



# TREATING HOUSEPLANT PESTS WITH BENEFICIAL INSECTS



## GETTING STARTED

Before using beneficial insects for any pest management treatment, discontinue the use of *all* pesticides (including systemics) and switch to removing pests manually with just water. Remove the pests as often as possible until your beneficial insects arrive.

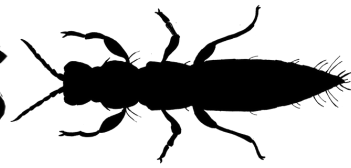
## KNOW YOUR SOURCE

Effective pest management requires fresh beneficial insects, released at the time they are received—dead, stressed or otherwise damaged beneficial insects are a waste of your money and won't provide good pest control! Please order from reputable insectaries or a DMV Beneficials Chapter in your area.

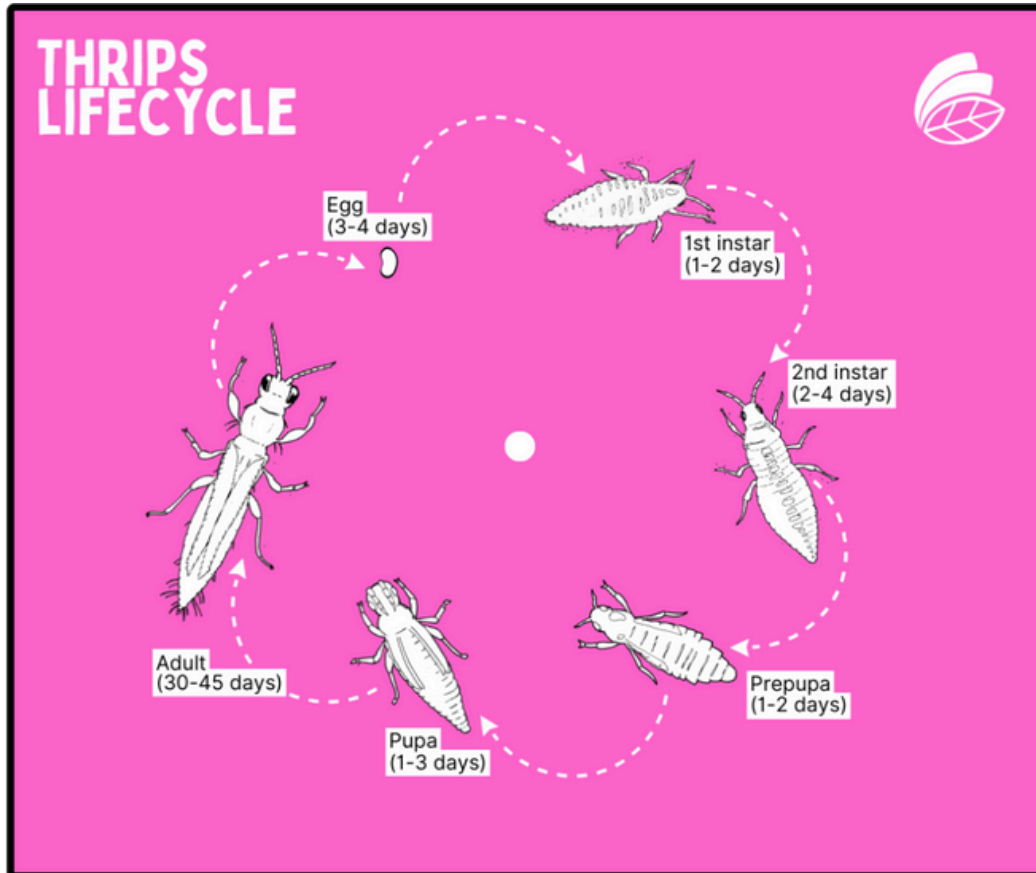


TREATING

THRIPS



WITH BENEFICIAL INSECTS



\*To target the Thrips at each stage of development three different beneficials are needed.

**Stratiolaelaps Scimitus** or **Nematodes SF** (for the substrate) - This beneficial eats Thrips pupae in the growing medium. Nematodes SF is only appropriate for soil based mediums so if you're growing in semi hydro you should use **Stratiolaelaps**.



**Cucumeris** or **Swirskii** mites (for the larvae in the foliage). You should only use one or the other of either Cucumeris or Swirskii as these two mites in particular will predate on each other when used together.

**Lacewing Larvae** or **Minute Pirate Bugs** (for the adults). Lacewing Larvae are a good generalist predator and will predate on many different species of thrips. Pirate bugs, while more aggressive, are more selective, targeting the western flower and onion thrips.

**Fresh beneficials should be released on affected plants every two weeks until the Thrips are gone (usually three to four treatments). It is strongly recommended to treat all plants preventatively as Thrips easily spread through a plant collection and its better to be aggressive up front than to chase Thrips all around your plant collection for months.**

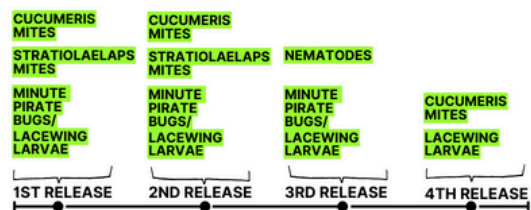
**[1] SELECT BENEFICIAL INSECTS**

- LACEWING LARVAE** \*
- MINUTE PIRATE BUG** 
- CUCUMERIS MITES** 
- NEMATODES (SF)** 
- STRATIOLAELAPS MITES** 

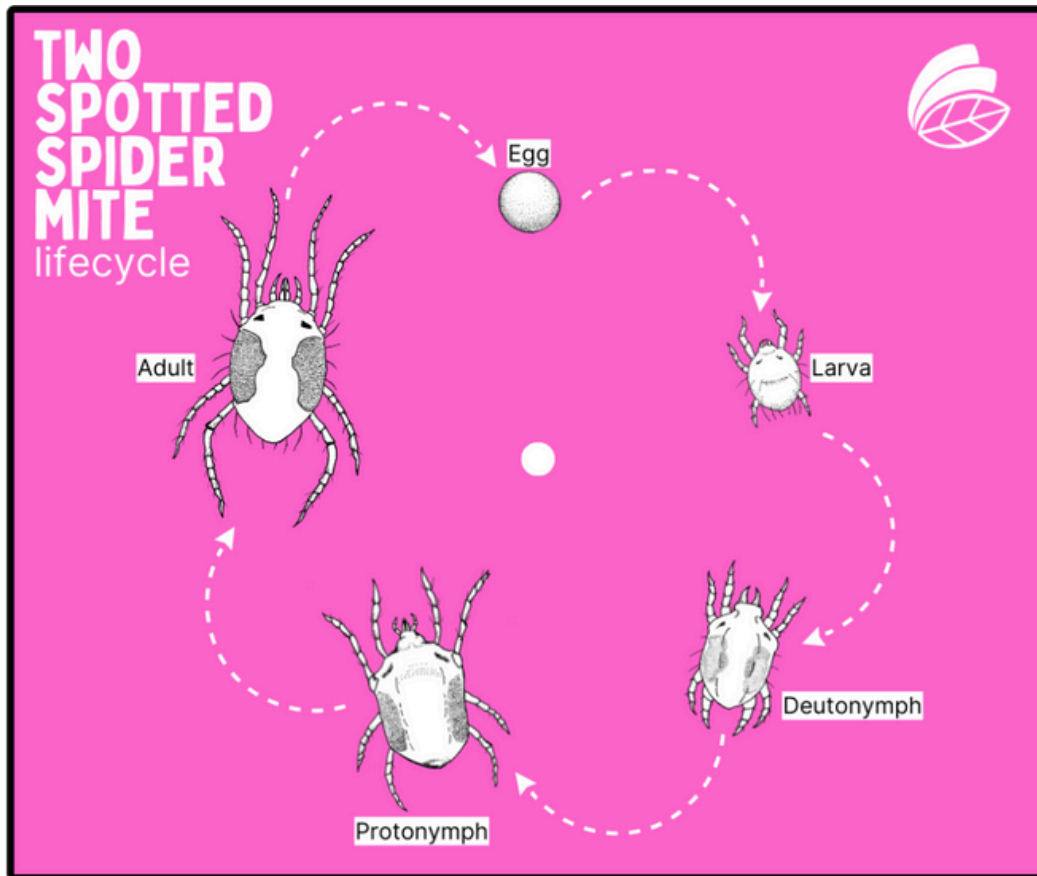
FOLIAGE PREDATOR
 \*CHOOSE ONE OR BOTH  
 SUBSTRATE PREDATOR

**[2] APPLY BENEFICIAL INSECTS**

RELEASES STRUCTURED EVERY TWO WEEKS



# TREATING SPIDERMITES WITH BENEFICIAL INSECTS



Spider mites are an ideal pest to treat with beneficial insects as the process is straightforward and effective, and they don't tend to respond well to the use of traditional insecticides or miticides.

\*For more information on how pesticides can actually increase Spidermite populations, visit [DMVbeneficials.com/spidermites](http://DMVbeneficials.com/spidermites)



When treating for Spider Mites, only one foliage predator is needed, and there are a few good ones to choose from:

<b>PERSIMILIS MITES</b> 	<b>CALIFORNICUS MITES</b> 	<b>FALLACIS MITES</b> 
<p>Industry standard Spider Mite predator. They come in a bottle and move super fast, outrunning Spider Mites.</p> <p>Do best in higher humidity (above 50-60%).</p>	<p>A great, versatile mite! Work well at a variety of environmental conditions. Comes in both a bottle or sachets.</p>	<p>A similar mite to Californicus - works well on a variety of pest mite species, including citrus mites. Comes in a bottle.</p>

It can be a good idea to get a mite in a bottle (to release higher numbers of predatory mites at one time for aggressive population take down) as well as sachets (which release multiple generations of predatory mites for sustainable control over time). It is extremely important to remove as many spider mites, eggs and webbing as you can with plain water before releasing the beneficials, as the webbing can provide protection for the Spider Mites from the beneficials






\*Stratiolaelaps mites can also be added to your growing medium for a thorough approach, but are not strictly necessary.

It's possible that only one release will take care of the Spider Mite issue but you can follow up every two weeks with fresh beneficials as needed depending on the severity of the issue.



# TREATING TWO SPOTTED SPIDER MITES

## [1] SELECT BENEFICIALS

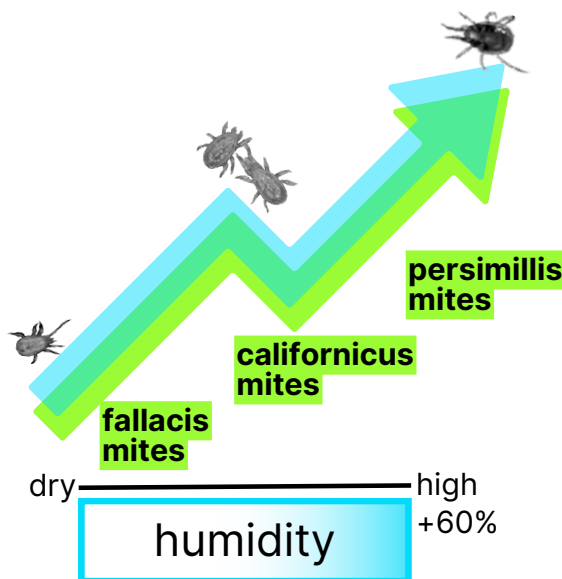
✓	PERSIMILIS MITES		} SELECT 1
✓	CALIFORNICUS MITES		
✓	FALLACIS MITES		
✓	STRATIOLAELAPS MITES		} OPTIONAL
✓	LACEWING LARVAE		

### \*NOTE: SELECTING FOR HUMIDITY\*

PERSIMILIS MITES ARE IDEAL FOR HIGHER HUMIDITY ENVIRONMENTS (CONSISTENTLY 60% OR HIGHER HUMIDITY)

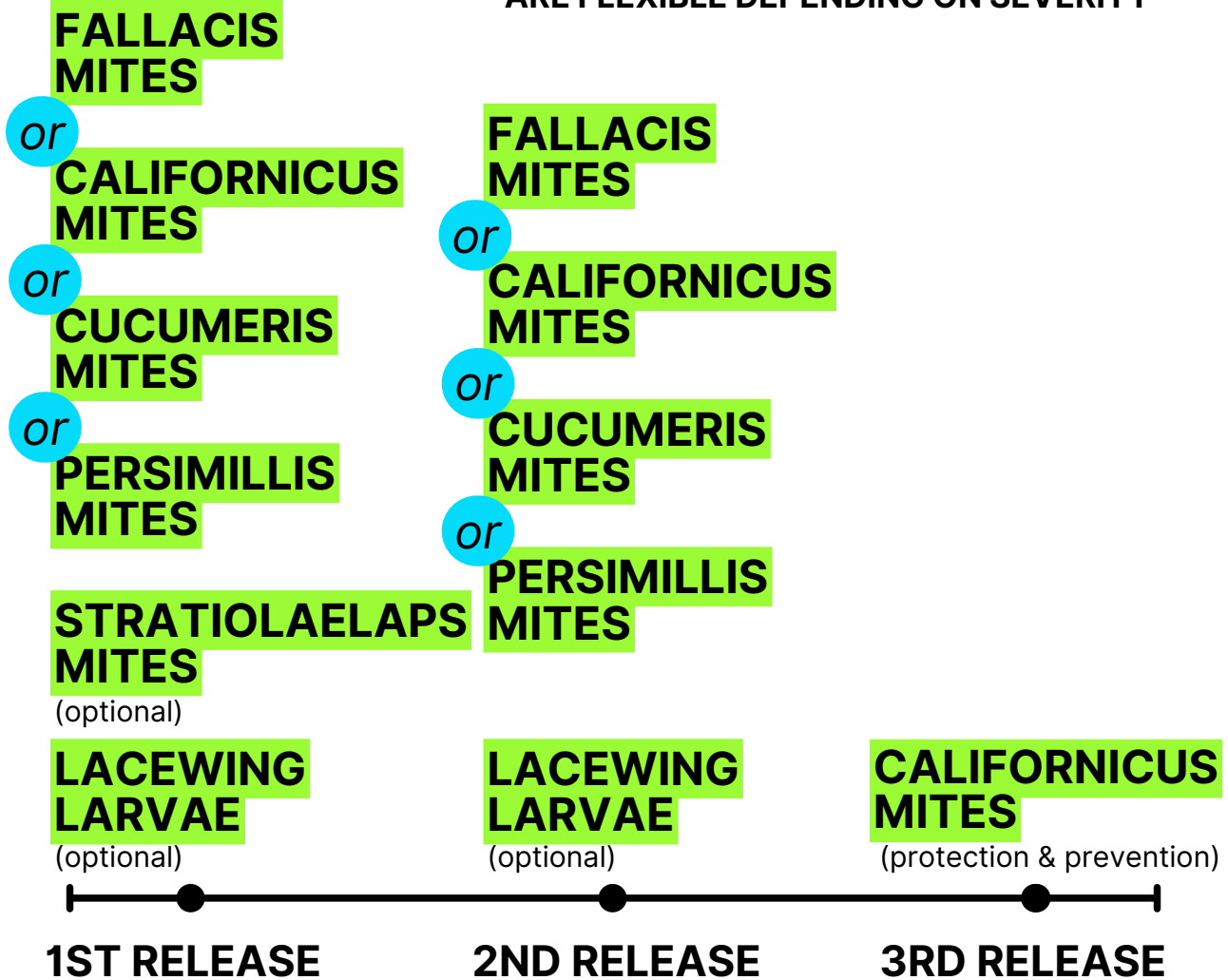
IF YOUR PLANTS ARE IN LOW HUMIDITY, OPT FOR THE FALLACIS MITES

MOST ADAPTIVE ARE THE CALIFORNICUS MITES



# [2] APPLY BENEFICIAL INSECTS

RELEASES STRUCTURED EVERY TWO WEEKS, BUT INTERVALS ARE FLEXIBLE DEPENDING ON SEVERITY



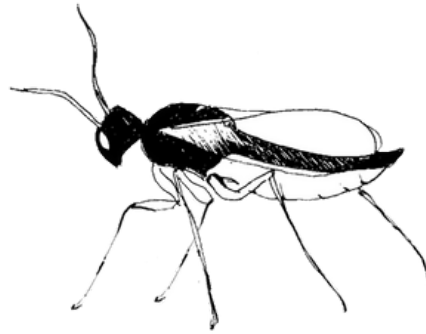
# TREATING FUNGUS GNATS WITH BENEFICIAL INSECTS

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Fungus gnats are very easy to treat with beneficial insects!

If you grow in soil based mediums you can use Nematodes SF. If you grow in semi-hydro you can use Stratiolaelaps Scimitus mite.

While treating for active fungus gnats, you can keep the sticky traps up to catch the adult flies. One treatment is usually sufficient but if the fungus gnats persist you can follow up with a second treatment two weeks later.



**NEMATODES (SF)**



**:SUBSTRATE PREDATOR**

**IT IS RECOMMENDED TO CONTINUE OR COMBINE USE OF YELLOW STICKY TRAPS FOR FLYING ADULTS.**





## TREATING

# MEALYBUGS WITH BENEFICIAL INSECTS

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For Mealy Bugs the best predator is going to be the Cryptolaemus Larvae (be aware they look very much like Mealy Bugs!). If you can't access Cryptolaemus Larvae, Lacewing Larvae is a good secondary choice.

Adding Stratiolaelaps to your growing medium is a good idea for a thorough pest management approach.

Release fresh beneficials every two weeks until the mealybugs are gone (1-2 applications if using cryptloaemus) (3-4 applications if using lacewing larvae).

## [1] SELECT BENEFICIAL INSECTS



LACEWING LARVAE



CRYPTOLAEMUS LARVAE



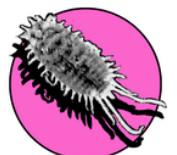
STRATIOLAELAPS  
MITES



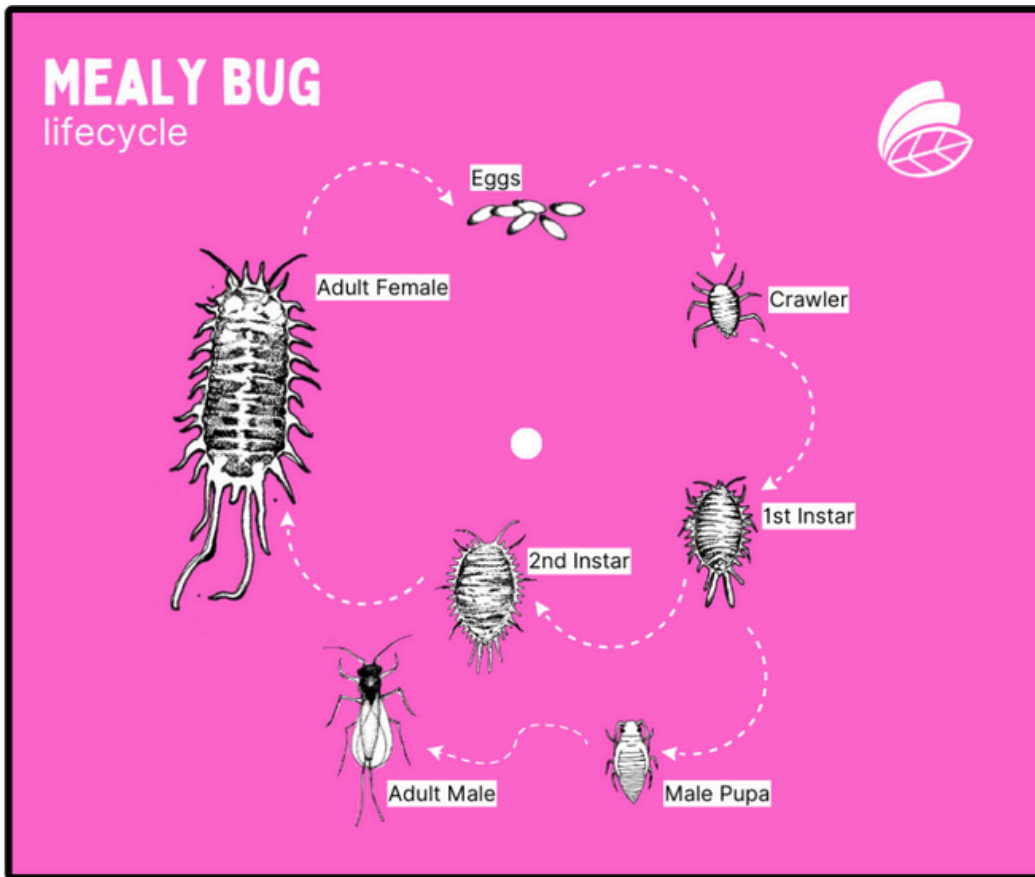
:FOLIAGE PREDATOR

:SUBSTRATE PREDATOR

AS WITH OTHER TYPES OF SCALE INSECTS, MANUAL REMOVAL IS AN ESSENTIAL COMPONENT TO THIS TREATMENT PLAN



MEALYBUGS



# [2] APPLY BENEFICIAL INSECTS

RELEASES CAN BE STRUCTURED FOR EVERY TWO WEEKS, BUT INTERVALS ARE FLEXIBLE DEPENDING ON SEVERITY

**CRYPTOLAEMUS LARVAE**

**STRATIOLAELAPS MITES**

**CRYPTOLAEMUS LARVAE**

or

**LACEWING LARVAE**

**LACEWING LARVAE**

**LACEWING LARVAE**

(optional)

protection & prevention

**1ST RELEASE**

**2ND RELEASE**

**3RD RELEASES**

(REPEAT until population is significantly reduced)



MEALYBUGS

TREATING

# SCALE



WITH BENEFICIAL INSECTS



## SCALE

Scale can be difficult to treat as there are no great houseplant-appropriate beneficials that can get under the dome of the adults. Removing as many of the hardbodied Scale as you can is key, as is rinsing down the plant with water. Then following up with Lacewing Larvae to target the crawler stage of the Scale insect.

Adding Stratiolaelaps to your growing medium as well can help ensure a thorough pest management approach.

**LACEWING LARVAE**



**STRATIOLAEALAPS  
MITES**



SCALE

## TREATING

# ROOT MEALYBUGS WITH BENEFICIAL INSECTS

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Manual removal for Root Mealy Bugs is essential. It is recommended to first remove the plant from its pot, toss all the affected substrate and rinse the roots with hot water (hot, but not boiling). After rinsing off the roots, soak them in a bowl of hot water for 10-15 minutes. You should see a bunch of debris float to the surface, these are the root mealybugs. After ten to fifteen minutes, rinse the roots off again with hot running water.

With respect to the beneficials, after repotting the affected plants, you can follow up with *Stratiolaelaps Scimitus* (all mediums) and *Nematodes SC* (soil only). If you want to be extra aggressive, you can also use a beneficial insect called a Rove Beetle. These are somewhat of an advanced beneficial and can be a bit unsettling to use indoors, so just a caveat there.

### STRATIOLAELAPS SCIMITUS



MITES

### NEMATODES SC



### ROVE BEETLE



If not using rove beetles, you can also do a root drench with a pathogenic fungus called *Beauveria Bassiana* (but this product tends to come in only large quantities and can be a bit expensive).



TREATING

# APHIDS



WITH BENEFICIAL INSECTS

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## APHIDS

A key first step like with other pests is to rinse as many aphids as you can off the plant with just water. Then follow up with releases of Lacewing Larvae every two weeks. Lacewing Larvae are the gold standard Aphid predator, often referred to as “Aphid Lions” for this reason.

## LACEWING LARVAE



Lacewings are a popular and effective generalist available as hatched larvae or as eggs in a variety of amounts and forms.



APHIDS

TREATING

# WHITEFLIES WITH BENEFICIAL INSECTS

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## WHITEFLIES

While challenging to treat with conventional pesticides, Whiteflies are easy to treat with beneficials. Simply release *Encarsia formosa* (on hang cards) and a small beetle called *Delphastus catalinae* on affected plants. One release is usually sufficient but you can follow up with a second release two weeks later if you're still seeing Whiteflies after the first release.



**AS ALWAYS, WASH VISIBLE PESTS OFF WITH WATER  
PRIOR TO RELEASING BENEFICIALS**



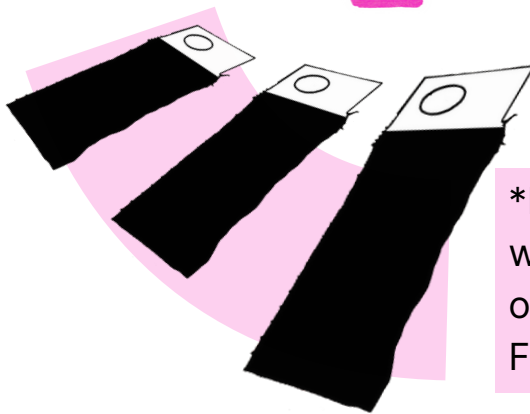
WHITEFLIES

# TREATING FLAT MITES WITH BENEFICIAL INSECTS

Flat mites are quite easy to treat with beneficial insects. Like other pests, wipe down the fronts and backs of affected foliage with a wet paper towel or spray with a jet of running water to remove as many of the mites and sticky eggs as possible.

Release Californicus mites (in a bottled substrate AND in sachets) every 3-4 weeks as needed until the Flat mites are gone.

## CALIFORNICUS MITES



\*Replace the sachets every 4-6 weeks for 3-4 treatment cycles, or until you are longer seeing any Flat mites or Flat mite eggs.



# DMV

# BENEFICIALS

For more information, visit  
our website  
[www.DMVbeneficials.com](http://www.DMVbeneficials.com)

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