



Stopping a Crossover Pest:

How to Defeat Two-Spotted Spider Mites

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Controlled Environment Agriculture (CEA) growers produce edible crops under cover, in structures ranging from greenhouses and high tunnels, to vertical-grow plant factories and smaller indoor grow facilities. Regardless of whether photosynthesis is fueled by natural or artificial light, these crops are all susceptible to pests, virtually all of which are well known to GGSPRO. GGSPRO is also well-versed in controlling pests with an integrated pest management (IPM) approach based heavily on use of biological control agents (BCAs). This knowledge has benefited many CEA and ornamental growers in recent months.

All spider-mite predators recommended by GGSPRO are predatory mites.

We focus on three different species, each with special strengths.

One pest that will happily feed upon a wide range of crops is the two-spotted spider mite (TSSM). Before we address the BCAs for use against this crossover pest, let's recall the main rules of the game when using BCAs:

- 1. Start early.** Even with the curative option for TSSM, it's critically important to begin releases prior to pest presence. BCAs work best by preventing establishment; they have a harder time coming from behind.
- 2. Practice dedicated, vigilant scouting.** Scouting should include monitoring and inspecting for both pests and beneficials. IPM specialists are essentially ecologists, managing predator-prey relationships. Without an adequate predator population (the BCAs), your prey population (the pest) will increase.
- 3. Plan your releases in advance.** Have a strategy in mind and place your orders for base-level, preventative releases well in advance. Remember that BCAs aren't stocked on a shelf like a chemical; they're raised based on projected needs. If you need to add to an order, simply notify Griffin by end-of-day on Wednesday for delivery the following week.
- 4. Know your spray history.** Be ready to share your crop history with GGSPRO. We'll evaluate the products used for risk of residual toxicity to BCAs.
- 5. Buy the latest copy of GGSPRO's Technical Reference Guide.** This one isn't an actual BCA rule. However, having the 4th edition Tech Guide on hand will enable your success, since it's packed with valuable BCA and pest information.

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***Phytoseiulus persimilis*: the voracious feeder**

Persimilis mites represent the rare case in which a BCA can be used curatively against active pests. These fast-moving, orange/red mites naturally move up through the canopy. Therefore, release *persimilis* mites on the lower leaves of affected plants. Release on a weekly basis until control is achieved. Assuming TSSM are present, *persimilis* will establish on some crops following repeated releases. This establishment is especially easy on strawberries and peppers. *Persimilis* feeds only on TSSM. Preventative releases ahead of TSSM infestations will only doom the predator mites to starvation.



***Amblyseius andersoni*: the diverse feeder**



Fast-moving *andersoni* mites are clear/white in color and generally used for preventative control. They can be released in bulk, sprinkled on the foliage on a weekly basis, or they can be released in sachet form. Sachets are hung in the crop canopy and contain a breeding colony along with a food source. The continuous

generation and release of predator mites can be expected to continue for 4-6 weeks under ideal conditions. Place the first set of sachets at transplant and replace the sachets every four weeks for the duration of the crop. In addition to feeding on TSSM, *andersoni* will also feed on red spider mite, russet mite, broad mite, cyclamen mite, thrips and pollen. *Andersoni* also have potential against Lewis mite. *Andersoni* will enter diapause (a non-feeding, resting stage) under decreasing photoperiod and temperature in the fall.

***Amblyseius californicus*: the tolerant feeder**

Californicus falls between *persimilis* and *andersoni* with respect to aggressiveness in feeding, speed to suppression and prey range. However, this predator mite is much more tolerant of higher temperature, lower humidity and lower food supply, which means it will be a bit better adapted to the conditions favoring TSSM. *Californicus* will also feed on broad mites and cyclamen mites. Avoid concurrent use of *persimilis* and *californicus* in long-term crops, as *persimilis* will eventually lose out to the *californicus*.

Contact GGSPRO for tips, tricks and recommendations for use of these predator mites and other BCAs for both ornamental and CEA production settings.

Continued on page 2

Featured Products

Product	Description	Item No.
<i>Phytoseiulus persimilis</i>	Phytoline (2,000 mites)	SB1201-01, 30PPM2
	Phytoline (20,000 mites)	SB1201-21, 30PP20
<i>Amblyseius andersoni</i>	Anderline (25,000 mites)	SB0016-03, 30AN1
	Anderline (125,000 mites)	SB0016-02, 30AN2
	Anderline (200 mini sachets w/hooks)	SB0016-31, 30AN4
	Anderline (1,000 mini sachets w/hooks)	SB0016-33
<i>Amblyseius californicus</i>	Californiline (25,000 mites)	SB0013-04
GGSPRO Technical Reference Guide 4th Edition		98-401

