Kansas State University Extension Entomology Newsletter

For Agribusinesses, Applicators, Consultants, Extension Personnel & Homeowners

Department of Entomology
123 West Waters Hall
K-State Research and Extension
Manhattan, Kansas 66506
785-532-5891
http://blogs.k-state.edu/kansasbugs/
http://www.entomology.ksu.edu/extension

April 21, 2023, No 1

Boxwood Leafminer

Figure 1. Boxwood leafminer adult (Joe Boggs, OSU)

The boxwood leafminer, *Monarthropalpus flavus*, is a major insect pest of the common boxwood, *Buxus sempervirens*, which is a plant commonly used in landscapes throughout Kansas.

Boxwood leafminer adults emerge (eclose) from pupae when *Weigela florida* is flowering in the spring. Adults are 1/15 to 1/9 of an inch (2 to 3 millimeters) long, yellow-orange, and resemble mosquitoes or gnats (Figure 1). Adults leave behind pupal cases attached to the leaf after emergence. After mating, females insert eggs inside the tissue of new leaves. A single female lays approximately 29 eggs and then dies afterward.

Figure 2. Boxwood leafminer larvae (Howard Russell, MSU)

Larvae emerge (eclose) from the eggs in about three weeks. Larvae are legless maggots, yellow-white to green, and about 1/9 of an inch (3 millimeters) in length (Figure 2). The larvae feed on the leaf tissue inside the leaf (Figure 3). Boxwood leafminer larvae tunnel between the upper and lower parts of leaf tissue creating blotched or irregular-shaped blisters on the lower leaf surface and raised areas on the upper leaf surface (Figure 4). Several larvae may be present in the leaf blisters. The leaf blisters disrupt the flow of nutrients through the leaf, which can result in yellow-spotted leaves that drop prematurely. Continuous infestations of boxwood leafminer can cause branch dieback and increase plant susceptibility to damage from plant pathogens (e.g. fungi and bacteria) and environmental conditions including drought and freezing. Larvae feed through the summer inside the tunnels and then become orange pupae in spring. Boxwood leafminer has one generation per year in Kansas and overwinters as a larva in the leaf blisters.

Figure 3. Boxwood leafminer larvae (Joe Boggs, OSU)

Management of boxwood leafminer involves implementing cultural, physical, and insecticidal plant protection strategies. Maintain healthy plants through proper irrigation, fertilization, and pruning practices. Healthy plants are usually less susceptible to attack by boxwood leafminer. Using cultivars or varieties of common boxwood that are less susceptible to boxwood leafminer may reduce problems during the growing season. Remove or prune off infested leaves or twigs that contain larvae and dispose of them immediately from the area. Apply insecticides to coincide with the emergence of adults and new plant growth. Insecticides with systemic activity are applied as a soil drench in late winter or early spring (based on label directions) to manage larval populations, which will mitigate plant damage during the growing season. Insecticides that have translaminar or local systemic activity (e.g. spinosad) can be applied after new growth emerges. Translaminar means that the material penetrates leaf tissues and forms a

Figure 4. Plant damage associated with boxwood leafminer feeding

reservoir of active ingredient within the leaf. Translaminar insecticides are effective against most plant-feeding leafminers. Unfortunately, there are few beneficial insects (parasitioids and predators) of the boxwood leafminer.

Raymond Cloyd – Horticultural Entomology

HOME

Clover Mite

The clover mite, *Bryobia praetiosa*, is a nuisance, but not harmful pest that enters homes, apartments, or commercial buildings in extensive numbers, causing concern about how to manage their presence.

The clover mite life cycle takes approximately 30 days to complete, with five developmental life stages: egg, larva, protonymph, deutonymph, and adult. There are no male clover mites. Consequently, clover mite females produce eggs without mating (parthenogenesis) and can lay up to 70 eggs during their life span. Eggs are laid in the cracks and crevices of concrete walls, foundations, inside walls, or underneath the bark at the base of trees. Larvae that emerge (eclose) from eggs are red with six legs.

Figure 1. Clover mite adult with front legs protruding forward (Raymond Cloyd, KSU)

Adult clover mites are approximately 1/32 of an inch (0.75 to 1.0 mm) long, red-brown, and have eight legs. The long pink front legs extend forward in front of the head (Figure 1). Clover mite adults live up to seven months depending on temperature. Adults feed on more than 200 plant types, including apple, clover, elm, freesia, grass, honeysuckle, and ivy. Clover mite populations can be extensive in well-fertilized turfgrass located near foundations, and their feeding can cause turfgrass to appear silvery or frosty. Although all the life stages can overwinter, clover mites generally overwinter as eggs in protected locations such as in wall voids inside homes or other buildings. There are one to two generations per year in Kansas.

Clover mites typically enter homes and other buildings in early spring and fall, gathering on the south and west sides that are warmed by the sun. In addition, well-fertilized turfgrass growing near foundations increases the potential for clover mites to enter homes or other buildings. Clover mites enter homes and other buildings during the

onset of drought or cold weather. Once inside, clover mites gather in large numbers in corners (Figure 2) and usually die from dehydration within two to three days.

Clover mites are primarily a nuisance pest. They do not bite humans or transmit diseases. Clover mites will leave a red stain when purposely or accidentally crushed on walls or curtains.

Figure 2. Clover mites inside the corner of a building (Raymond Cloyd, KSU)

Clover mite management involves the following:

1) Remove turfgrass near home and other building foundations.

2) Place an 18- to 24-inch-wide band of an inorganic mulch (e.g. pea gravel) around the foundation of homes and other buildings, or in planting areas (Figure 3).

3) Mow turfgrass regularly and as short as possible.

4) Avoid excessive watering and over-fertilization of turfgrass, especially with water-soluble, nitrogen-based fertilizers, which encourages succulent growth.

Figure 3. Pea gravel placed in a planting area to reduce clover mites from entering (Raymond Cloyd, KSU)

5) Remove weeds from around the foundation of homes or other buildings. Also remove leaves from planting areas and debris or rocks located around the foundation.

6) Remove or limit the growth of ivy or other host plants around the foundation.

7) Select plants for foundation plantings that do not attract clover mites. Examples include: arborvitae, chrysanthemum, geranium, marigold, petunia, rose, salvia, or yew.

8) Seal cracks or openings in the foundation and around window seals.

9) Ensure window screens fit tightly and there are no holes.

10) Use a vacuum cleaner to collect clover mites without crushing them. Discard the clover mites outdoors and clean the bag afterward.

11) Place sticky tape inside homes near window seals to capture clover mites that enter (Figure 4).

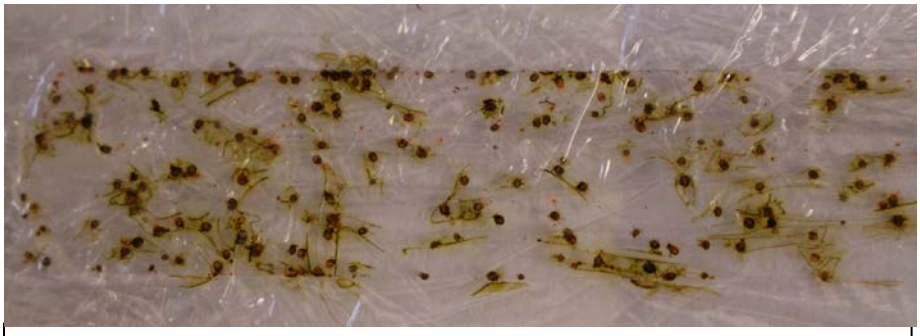

Figure 4. Clover mites captured on sticky tape (Raymond Cloyd, KSU)

Pesticides that have activity on mites can be applied around the perimeter of homes or other buildings to kill clover mites, which can reduce the number that enter. Apply pesticides 10 feet away from the foundation and up to the bottom of windows. Also, be sure to treat cracks and crevices in concrete foundations. In addition, apply a pesticide starting from the foundation to the edge of any turfgrass. Do not apply pesticides inside homes or buildings. If necessary, consult with a pest management professional for recommendations on perimeter treatments of pesticides to prevent clover mites from entering homes or buildings.

For more information on clover mite please refer to the following extension publication:

Clover Mite (MF915 Revised November 2022)

https://www.bookstore.ksre.ksu.edu/pubs/MF915.pdf

Raymond Cloyd – Horticultural Entomology

HOME

Insect Diagnostics 2023 Season Has Begun

Members of the public seeking assistance identifying an insect can access the Insect Diagnostics ID Request Form online. After providing observation information such as location and date of the sighting, followed by answering a set of questions intended to help with the identification process, one can then upload up to 3 photos and submit the form. The inquiry is then forwarded on to one of the entomology extension specialists. Within a few days, usually less than two, the identity of the insect along with appropriate life history information and/or control measures is then sent to the client by email or phone. The online submission process takes only a few minutes and can be accessed with desktop computers and mobile devices. If you need insect identification assistance, submit a request at https://entomology.k-state.edu/extension/diagnostician/.

Anthony Zukoff—Southwest Research and Extension Center – Garden City, KS

HOME

	Personnel	Specialties
	**Raymond Cloyd** *Professor and Extension Specialist* rcloyd@ksu.edu	Insect and mite pest management in greenhouses, landscapes, turf grass, vegetables, fruits, Christmas trees, interior plantscapes, and organic crop production systems; impact of pesticides on pollinators and pollinator health; delusory parasitosis; pesticide mixtures; insect ecology; impact of pesticides on natural enemies; pesticide safety and use.
	**Brian McCornack** *Department Head, Professor* mccornac@ksu.edu	Field-crop pest management; integrated pest management tactics; sampling; invasive species; insect population dynamics; remote sensing and site-specific strategies; plant-insect interactions; web-based decision support systems.
	**J.P. Michaud** *Professor* jpmi@ksu.edu	Integrated pest management in field crops/IPM (Central Kansas): aphids, coccinellids, sorghum, sunflower, wheat; biological control; cultural control; insect behavior; insect ecology; life history.
	**Frannie Miller** *IPM Coordinator* fmiller@ksu.edu	Pesticide safety; Commercial Applicator certification; Private Applicator certification; integrated pest management in schools, consumer and urban environments, and crops.
	**Cassandra Olds** *Assistant Professor* colds@ksu.edu	Veterinary entomology; livestock entomology; vector biology; vector-borne pathogen transmission; immunological control of vector-borne pathogens; vector competence; developing novel arthropod management strategies.
	**Robert (Jeff) Whitworth** *Extension Specialist, Associate Professor* jwhitwor@ksu.edu	Field crop arthropod pest management/IPM (Eastern Kansas); household and structural arthropod pest management/IPM.

	**Anthony Zukoff** *Extension Associate* azukoff@k-state.edu	Field crop (canola, corn, cotton, wheat, sorghum) pest management/IPM (Southwest Kansas); insect diagnostics, coordinates the collection and reporting of diagnostic inquires and identification of specimens.

HOME

Sincerely,

Raymond A. Cloyd
Professor and Extension Specialist
Horticultural Entomology/Integrated Pest Management
Phone: 785-532-4750
Fax: 785-532-6232
e-mail: rcloyd@ksu.edu

Anthony Zukoff
Extension Associate – Entomology
Southwest Research and Extension Center
Garden City, KS
Phone: 620-275-9164
e-mail: azukoff@k-state.edu
@westksbugs
Need an insect identified? Visit the Insect Diagnostics Program Website

KANSAS STATE UNIVERSITY | Department of Entomology

Kansas State University is committed to making its services, activities and programs accessible to all participants. If you have special requirements due to a physical, vision, or hearing disability, contact *LOCAL NAME, PHONE NUMBER*. (For TDD, contact Michelle White-Godinet, Assistant Director of Affirmative Action, Kansas State University, 785-532-4807.)