



## Cryptolaemus montrouzieri

Mealybug Predator

PO Box 1555, Ventura, CA 93002  
800-248-2847 \* 805-643-5407 \* fax 805-643-6267  
questions bugnet@rinconvitova.com  
orders orderdesk@rinconvitova.com  
web www.rinconvitova.com

### Target pests

Citrus mealybug (*Planococcus citri*); other related mealybugs

### Description

'Cryptolaemus' is the most commonly used biological control for mealybugs.

- Adult beetles are dark brown with orange heads and tails, 4 mm (1/6 inch) long.
- Larvae are alligators shaped, up to 1.3 cm (1/2 inch) long, and covered with white waxy hairs that make them resemble mealybugs.
- The adults can fly and cover large areas to search for food.

### Use in Biological Control

- Cryptolaemus is used to control mealybugs mainly in interior plantscapes in Canada. They can be used outdoors, but will not survive sub-freezing temperatures.
- They are less effective on longtailed mealybug (*Pseudococcus longispinus*) because this species lacks the cottony masses Cryptolaemus requires for egg-laying.
- Optimum conditions are 28°C (82°F) with relative humidity 70-80%, but they can be used between 16-33 °C (61-91 °F). Below 9°C (48°F) they are completely inactive, while above 33°C (61-91°F) they stop searching. They are most active in sunlight, therefore are not as effective during dull winter months.
- For control of citrus mealybug, Cryptolaemus can be used along with the parasitic wasp *Leptomastix dactylopii*.

### Life Cycle

The complete life cycle takes about 31 days at 27°C (81°F) and 45 days at 21°C (70°F).

- Sex ratio in the population is about equal, with somewhat fewer females than males (40% females).
- Eggs are laid among the cottony egg masses of mealybugs; they hatch in 5-6 days at 27°C (81°F). Females lay 5-10 eggs per day, for a total of 400-500 eggs in their 50-day life time.
- Larvae feed on mealybugs for 12-17 days, then pupate in sheltered places on stems or on the greenhouse structures. A single larva can consume 250 small mealybugs. Immature "Crypt" beetle larvae look like large mealybugs with a similar white, waxy coating – keep an eye for them as this is a good sign of a growing predator population.
- Adults emerge in 7-10 days, mate and females begin laying eggs in 5 days.
- Adults and young larvae prefer to eat mealybug eggs, but older larvae will feed on all stages of mealybugs. If food is scarce they will also eat soft scales and aphids.

### Product Information

Cryptolaemus are sold as adults and are often shipped with shredded wood or paper to protect them en route.

Do not chill the beetles below 10°C (50°F).

## **Introduction Rates**

Cryptolaemus are most effective when mealybug populations are high. Repeated releases are advisable if mealybug populations are low.

### General introduction rates

- Interior plantscapes & greenhouses – 5 beetles/infested plant, or 2-5/m<sup>2</sup> (yd<sup>2</sup>).
- Outdoors – 1250-12,500 beetles/hectare (500-5,000/acre), near the mealybug infestation. First releases outdoors should be in early spring.
- Orchards – 2,500-5,000 beetles/hectare (1,000-2,000/acre) for mature fruit trees. Repeat as needed.

Because many foliage plants grow very slowly, it may take 2-4 months before results of mealybug control programs are apparent. Uninfested new growth is a sign of control.

## **For Best Results**

- Control ants! They are most likely feeding on the honeydew and guarding the mealybug. Use barriers (i.e. Tanglefoot, Stikem), baits and disruption of ant mounds.
- Release in early morning or late evening, and do not wear light colored clothing because this predator is attracted to light colors.
- Screen vents and windows to prevent escape of Cryptolaemus.
- To keep mealybug populations down to acceptable levels in greenhouses, several releases of Cryptolaemus may be necessary, particularly during winter months.

## **Using Pesticides**

Most pesticides are not compatible with Cryptolaemus, check before using.

Most fungicides should be safe to use.

Spreader stickers may be harmful to Cryptolaemus.



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- Larvae are alligators shaped, up to 1.3 cm (1/2 inch) long, and covered with white waxy hairs that make them resemble mealybugs.
- The adults can fly and cover large areas to search for food.

### Use in Biological Control

- Cryptolaemus is used to control mealybugs mainly in interior plantscapes in Canada. They can be used outdoors, but will not survive sub-freezing temperatures.
- They are less effective on longtailed mealybug (*Pseudococcus longispinus*) because this species lacks the cottony masses Cryptolaemus requires for egg-laying.
- Optimum conditions are 28°C (82°F) with relative humidity 70-80%, but they can be used between 16-33 °C (61-91 °F). Below 9°C (48°F) they are completely inactive, while above 33°C (61-91°F) they stop searching. They are most active in sunlight, therefore are not as effective during dull winter months.
- For control of citrus mealybug, Cryptolaemus can be used along with the parasitic wasp *Leptomastix dactylopii*.

### Life Cycle

The complete life cycle takes about 31 days at 27°C (81°F) and 45 days at 21°C (70°F).

- Sex ratio in the population is about equal, with somewhat fewer females than males (40% females).
- Eggs are laid among the cottony egg masses of mealybugs; they hatch in 5-6 days at 27°C (81°F). Females lay 5-10 eggs per day, for a total of 400-500 eggs in their 50-day life time.
- Larvae feed on mealybugs for 12-17 days, then pupate in sheltered places on stems or on the greenhouse structures. A single larva can consume 250 small mealybugs. Immature "Crypt" beetle larvae look like large mealybugs with a similar white, waxy coating – keep an eye for them as this is a good sign of a growing predator population.
- Adults emerge in 7-10 days, mate and females begin laying eggs in 5 days.
- Adults and young larvae prefer to eat mealybug eggs, but older larvae will feed on all stages of mealybugs. If food is scarce they will also eat soft scales and aphids.

### Product Information

Cryptolaemus are sold as adults and are often shipped with shredded wood or paper to protect them en route.

Do not chill the beetles below 10°C (50°F).

## **Introduction Rates**

Cryptolaemus are most effective when mealybug populations are high. Repeated releases are advisable if mealybug populations are low.

### General introduction rates

- Interior plantscapes & greenhouses – 5 beetles/infested plant, or 2-5/m<sup>2</sup> (yd<sup>2</sup>).
- Outdoors – 1250-12,500 beetles/hectare (500-5,000/acre), near the mealybug infestation. First releases outdoors should be in early spring.
- Orchards – 2,500-5,000 beetles/hectare (1,000-2,000/acre) for mature fruit trees. Repeat as needed.

Because many foliage plants grow very slowly, it may take 2-4 months before results of mealybug control programs are apparent. Uninfested new growth is a sign of control.

## **For Best Results**

- Control ants! They are most likely feeding on the honeydew and guarding the mealybug. Use barriers (i.e. Tanglefoot, Stikem), baits and disruption of ant mounds.
- Release in early morning or late evening, and do not wear light colored clothing because this predator is attracted to light colors.
- Screen vents and windows to prevent escape of Cryptolaemus.
- To keep mealybug populations down to acceptable levels in greenhouses, several releases of Cryptolaemus may be necessary, particularly during winter months.

## **Using Pesticides**

Most pesticides are not compatible with Cryptolaemus, check before using.

Most fungicides should be safe to use.

Spreader stickers may be harmful to Cryptolaemus.



## Cryptolaemus montrouzieri

Mealybug Predator

PO Box 1555, Ventura, CA 93002  
800-248-2847 \* 805-643-5407 \* fax 805-643-6267  
questions bugnet@rinconvitova.com  
orders orderdesk@rinconvitova.com  
web www.rinconvitova.com

### Target pests

Citrus mealybug (*Planococcus citri*); other related mealybugs

### Description

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