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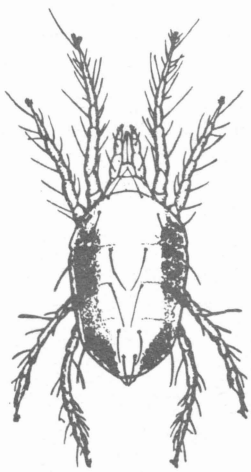
SPIDER MITES IN THE HOME GARDEN AND LANDSCAPE

L-1244

House and Landscape Pests

Clifford E. Hoelscher
Area Extension Entomologist
The Texas A&M University System



Spider Mite.

Plant infested with spider mites.

There are numerous mite species which attack home lawns, vegetable gardens and ornamental plants, and they can become extremely destructive. Mites are not insects but are frequently referred to as insect-like pests. Mites are classified with spiders, belonging to the Class Arachnida, Order Acarina, and have eight legs in the adult stage. These pests are small in size (approximately one-eighteenth of an inch in length) and round in shape. They are barely visible to the naked eye. When viewed with a magnifying glass, they appear to be sparsely covered with long, rigid hairs. A typical diagrammatic drawing of a mite is presented in Figure 1.

This publication is designed to provide the homeowner with information on identifying and controlling damaging mite infestations.

Life Cycle and Development

Mite populations initially develop on the undersides of plant leaves. The reproductive potential of mites is extremely high, and in periods of hot, dry weather mites can complete a life cycle from egg to egg in approximately 5 days. Generally 7 to 14 days are required for mites to complete a life cycle. Females are known to lay up to 300 eggs in only a few days. Thus, rapidly increasing mite populations can cause extensive plant damage before the homeowner becomes aware of the problem.

Mite eggs are usually oval in shape and may vary from a cream color to orange or bright red. The eggs usually hatch in 2 to 4 days and will hatch more readily during warmer periods. Mites usually overwinter in the egg stage, however some remain active throughout the year. Eggs deposited in late fall will hatch in early spring to initiate the first generation.

Larval Stage

After mite eggs hatch, the larval stage appears, which is characterized by having only three pairs of legs. The females molt three times in the course of their growth, and the males molt only twice. In the adult stage mites have eight legs and are approximately one-sixtieth to one-eightieth of an inch in length. Most adults spin small threads of silk during their feeding activities, which aid in securing the eggs to the leaf.

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Two-Spotted Spider Mite

Description and Life History: The two-spotted spider mite, *Tetranychus bimaculatus,* belonging to the family Tetranychidae, is the most common species of mites attacking home gardens and ornamental plants. The adult female is eight-legged and pale yellowish or greenish in color. These mites have two dark spots, composed of food content, showing through the transparent body wall. The body is oval in outline and sparsely covered with spines. The mites feed through sucking mouthparts which pierce the epidermis of the leaf. After mating, the female mite begins laying eggs at a rate of from two to six a day and will deposit a total of 70 or more eggs during her lifetime. A complete generation is produced every 20 to 40 days, but generations overlap so that all stages of mites may be found on plants at any time.

Damage: Leaves of plants infested by spider mites develop a characteristic appearance. Lightly infested plants have pale yellow blotches or spots showing on the upper leaf surface. With heavy infestations, the entire leaf appears light in color, becomes desiccated, and often turns reddish-brown in spots or around the edge. Plants generally lose their vigor and often die. The undersurfaces of lightly infested leaves have silken threads spun across them. Where large populations develop, these threads may form a web over the entire plant. Mites crawl on this web and attach their eggs to it. Mites appear on the undersides of leaves as tiny reddish, greenish, yellowish or blackish moving dots. Mite color may vary according to the kind of plant food available.

Red Spider Mite

Description and Life History: Members of this group are often very red to orange in color. These mites belong to the family Tetranychidae and represent members of the genera Paratetranychus and also Tetranychus. The most common of the red spider mites is the six-spotted spider mite, *Tetranychus sexmaculatus.* The eggs, which appear red just before hatching, are fastened to the leaves or to the silk spun by the mites. There are three growing stages of the six-legged larvae and two eight-legged nymphal stages. The larvae and nymphal stages differ mainly in size. The adult red spider mite is velvety red or purple in color, with about 20 prominent bristles over the body. In the adult stage, the six-spotted spider mite has eight legs, is purplish, greenish or yellowish, and sometimes has six dark spots. A generation is usually completed in 3 to 5 weeks.

Damage: This mite usually causes leaf damage by extracting chlorophyll, which gives the leaf a silvery or speckled appearance. Feeding activity of these mites is usually restricted to areas on the undersides of the leaves where the mite colonies form. These areas become depressed and yellow. Webbing appears underneath the swollen, yellow spots on the upper surfaces of the leaves.

Bermudagrass Mite

Description and Life History: Bermudagrass mites, *Aceria cynodoniensis,* are very small, eight-legged pests that have caused considerable damage to bermudagrass lawns in many western areas of Texas. These cigar-shaped mites can be readily distinguished from the oval-shaped mites commonly seen around the home. Females lay eggs in protected places on the grass. The larval stage, with only six legs, is followed by a nymphal stage which has eight legs, as do the adults. The life cycle of this mite is completed in about a week, and because they can multiply rapidly, extensive damage can be caused in a short period of time.

Damage: Bermudagrass mite damage results from the removal of plant sap from the stems and leaves, which causes yellow or brown areas and a generally unhealthy appearance. Characteristic symptoms of injury are short internodes which cause the grass to have a bushy or tough appearance. When mite damage is severe, the grass is severely thin, and weeds usually take the place of the dead grass.

Banksgrass Mite

Description and Life History: The banksgrass mite, *Oligonychus pratensis* (Banks), has been a problem in the West and High Plains areas of Texas. This mite is oval and very similar to the two-spotted mite. Chemical control of this species has been difficult because of its high level of resistance to miticides. Eggs are transparent in color and hatch in 1 to 2 days. Approximately 7 to 14 days are required for completion of a life cycle. The banksgrass mite may infest grasses and many ornamental plants.

Damage: Plant injury is similar to that caused by the two-spotted spider mite.

Chiggers, Jiggers and Redbugs

Many people are not aware that the common "redbug" or chigger is actually a mite. The larval stage of this mite feeds on the skin of man and domestic animals, rather than on plants, and causes a severe itching sensation. These mites are members of the family Trombidiidae and are discussed in detail in another publication.

Spider Mites on Vegetables

The two-spotted mites usually are quite a problem on vegetables produced in the home garden, especially during periods of hot, dry weather. Plants

severely attacked include tomatoes, eggplants, beans and corn.

Damage: Mites pierce leaf tissue and suck plant sap in the larval, nymphal and adult stages. Plants begin to lose color, fading from green to yellow, and eventually turning reddish. Heavy infestations can completely kill plants such as tomatoes. The undersides of plant leaves should be checked carefully and frequently for developing mite infestations.

Mite Control

Chemical controls for mites in the home garden are suggested in Table 1, and a list of miticides that can be applied to the home landscape is given in Table 2. Mite control is often difficult because of resistance to the miticides being used. The homeowner must be sure to achieve complete spray coverage of infested plants. Most of the miticides are contact materials, and the spray solution must come in contact with the mites to achieve satisfactory control. Repeat applications (two to four) are generally required for satisfactory control. Frequent plant inspection is the best means of determining the need for additional applications. Read all label directions carefully before using a miticide material. Store all unused materials in a locked area to avoid accidental poisoning of small children or pets.

Table 1. Suggested miticides for the home garden and days from last spray application to harvest.

*Do not use; not an Environmental Protection Agency registered use.

	Diazinon	Kelthane	Malathion	Sulfur	Ethion
Beans	*	7 days[1]	1 day	0 days	2 days[2] 4 days[3] 10 days[4]
Beets	*	*	*	0 days	*
Cantaloupes	3 days	*	*	0 days	*
Carrots	10 days	*	*	0 days	*
Corn	*	*	5 days	0 days	50 days[5] (field)
Cucumbers	*	*	1 day	*	No preharvest interval
Mustard greens	None (preplant or transplant only)	*	*	*	*
Okra	*	*	1 day	*	*
Peanuts	*	7 days	*	0 days	*
Peas	*	*	3 days	*	*
Peppers	*	2 days[6]	*	*	0 days[7] (0.5 lb/acre) 21 days (1.0 lb/acre)
Potatoes	*	*	*	0 days	*
Squash	*	2 days[8]	*	0 days	No preharvest interval (summer)
Tomatoes	1 day	2 days[9]	5 days[10] 1 day[11]	0 days	2 days[12] 28 days[13]
Watermelons	*	2 days[14]	*	0 days	*

[1]Preharvest interval through 0.6 lb/A spray or 1.5 lb/A dust (beans—45 day preharvest interval from 0.6 through 0.8 lb/A spray as a foliage application on dry beans only).

[2]0.5 lb/A spray or 0.8 lb/A dust.

[3]1.0 lb/A spray or 1.6 lb/A dust.

[4]1.5 lb/A—Do not make more than one application after the edible parts have formed.

[5]Do not apply more than once after ears have formed.

[6]Preharvest interval through 0.8 lb/A spray or 1.5 lb/A dust—foliage application.

[7]Do not apply more than three times during fruiting period (applicable to the 1.0 lb. rate).

[8]Preharvest interval through 0.6 lb/A spray or 1.5 lb/A dust.

[9]Preharvest interval through 0.8 lb/A spray or 1.5 lb/A dust—foliage application.

[10]3.5 lb/A as a dust or diluted spray.

[11]2.0 lb/A as a dust or diluted spray; 0.6 lb/A as an undiluted (low volume) spray.

[12]0.5 lb/A spray or 0.8 lb/A dust.

[13]1.2 lb/A—Do not apply more than once after fruit begins to form.

[14]Preharvest interval through 0.6 lb/A spray or 1.5 lb/A dust.

Table 2. Suggested miticides for the home landscape.

	Chlorbenzilate	Diazinon	Kelthane	Malathion	Sulfur	Ethion	Trithion
Bermudagrass		X	X	X	X	X	
House plants			X		X		
Roses		X	X	X	X		X
Ornamental citrus	X	X	X				X
Woody shrubs		X	X		X	X	
Marigolds		X	X			X	X
Pecans		X	X	X	X		
Spring flowering annuals		X	X	X	X		X
Summer flowering annuals		X	X	X	X		

Follow label directions carefully for rates of application.

Table 3. Dilution chart for hand sprayers for homeowner use.

	% Emulsion	Tsp./Gal. Water	% Wettable Powder	Tsp./Gal. Water
Diazinon	25	2	–	–
Dicofal (Kelthane)	18.5	2	–	–
Malathion	50	2	–	–
Sulfur	–	–	100	9
Ethion	–	–	25	6
Chlorbenzilate	–	–	50	8
Trithion	–	–	25	6

Use about 1 quart of spray or 1.5 oz. of dust per 50 feet of row.

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