OrganiShield ™ efficacy on cyclamen mites in strawberries 2023

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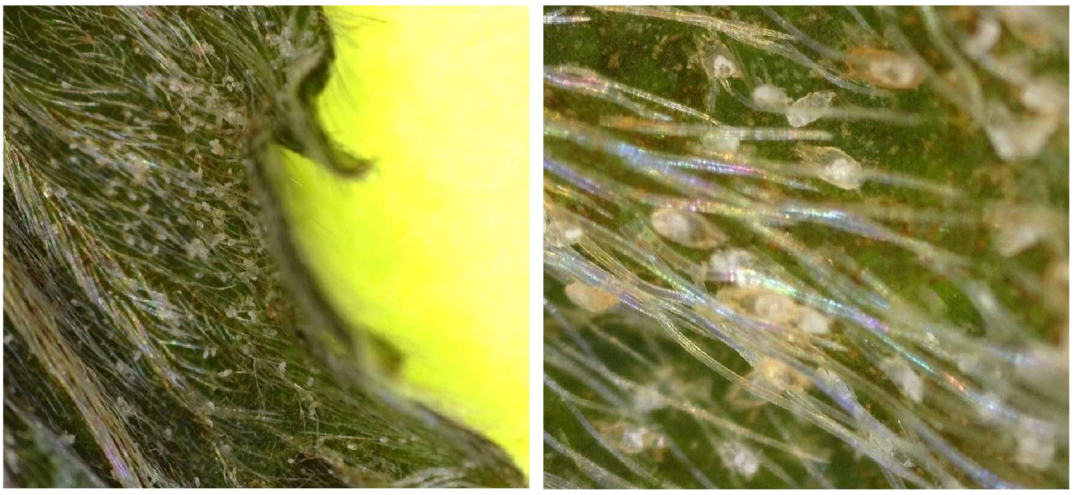
Introduction

Cyclamen mites thrive in humid locations and are a common greenhouse pest. They are also a serious pest of strawberries. Cyclamen mite is a tiny oval white amber colored mite that feeds on the newest strawberry leaves while they are still folded up near the crown. Leaves become distorted and the plant can be quite stunted. New growth is leathery and off color. Fruit on infested plants is small and bronzed, with prominent seeds. When uncontrolled, this mite can prevent new growth and severely affect fruit quality. There are multiple generations each year, but populations peak in early spring (bud- green fruit stage) and again in late summer (late August- September).

Conventional miticides are commonly used to control this pest, however, there is a restriction on the use of inorganic products, but use of organic crop protection inputs is highly encouraged.

Organishield™, containing sucrose octanoate esters, is an organic pesticide that is reported to control soft-bodied insect mites, ticks, aphids, and caterpillars on food and non-food crops and livestock. Since 1983, the FDA has approved sucrose esters being added to processed foods, cosmetics, pharmaceuticals, thus no harmful effects to humans or the environment from the use of sucrose esters in insecticide products. The active ingredients of Organishield™ degrade into harmless substances (sucrose, fatty acids, water, and CO_2). These are safe for the environment, animals, and water supplies.

A greenhouse trial was conducted to test Organishield™ in protecting strawberries plants against Cyclamen mites.



Strawberries are infected with Cyclamen mites.

Materials and methods

A commercial greenhouse was selected for this trial which was planted in October 2022 under LED light. Plants were brought from two different propagators (A&B). One of the variety Albion obtained from a local propagator (B) and did not do well from the beginning. The plants from other propagation facility were performed well (75% plants came from propagator A). The yield was approximately 100 boxes (100 x 10 pints) (1 pint is 350 gram) per day and they pick twice a week.

After nearly 3 months, the strawberry flowers were fruiting, and the fruits were wrinkled were showing signs of stunted growth. Production significantly gone low as 15 boxes per day, a reduction of >6x due to cyclamen mite infestation all around the farm. It came from one of the propagator and spread to all over the farm.

First grower tried Abamectin (avid) which killed 50-60 of the mites but it also killed the bumble bees. Farmers tried Avid and Floramite combination, but mite population was still the same. Consequently, strawberry production did not improve and was very low pollination due to lack of bees in the greenhouse.

Organishield™ testing

To protect further mite infestation, Organishield™ was applied at 0.5% (= 2,000 ppm of sucrose octanoate) to approximately 1 ha of Strawberries using conventional sprayer (700 L for single application). Since the mites also affect the growing crown, and located inside the head, high volume of water was needed. The application was repeated 3 times on a weekly basis.

Results

- After 3 applications, the IPM team (whose supply biological/predatory mites) had a thorough inspection and >95% population reduction was recorded.
- IPM team also found that all predatory mites were dead as well.
- Organishield™ treatment didn't kill the bumble bees in the greenhouse.
- 3 weeks post treatment, strawberry production started climbing up as 45, 50, 65, 70 & 97 boxes per day.
- After treatment, plant health improved significantly.
- Grower re-introduced all the biological/predatory mites and insects.

Before treatment

Due to mite infestation, plants were growing stunted and many fruits and misshaped/wrinkled.

After treatment

Plants started putting more foliage and flowers and fruit setting was increased.

Conclusion

- This result suggests that Organishield™ can control Cyclamen mite up to 95% in strawberries without affecting pollination.
- Organishield™ does affected beneficial mites/insects, however, overall plant health and production increased significantly.
- Finally, a detail trial should be conducted using competitors' products.
- Organishield™ can also be recommended to apply as soon as plants arrived from the propagator to kill any mite population.