



BUG BIZ

Pest Management and Insect Identification Series



Twospotted Spider Mites in Strawberries

Arachnida: Acari: Tetranychidae

Tetranychus urticae Koch

Distribution

The twospotted spider mite is one of the most persistent and damaging pest problems affecting strawberry production in Louisiana. It occurs in all strawberry-producing areas of the United States, with strong preference for hot and dry conditions. It also affects a wide range of plants and cultivated crops including vegetables, ornamentals, fruiting and deciduous trees, field crops, weeds, etc.

Damage

Damage is caused when mites pierce and feed on the leaf cells, primarily on the underside of the leaves. Mites suck out leaf cell contents and cause the cells to collapse and die, producing a stippling effect on the upper leaf surface which appears bronze. Affected leaves eventually die and fall off. Feeding by mites results in reduction of plant vigor, leading to a reduction in size, quality and quantity of fruits. When left uncontrolled, mite populations rapidly exceed threshold levels and cause visible foliage damage, bronzing on upper leaf surfaces, purplish and distorted leaves, brown to dry foliage, reduced flowering and stunted plants. Heavy infestations during the fruiting season may result in direct feeding on the fruits, causing fruit russetting. Heavily infested strawberry plants may die prematurely.

Description and Life Cycle

Mites are arachnids, not insects, but are closely related to them. Twospotted spider mites survive cold winters as dormant, mated adult females in the soil. However, during mild weather, they remain active on strawberries and a wide variety of vegetables and wild vegetation. In Louisiana, warm weather extending through mid to late November allows mite populations to build up in nearby vegetable crops and weeds. As vegetables mature or are harvested, mites migrate to strawberry fields carried by the wind and by field workers. Twospotted spider mite infestations in Louisiana strawberries

may start in late October and persist through the end of the harvesting season in April and May. Peak populations normally are observed during February and March.



Twospotted spider mite adults may reach 1/60 inch in length. With a naked eye, mites appear as dark-green dots moving on the underside of strawberry leaves. With the help of a 10x magnifying lens or an optivisor, adult mites may be seen as yellowish or pale green with a large dark blotch on each side of the body. Twospotted spider mites feeding on fruits may appear reddish and can be mistaken for the European red mite. Dormant female mites may have an orange tinge resembling predatory mites. Eggs are minute and spherical. They are deposited on the underside of strawberry leaves among webbing produced by adult mites. Egg color varies from translucent to a pale yellow or green as they mature.

The mobile immature stages are referred to as nymphs, larvae or young. Nymphs on strawberry plants are pale yellow, greenish or straw colored. The two distinctive dark blotches observed in adults may not be visible in smaller nymphs. Newly hatched nymphs have only six legs. Later stages of development and all adults contain eight legs. Nymphs reaching maturity may be hard to distinguish from adults. Development from egg to adult stages under normal warm spring conditions in Louisiana may take two to three weeks. Faster development occurs normally during hot and dry conditions. Adult females live for three to four weeks and lay 70 to 100 eggs in their lifetime.

Monitoring and Control

An effective twospotted spider mite management program should include actions not only on strawberry plantings but also on nearby vegetables and weeds. Start the program early in the fall to detect, prevent and delay mite buildup and migration

to new strawberry plantings. As vegetable crops mature and are harvested, promptly destroy post-harvested plant material. Do not allow mite populations to build up on weeds or crop residue left in the field. Maintain a sound weed management program throughout the vegetable and strawberry season. Implement cultural practices aimed to promote a healthy, vigorous growth in your strawberry crop. The number of mites may be lower on vigorous plants than on stressed plants. In addition, healthy plants are more tolerant of mite damage. Therefore, follow local recommendations for variety selection, mulching, irrigation and fertilization to promote plant vigor and reduce stress. The most severe yield reduction occurs as mites build up during vegetative growth when strawberry plants are developing reserves that will be used later for fruit production. Plants that appear to be healthy may have already lost great fruiting potential because of unnoticed mite populations. Therefore, do not wait until visible feeding damage is observed on the foliage to start scouting fields. Visible leaf and fruit damage occurs only after mites reach very high levels.

Monitoring for mites must be done using a 10x hand lens or an optivisor. Make sure to inspect not only for twospotted spider mites nymph and adults but also for predatory mites, to tell if natural enemies are keeping twospotted spider mites under control. It is common for many mite infestations in new strawberry plantings to start along field margins close to or adjacent to areas with mite infestations such as maturing vegetable crops or weedy areas. A good monitoring plan includes sampling field edges, middles and field corners. Inspect the underside of leaflets. Choose fully developed leaflets from the middle tier, and avoid leaves that are too young or too old. Select one leaflet per plant and inspect 10 to 20 leaflets, depending on the size of the field. Treatments are justified when an average of five or more mites are present per leaflet. If the number of predatory mites is at least one-half the number of twospotted spider mites, treatment is not needed or can be delayed. Begin monitoring strawberry fields in Louisiana once every two weeks starting in mid-October, and continue sampling once every week from January until three weeks before the end of the harvest season.

Contact your county agent for a list of miticides that can be used for twospotted spider mites in Louisiana strawberries or see the Louisiana's Strawberry Insect Control Spray Guide published by the LSU AgCenter. When using insecticides, be sure to check the pH of the water being used for spraying. The pH needs to be between 5.5 and 6.5 for optimum miticide efficacy. Use of a buffering agent will help obtain the desired pH before adding pesticides to a solution. Ultrafine oil may be used with miticides or alone to enhance management. Complete coverage is essential for optimal control. Water volume used should increase as the plants grow and mature.



Severe plant damage caused by twospotted spider mites



Leaf discoloration caused by twospotted spider mites



Twospotted spider mites: Different stages

Louisiana State University Agricultural Center
 William B. Richardson, Chancellor
Louisiana Agricultural Experiment Station
 David J. Boethel, Vice Chancellor and Director
Louisiana Cooperative Extension Service
 Paul D. Coreil, Vice Chancellor and Director
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Authors:
Boris A. Castro, Ph.D.
Assistant Professor & Extension Specialist,
Entomology

Dale K. Pollet, Ph.D.
Professor and Extension Specialist, Entomology

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Boris A. Castro