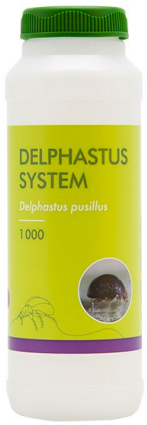
WOW-en

SUSTAINABLE CROP MANAGEMENT

DELPHASTUS-SYSTEM

TECHNICAL DATA SHEET



Targets

- Greenhouse whitefly
- Tobacco whitefly

Crops

- Vegetable crops
- Ornamental crops

What is Delphastus-System?

- *Delphastus catalinae*
- Small black ladybird
- Both larvae and adults are efficient against whitefly
- Control of both the tobacco whitefly *Bemisia* tabaci and the greenhouse whitefly *Trialeurodes vaporariorum*
- Curative biological control agent of large whitefly hot spots

Mode of action

- Adult beetles are active flyers that are attracted to the volatiles secreted by young whiteflies
- They feed on all whitefly stages, but prefer whitefly eggs and larvae
- *Delphastus* beetles are voracious and need to be introduced in large whitefly populations
- An adult beetle can consume 160 eggs or 12 whitefly larvae a day, with a total of up to 10.000 whitefly eggs or 700 larvae during its lifetime
- A larvae can eat around 1.000 whitefly eggs during its entire development

Product specifications

Product	Package size	Package content
Delphastus-System 100	30 ml	100 adults[1]
Delphastus-system 1.000	250 ml	1.000 adults[1]

[1] On a carrier of filter paper

Storage

Use immediately upon receipt. If not possible, product can be briefly stored horizontally at 10-15°C/50-59°F. Always respect the use-by-date.

Dose rate

Mode	Dosage	Area	Repeat
Low curative	0.5 ind./m2	Full field	3x Biweekly
High curative	1-2 ind./m2	Full field	3x, biweekly
	30-100 ind./plant	Hot spots	3x, weekly

Application

Release moment

Introduce Delphastus-System at the first signs of whiteflies.

Release method

Apply in the evening.
Introduce in Bio-Boxes or directly onto whitefly-infested leaves.
Introduce lid & paper in the crop and leave the tube horizontally in the crop for the beetles to escape.
Complement its action with whitefly parasitoids (Encarsia-System, Eretmocerus-System or Eretmix-System).

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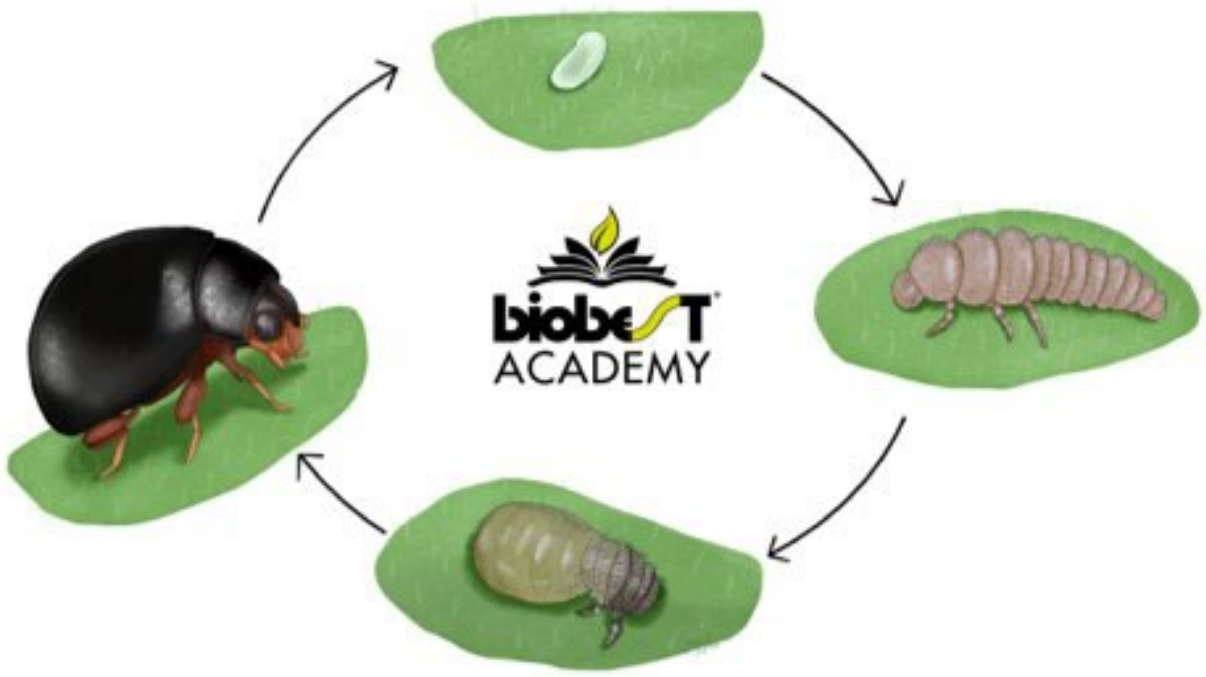
Release conditions

The optimal temperature for *D. catalinae* is situated between 25°C/77°F and 30°C/86°F; at temperatures below 13°C/55°F the adult beetles don't fly. The larvae do not survive in environments where temperatures are consistently below 15°C/59°F or above 35°C/95°F. *Delphastus* does not go in diapause under short-day circumstances and is therefore active during the entire season. It can tolerate light frost but does not survive longer periods of cold.
Delphastus is sensitive to numerous pesticides; avoid their use as much as possible.

Life cycle and appearance

Egg	Larva	Pupa	Adult
- Females deposit eggs within or around clusters of whitefly eggs - Females can lay a total of up to 300 eggs - Duration: 4-5 days*	- Pale yellow color - 4 larval stages - Duration: 8-12 days*	- Pale yellow to green color - Attached to the underside of leaves, often in groups - Duration: 5-6 days*	- Shiny, dark brown to black color - 1-1.5 mm long - Females have a reddish-yellow head and are lighter colored than males - Lifespan: 2 months*

*At an average temperature of 20-25°C (68-77°F)



Monitoring

- Check the whitefly hot spots weekly; especially the underside of leaves
- *D. catalinae* is easiest to see at twilight or on cloudy days
- Three weeks after the first introduction you can expect to see the first larvae and pupae on the underside of leaves.
- 4-5 weeks after introduction the first beetles should be visible feeding on whitefly eggs
- When new adults start to emerge, they may become trapped on yellow sticky traps/rolls

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