

# Beneficial Insects

TECHNICAL DATA SHEET



**PLANTPRODUCTS**

A member of Biobest Group



## APHI-MIX-SYSTEM

*Aphidius colemani, Aphidius matricariae, Aphidius ervi, Aphelinus abdominalis*

and

## APHIDIUS-MIX-SYSTEM

*Aphidius colemani, Aphidius ervi*

**Aphi-Mix-System and Aphidius-Mix System are products that contain a mixture of parasitic wasps, aiming to control small and large aphids. The female wasps search for aphid nymphs or adults, guided by odor cues from infested plants and the aphid's honeydew secretion. Using her ovipositor, the female inserts an egg inside the aphid host. When the egg hatches, the parasitoid begins to eat the aphid from the inside out, causing its death. The aphid will become mummified, and golden or black mummies will be observed depending on the species of parasitic wasp. A new adult wasp emerges through a round exit hole at the back of the mummy. Each female wasp can lay 150-350 eggs. The presence of a parasitic wasp can cause aphids to drop from the plant in a panic reaction.**

### Product Specifications

Commercial name	Specifications
Aphi-Mix-System - 750	<ul style="list-style-type: none"> <li>• 100 ml bottle: 750 pupae (125 <i>Aphidius ervi</i>, 250 <i>Aphidius colemani</i>, 250 <i>Aphidius matricariae</i> and 125 <i>Aphelinus abdominalis</i>)</li> <li>• Carrier: buckwheat</li> </ul>
Aphidius-Mix-System - 750	<ul style="list-style-type: none"> <li>• 100 ml bottle: 750 pupae (250 <i>Aphidius ervi</i>, 500 <i>Aphidius colemani</i>)</li> <li>• Carrier: buckwheat</li> </ul>

### Storage

Use immediately upon receipt. If not possible, product can be stored in a dark place, at 43-46°F (6-8°C) and a RH of 85%.

Everything you need to grow

### Features

- Controls common GH aphid species
- Ideal when:
  - proper identification is not possible
  - multiple aphid species are expected
  - multiple crops are grown simultaneously
- Suitable for preventative use
- Great searching capacity at low pest density
- Can be used in combination with other predators (predatory gall midges, lacewings, ladybugs)

### Targets

- Mixed populations of large and small aphids

### Crops (Indoor / Outdoor)

- Vegetables / Herbs
- Ornamentals
- Fruits
- Cannabis / Hemp



# APHI-MIX-SYSTEM and APHIDIUS-MIX-SYSTEM

## Rates

Mode	Dosage	Area	Repeat
Preventative	0.15-1 ind./m <sup>2</sup>	Full field	Every 1-2 weeks
Curative	1-4 ind./m <sup>2</sup>	Infested areas and hot spots	Weekly when colonies are present; repeat until control achieved

## Instructions

### Timing of application

Aphidius-Mix-System and Aphi-Mix-System can be used preventatively. When aphids are detected, increase the dosage rate in line with pest density. In case of curative treatments a simultaneous release of the gall midge *Aphidoletes aphidimyza* (Aphidoletes-System) or the lacewing *Chrysoperla rufilabris* (Chrysopa-System) is advised. More severe infestations can be tackled with the ladybird *Adalia bipunctata* (Adalia-System).

### Release method & conditions

Gently rotate the bottle horizontally to ensure homogeneous distribution within the carrier. Sprinkle the contents onto flat leaves,




or on a slab (on the plastic) or into Bio-Boxes and hang in the plants. Do not place mummies directly onto soil or substrate. Make sure the material **remains dry** and is not moved from its introduction site for at least a few days.

For Aphidius-Mix, good activity is observed within a temperature range of 59-86°F (15-30°C), whereas for Aphi-Mix within a of range 50-89°F (10-32°C).

## Monitoring

- The presence of a perfect round hole at the back of the mummy indicates the emergence of a parasitic wasp adult.
- Depending on temperature, mummies can be observed on leaves of the crop 10-21 days after the first introduction
- A ragged/jig-sawed opening is indicative of hyperparasitism.
- Control is achieved when 80% of the aphids are parasitized.
- The efficacy can be checked by observing an increased number of mummies, reduced number of hot spots and healthy plant growth, free of honeydew and sooty mold.
- Aphidius species will turn aphids into golden/brown mummies.
- Aphelinus will turn aphids into black mummies.

## Life cycle and appearance

Egg	Larva / Pupa	Adult
<ul style="list-style-type: none"> <li>• Eggs are laid inside the host aphid</li> <li>• Duration: 2-3 days*</li> </ul>	<ul style="list-style-type: none"> <li>• Larva develops inside the host</li> <li>• The larva fixes the aphid on the leaf and starts to pupate</li> <li>• Parasitized aphids swell and change into mummies</li> <li>• Aphidius mummies are golden/brown</li> <li>• Aphelinus mummies are black, less swollen and elongated</li> <li>• Larval stage duration: 7 days</li> <li>• Pupal stage duration: 4-8 days</li> </ul>	<ul style="list-style-type: none"> <li>• Emerges through an exit hole in the mummy</li> <li>• Female adults of Aphidius species closely resemble each other. Size, color and vein patterns are used to distinguish them from one another.</li> <li>• Average length: 2-3 mm</li> <li>• <i>Aphidius ervi</i> is darker and twice the size of <i>Aphidius colemani</i></li> <li>• <i>Aphelinus abdominalis</i> can be easily recognized by its short antennae, short legs and yellow abdomen</li> <li>• Adult lifespan: Aphidius: 2-3 weeks Aphelinus: ~8 weeks</li> </ul>
		

\*At temperatures of 68-77°F (20-25°C) depending on parasitic wasp species. Please refer to each predatory wasp Technical Sheet for more details.

DISCLAIMER: These are general guidelines. Please read label and product information before use. For questions and/or recommendations, please contact your local advisor.