

Management options for cyclamen mite in 2025

Erica Pate, Fruit Crop Specialist, OMAFA; Justin Renkema, Research Scientist, AAFC

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Cyclamen mite is a challenging pest for strawberry growers because there are few control options. Damage becomes evident at harvest with small, cracked, seedy, unmarketable berries. Identifying cyclamen mite injury before it causes damage to the plant or fruit is difficult, but early intervention is important for effective management.

The first step is identifying cyclamen mite. Cyclamen mites are small, about ¼ mm long, often hidden in protected parts of a strawberry plant, in young, folded leaves, or in the crown. To monitor, look for slightly crinkled, stunted young leaves and small, stunted plants. Pinch out a young, folded leaf where these symptoms are found. Open the folded leaf and look along the mid vein for masses of eggs and mites. A hand lens (10- 20X) is needed to see the mites. Petioles and runners can sometimes have a ‘dog-tooth’ effect with small bumps along the runner causing a roughened feel. In severe infestations the entire plant will be stunted and compact, and fruit will be bronzed, small, cracked, and seedy. Keep a close eye on older fields, fields with a history of injury, row-covered fields, or high-tunnel strawberries, where cyclamen mite populations can increase quickly in the warmer, protected environments. There is no established threshold for cyclamen mite; once cyclamen mite is identified plan to treat the entire field or block.

Management options include:

Prevention

Avoid introducing or spreading cyclamen mite to new fields. Mites can easily be moved from an old, infested field, into a new field by workers or equipment. Work in new fields first to avoid introducing cyclamen mites from infested fields to clean fields. If possible, avoid planting new fields next to older, potentially infested fields.

Pre-plant control

Steam treatment for cyclamen mite control before planting has recently been investigated in Ontario. Steam treatment of dormant, bare-root transplants at 44 °C for 1, 2, or 4 hours can be used to nearly eliminate cyclamen mite before planting. Steam treatment protocols include a pre-conditioning treatment at 37°C for 1 hour, followed by 1 hour at ambient temperature, and then 1, 2 or 4 hours at 44 °C and high relative humidity (>95%). Transplants should be planted shortly after treatment. Steam treatment can also help control common strawberry diseases,

including powdery mildew, botrytis, angular leaf spot, and anthracnose. Recent results on steam treatment were presented at OFVC 2025, including experiments on steam treatment on different strawberry cultivars and different plant types (bare root, plugs, tips). The slides from this presentation are now available at ofvc.ca. Research on how using steam treated plants with very low numbers of cyclamen mite affects the need for other controls in the planting or following year is ongoing in Ontario.

Chemical control

Chemical management options are limited for cyclamen mite.

Agri-mek® SC has been relied on for cyclamen mite control, and a second miticide, Magister® SC, was recently registered for cyclamen mite on strawberries. Keep in mind that cyclamen mite is often hidden in protected parts of the plant and can be difficult to reach with a miticide. The best time to apply a miticide for cyclamen mite on June-bearing strawberries is approximately one week after renovation. However, a spring miticide application is needed if mites are identified or injury is present early in the season. In this case make the application before harvest, ideally before bloom, before damage to the bloom can occur and when miticides can reach the mites in the crown before the canopy fills in.

Agri-mek® SC (abamectin, group 6):

- Apply Agri-mek® SC at 225 mL/ha in a high-volume spray, with a non-ionic surfactant at 0.1-0.5%.
- Slow down, and use sufficient water volume to get thorough coverage of the plants and crowns. Do not apply in less than 375 L water/ha.
- Agri-mek® SC is locally systemic or translaminar (absorbed into leaves), and is absorbed best by new, expanding leaves.
- Agri-mek® SC will be rainfast after 2 hours or once dry
- Agri-mek® SC can be applied twice per year, with a 3-day PHI
- This product is toxic to bees exposed to direct treatment or residues on blooming crops and weeds. Avoid application during crop blooming period.
- Timing can be challenging: Do not tank-mix Agri-mek® SC with chlorothalonil (Bravo or Echo), or captan. Make sure to keep a 5 day gap between Agri-mek® SC or oil applications and chlorothalonil (Bravo or Echo) or captan applications. Do not apply sinbar after applying Agri-mek® SC. Wait 5-7 days after Agri-mek® SC before applying sinbar.

Magister® SC (fenazaquin, IRAC group 21A):

- Apply Magister® SC at 2.63 L/ha in a minimum of 1000 L water/ha. 1000 L water/ha is the optimal volume; lower water volumes may reduce efficacy. Do not use less than 500 L water/ha.
- Apply with a non-ionic surfactant at 0.25% v/v.
- Magister® SC can be applied once per year, with a 1 day PHI.
- Magister® SC provides rapid knockdown, is non-systemic and requires thorough coverage of the plants and crowns.
- Magister® SC is rainfast after 3-4 hours

- This product is toxic to bees. Avoid application during bloom or when bees are active. See label for specific bee toxicity statements.

- Magister® SC targets nymphs and adults, is less effective on overwintering eggs but is more effective on new eggs.

Other conventional miticides and biopesticides have recently been evaluated for efficacy against cyclamen mite in Ontario. The biopesticides included in the experiments (Grandevo, Venerate, Bb Protec, Ecotrol, Botanigard ES, JMS Stylet Oil and Vegol) did not provide high levels of control of cyclamen mite. The conventional miticides included in the experiments were Magister® SC, Agri-mek® SC, Nexter (pyridaben, group 21A), and Oberon (spiromesifen, group 23). Miticides were applied in field plots at renovation 1 week after mowing at a spray volume of 1000 L/ha. **All products provided control when evaluated 2 and 6 weeks after application.** Nexter and Oberon should provide some control of cyclamen mite when applied for two-spotted spider mite.

Biological control

Finally, biological control is a promising tool for cyclamen mite control. *Neoseiulus cucumeris* is a predatory mite often used by growers for thrips control. *Neoseiulus cucumeris* has been evaluated for biocontrol of cyclamen mite in the U.K. and Europe, where it reduced cyclamen mite populations and improved strawberry yield. In experiments in Québec, *N. cucumeris* controlled cyclamen mite for part of the season and resulted in higher yields compared to the untreated control. Using *N. cucumeris* as a biological control tool against cyclamen mite may be limited in some areas of Canada due to our cold climate, as many predatory mites, including *N. cucumeris*, are sensitive to cold and cannot survive below freezing temperatures. A successful cyclamen mite biological control programme includes early release of predators, and cool spring temperatures may limit early releases of *N. cucumeris* in some areas.

Other predatory mites have also proven to be promising biological control tools for cyclamen mite, including *Neoseiulus fallacis*, a well-established species in Canada that can overwinter in northern climates, and *Neoseiulus californicus*. Both *N. fallacis* and *N. californicus* are often used for control of other mites. Research into biocontrol options for cyclamen mite is ongoing

in Ontario. For more information about biocontrol options reach out to a biological control supplier- find a list of [Biological Control Agents Suppliers on the ONGreenhouse Vegetables blog](#). Cornell also has an excellent resource with profiles of [Biocontrol Agents](#) available on their website. In addition to encouraging or releasing beneficials, try to avoid insecticides that kill beneficial insects, such as pyrethroids (group 3s, Up-Cyde, Decis, etc).

Biological control of cyclamen mite with entomopathogenic (=insect or mite infecting) fungi is another possibility. The fungus *Hirsutella* sp. was recently identified parasitizing cyclamen mites in multiple Québec strawberry fields, and it appeared to contribute to cyclamen mite control. However, fungicides applied to strawberries negatively affect the naturally-occurring *Hirsutella* sp., limiting its control of cyclamen mite. Further research is needed to determine an effective fungicide strategy that will not negatively impact the beneficial *Hirustella* sp. entomopathogenic fungi.

While there is ongoing research to develop long-term cyclamen mite management strategies, using a combination of the tools discussed above will contribute to improved cyclamen mite control and reduced plant injury or yield loss this season.

References:

Duclos, A., Delisle-Houde, M., Moisan-De Serres, J., Tellier, S., Fournier, V., and Tweddell, R.J. 2025. Effect of synthetic fungicides used in conventional strawberry growing system on *Hirsutella* sp., an entomopathogenic fungus of cyclamen mite. *Agriculture*, 15 (715).

Pate, E., Fournier, V., Hallett, R. H., and Renkema, J. M. 2024. Steam treatment controls cyclamen mite (*Phytonemus pallidus*) without compromising strawberry plant survival, growth and yield. *International Journal of Fruit Science*, 24(1), 314–331.

Patenaude, S., Tellier, S., and Fournier, V. 2020. Cyclamen mite (Acari: Tarsonemidae) monitoring in eastern Canada strawberry (Rosaceae) fields and its potential control by the predatory mite *Neoseiulus cucumeris* (Acari: Phytoseiidae). *The Canadian Entomologist*, 152: 249–260.

Renkema, J. 2025. Biopesticide transplant dips of foliar acaricide applications for control of cyclamen mite (*Phytonemus pallidus*) in strawberry. *Experimental and Applied Acarology*, 94.

