|---|
| **Encarsia-System (cards)** | |
| Encarsia-System - 5,000 | 50 pupae/card; 100 cards: 5,000 pupae |
| Encarsia-System - 10,000 | 100 pupae/card; 100 cards: 10,000 pupae |
| **Encarsia-System (loose pupae)** | |
| Encarsia-System - 10,000 | • 100 ml bottle: 10,000 pupae<br>• Carrier: sawdust |

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

## Rates

| Mode | Dosage | Area | Repeat |
|---|---|---|---|
| Preventative | 1.5-6 ind./m² | Full field<br>On leaves or in plants | 1-2 times weekly<br>Every 2 weeks |
| Low curative | 6-10 ind./m² | Hotspots and surroundings | Weekly<br>min. 3 times |
| High curative | 10-15 ind./m² | Hotspots and surroundings | Weekly<br>min. 3 times |

## Features
- Parasitic wasp
- Endoparasitoid that controls whitefly infestations
- Efficient at lower temperatures
- Also kills whiteflies by host-feeding
- At least 98% of individuals are females

## Targets
- Greenhouse whitefly
- Tobacco whitefly
- Cabbage whitefly

## Crops
- Vegetables / Herbs
- Ornamentals
- Soft fruit
- Cannabis / Hemp


Everything you **need to grow**

PP_TS_V02_190722_Encarsia_System

# ENCARSIA-SYSTEM

## Instructions

**Timing**

Start the introductions of Encarsia-System preventatively. When whiteflies are detected, increase the dose rate in line with pest density. It is recommended to combine the use of Encarsia-System with Eretmocerus-System. Add Delphastus-System and Swirskii-System to quickly reduce eggs and immature stages.

**Release method**

**Loose pupae:** Gently rotate the bottle horizontally to ensure homogenous distribution. Pupae can be spread very easily in the crop, either on the leaves directly on top of the slabs or using a Bio-Box. It is very important to place the pupae on a dry surface avoiding direct sunlight.

**Cards:**

- Fold the cards back and forth (2-3 times) on the vertical perforation.
- Tear the cards apart carefully to avoid crushing the exposed pupae. The pupae are attached to the circle on the surface of the card.
- Hang cards on plants or from the rim of pots with the pupae facing towards the plant, out of direct sunlight and sprays.
- Distribute the cards evenly throughout the area you wish to treat.

**Release conditions**

Conditions for optimal activity of Encarsia require a minimum average greenhouse temperature of 64˚F (18˚C). The lifespan of Encarsia is considerably reduced at temperatures above 86˚F (30˚C). E. formosa do not like large whitefly colonies, as excessive honeydew can hamper its mobility.

## Monitoring

- Parasitized whitefly larvae can be observed in the crop 2-3 weeks after the first application.
- The presence of a perfect round hole in the pupae indicates that an adult of *E. formosa* has emerged.
- Control is achieved when 80% of the whitefly larvae are parasitized.
- The efficacy can be checked by observing a reduction in pest population, fewer number of hotspots, foliage free of honeydew and or sooty mould and the presence of black whitefly pupae.

## Life cycle and appearance

| Egg | Larva / Pupa | Adult |
|---|---|---|
| • Eggs are laid inside the host's larva<br>• Duration: 2-4 days* | • Whitefly pupae that have been parasitized appear black in color<br>• Wasp larva passes through three instars inside the host<br>• Round exit hole visible when the adult has emerged<br>• Larval & pupal stage duration: 12 days* | • Females are black with a pale yellow abdomen<br>• Males are completely black<br>• Clubbed antennae<br>• 0.6 mm long<br>• One female lays 20-35 eggs/day**<br>• Lifespan: 6-12 days* |
|  |  |  |

*At an average temperature of 77˚F (25˚C). **Depending on the whitefly species