

# Biological Control of Aphids Using Parasitoids

**Question:** *I want to implement a biological control program in my greenhouse against aphids. Can you provide information regarding commercially available parasitoids?*

**Answer:** Biological control of aphids entails correctly identifying the aphid or aphids attacking your horticultural crops so you can select the appropriate parasitoid. However, if you have multiple aphid species then you can purchase “mixtures” of two parasitoids. For example, the container in Figure 1 has two parasitoids; one for “large” aphids (*Aphidius ervi*) and one for “small” aphids (*Aphidius colemani*). You may also want to consider using a banker plant system (Figure 2), which consists of non-crop plants that provide alternative food sources (prey) to enhance establishment of the parasitoids. Below are descriptions of four aphid parasitoids that are commercially available from most biological control suppliers/distributors:

## 1. *Aphidius ervi*

*Aphidius ervi* (Figure 3) parasitizes “large” aphid species, such as the potato (*Macrosiphum euphorbiae*) and foxglove (*Aulacorthum solani*) aphid. Adults are 4 to 5 mm long, black, with long antennae. The development time from egg to adult is contingent on temperature. For instance, the life cycle (egg to adult) takes 14 days at 70° F and 20 days at 59° F. Females have “high” searching capacity. Females use their antennae to examine an aphid host in order to assess size and determine if the aphid has already been parasitized. Females lay eggs into aphids by means of rapid movement of the abdomen. A female will curl her abdomen under her body

and then “poke” the aphid using her ovipositor (egg-laying device) to insert an egg. Eggs hatch into larvae that consume the internal contents of aphids. The parasitized or “mummified” aphids are golden-yellow to brown in color. *Aphidius ervi* can parasitize many aphids in a day.

## 2. *Aphidius colemani*

*Aphidius colemani* (Figure 4) parasitizes “small” aphid species including: green peach (*Myzus persicae*) and cotton/melon (*Aphis gossypii*) aphid. Adults are 2 to 3 mm in length with long antennae. Adults possess “high” searching ability in that they can locate low populations or small patches of aphid colonies on plants. The mummies associated with

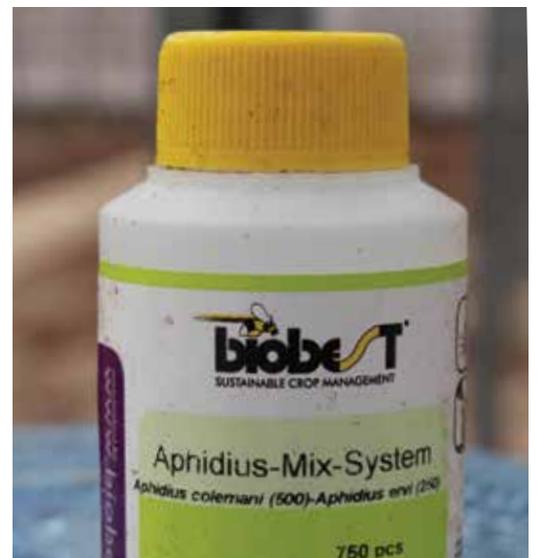


Figure 1. Container of aphid parasitoids (All photos: Raymond Cloyd, Kansas State University).



Figure 2. Banker plant for aphid parasitoids.



Raymond A. Cloyd is professor and Extension specialist in horticultural entomology/plant protection at Kansas State University. He can be reached at [rcloyd@ksu.edu](mailto:rcloyd@ksu.edu).

aphids parasitized by *A. colemani* are leathery and golden-brown in color. The life cycle is similar to *A. ervi* (described on pg. 14).

**3. *Aphelinus abdominalis***

*Aphelinus abdominalis* parasitizes potato and foxglove aphids, and other aphid species. Adults are small (3.0 mm long) with short antennae, black and yellow, and are more compact in shape than either *A. ervi* or *A. colemani*. Females approach an aphid and then insert eggs, using her ovipositor, into the aphid while walking backwards. The mummies affiliated with aphids parasitized by

*A. abdominalis* are black. The black mummy forms in approximately seven days after an egg is inserted and then after 14 days, an adult emerges from the “mummified” aphid. *Aphelinus abdominalis* females will host-feed on aphids

killing about two aphids per day. *Aphelinus abdominalis* prefers to walk on a crop instead of flying.

**4. *Aphidius matricariae***

*Aphidius matricariae* parasitizes green peach aphid, and is similar

in appearance to *A. colemani*. Adult females may live between 15 to 17 days, parasitizing more than 200 aphids in addition to killing aphids when host-feeding. Females’ host-feed in order to obtain nutrition. [gpn](http://gpn)



Figure 3. *Aphidius ervi* adult.



Figure 4. *Aphidius colemani* adult.

**NEW COLOR!**

# Majorette

Gerbera

**Leading the Way!**

Majorette is the gerbera series that leads the way in terms of uniformity, ease and beauty! Compact plants are loaded with buds and blooms, each flower measures 3 – 4 inches across. Majorette is perfect for quarts or larger containers with multiple plants. It is also offered as Slick Coat for streamlined sowing. Featuring an array of bright colors, including the new Pink Halo, Majorette is sure to be the center of attention at retail and at home.

To order, contact your preferred supplier.

**SAKATA®**  
sakataornamentals.com

©2017 Sakata Seed America, Inc.