

Ervi-System

For the biological control of bigger aphid species such as the potato aphid and the glasshouse potato aphid, the parasitic wasps *Aphelinus abdominalis* and *Aphidius ervi* are used. *Aphidius ervi* has its own particular benefits.

HOSTS

Of the more than 200 aphid species that *Aphidius ervi* parasitizes, the potato aphid and the glasshouse potato aphid are the most common in greenhouses. Below a description of their appearance and life cycle is presented.

1. The potato aphid

The potato aphid (*Macrosiphum euphorbiae*) is a 2 - 4 mm tall, elongated aphid with relatively long legs. The antennae are longer than the body. The eyes are conspicuously red. The cauda (tail) is relatively long, and the siphunculi are long with a dark tip. The potato aphid is usually green, but sometimes yellowish or pink. The larvae have a dark longitudinal line on the back.

The mobility is also typical. Moreover the aphid easily lets itself fall.

Although in North-America this aphid hibernates usually on roses, in Europe it passes the winter usually in the greenhouse. The potato aphid has more than 200 host plants such as tomato, eggplant, sweet pepper, chrysanthemum, rose, pelargonium, tobacco and potato. It is often found on stalks or younger parts of a plant.

2. The glasshouse potato aphid

The glasshouse potato aphid (*Aulacorthum solani*) is a middle-sized, round-oval aphid of 1.8 to 3 mm. Characteristic are the dark bands on the antennae, which are longer than the body. The cauda and siphunculi are medium-long. Around the base of the siphunculi dark green patches can be seen. This aphid usually has a glossy yellowish green colour, but this can vary from white-yellowish green to brownish green.

The glasshouse potato aphid has no sexual phase, thus always reproduces viviparously on several host plant species. In the open field potato and several bulb crops are attacked. In the greenhouse the main hosts are sweet pepper, chrysanthemum, tomato, eggplant, lettuce and bean. It is often found on stalks or younger parts of the plant, which causes crimped tips with yellow coloured spots that look like a virus infestation.

APHIDIUS ERVI

The parasitic wasp *Aphidius ervi* occurs naturally in most parts of Europe and has been introduced in North America, Argentina, New Zealand and Australia. It looks very much like the related *Aphidius colemani*, but it is twice as big. *Aphidius ervi* also has a black, slender body with brown legs and long antennae. Its bigger size is logically related to the fact that it parasitizes bigger aphid species.

Parasitisation also occurs similarly as with *Aphidius colemani*. Once the female has found a suitable host, she bends her abdomen under her legs and injects an egg in the aphid with the ovipositor. During the first days after parasitisation, as long as the egg stage takes, the aphid keeps on eating and secreting more honeydew. Adult aphids keep on reproducing progeny. Then the *Aphidius ervi* larva starts eating the larva from the inside, and modifies it consequently to a gold-yellowish-brown mummy. Finally a new adult parasitic wasp leaves the mummy through a round hole.

The total development time of *Aphidius ervi* takes 26 days at 14°C (57°F), 13.5 days at 20°C (68°F) and 12 days at 23.6°C (75.5°F). A female lays about 350 eggs in a life time, of which most are laid during the first 5 to 7 days, at a rate of about 55 eggs per day. That is the reason why Biobest supplies Ervi-System; pupae of *Aphidius ervi*.

Aphidius ervi has a very good searching ability. Also at lower temperatures the parasitic wasps still fly well.

Just like other aphid parasites the presence of *Aphidius ervi* can cause such a panic in an aphid colony that some aphids fall down and are not parasitized.

APPLICATION

Aphidius ervi is mainly used for control of the potato aphid and glasshouse potato aphid in greenhouses. The parasitic wasp is applied in crops such as tomato, sweet pepper, eggplant, gerbera, rose, cucumber, strawberry, bean, ... Thanks to the good searching ability *Aphidius ervi* is also suited for preventative weekly introductions of 0.05 - 0.1 wasps / m².

Usually *Aphidius ervi* is released as soon as the first aphids appear. It is therefore important to detect hot spots on time and to act immediately. *Aphidius ervi* is then introduced weekly at 0.5 - 2/m² in and around hot spots until a balance is reached. Discuss the possibilities with your technical advisor.

Beginning infestations can be controlled in combination with the gall midge *Aphidoletes aphidimyza*. More advanced infestations can be treated with the ladybird *Adalia bipunctata* or with a selective pesticide.

ERVI-SYSTEM

Aphidius ervi is presented in plastic tubes per 250 or 1.000 mummies. With the help of these tubes, mummies can be spread on the leaves. The best time of introduction is in the morning or in the evening. It is recommended to introduce the parasitic wasps immediately after delivery. Eventually *Aphidius ervi* mummies can be stored briefly at 8 - 10°C (46.4 - 50°F). Store horizontally in a cool and dark place.

ADVANTAGES

- **Applicable on several crops;**
- **Can be introduced preventatively;**
- **Good searching ability;**
- **Fast result;**
- **Parasitization is easy to recognize (mummies).**