

Pest Management News

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Chiggers: The Devil's Own Invention

John D. Hopkins

Chiggers are the juvenile form of a species of mite that belongs to the Trombiculidae family. Chigger mites go through four developmental stages: egg, larva, nymph, and adult. The life stage that hatches from a chigger egg is the six-legged chigger larva. This is the only life stage that attacks humans and animals (parasitic stage).

Nymphs and adults have eight-legs and do not feed on humans but are free living predators of other small soil insects and other arthropods.

Larvae attach to a host with their mouthparts (chelicerae) and because the chelicerae of larval mites is relatively weak, they commonly attach where the skin is thin, wrinkled, or tender. They also commonly attach in areas where clothing is tight.

Contrary to popular belief, chigger larvae do not burrow into the skin or feed on a person's blood. When biting a human, chiggers will insert their feeding structures into the skin. Before they can eat, the chiggers inject an enzyme into the skin to liquefy the tissue. This action makes a hole in the skin and then the skin around this hole hardens, forming a feeding tube, which is called a stylostome. Chiggers then feed on the destroyed tissue through this stylostome. If left undisturbed, the chiggers can feed for a couple of days.

Because the skin hardens around the feeding area, most people develop reddish welts within 24 hours of being bitten, which is then followed by **intense itching**. These bumps can resemble blisters, hives, welts, and pimples and tend to appear in groups. They will often grow in size for the next 7 days. The **itching** may last for a week or longer if not treated.



Chigger bite symptoms on victim's feet and ankles. Photo by J.D. Hopkins

Chiggers in the U.S. are not known to carry or transmit diseases. But, they do cause **intense itching**. If the bites are scratched, they may result in secondary infections that may require medical treatment.

Chiggers are most common in the spring through fall months. While chiggers can be found across the United States, they are more common in the warmer southern and mid-western states.

Common places to find chiggers include: long and overgrown grass in fields and gardens, forests, grassy areas around lakes and rivers, berry patches, beneath rocks, among weeds, where large numbers of rodents are present, or areas of high humidity.



Chigger habitat in weedy brushy areas along trails. Photo by J.D. Hopkins

The easiest method to prevent chigger bites is simply to avoid walking through overgrown fields and brush. Instead, walk in the center of mowed trails to avoid vegetation where chiggers (and ticks) congregate. However, this is not an option for everyone.

Additional precautions include wearing long pants tucked into boots or socks to keep chiggers on the outside of your clothing. Wear loose fitting clothing and avoid sitting or lying directly on the ground.

People who do walk into contaminated areas should use repellents that contain DEET. The repellent should be sprayed on both the skin and clothing. People should not apply DEET to infants under 2 months of age or allow children to apply repellent themselves.

Another good repellent spray to use on clothing ONLY is permethrin. This kills chiggers as well as mosquitoes and ticks. If using permethrin, people should ideally treat their clothing 1 to 2 days in advance, allowing clothing to fully dry before wearing. Users should be sure to follow the label instructions on all repellents they may use.

Once a person is out of the infested area, they should remove and wash their clothes immediately. A hot shower or bath is then advised, scrubbing the body with soap.

The less time spent among the contaminated vegetation, the less chance chiggers have of getting onto a person's skin. If you have been bitten by chiggers, there are a few things you can do to relieve your discomfort:

- **Over-the-counter anti-itch medications:** These are good at preventing a person from scratching their bites. These medications include hydrocortisone or calamine lotion.
- **Ice:** If a person does not have access to medication right away, applying ice to bites is a good way to relieve the desire to scratch.
- **Bath or shower:** A person should take a bath or shower when they realize they have chigger bites. Scrubbing with soap and water is a good way to remove any other chiggers that may remain on the body. This will prevent further bites.

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Chigger bites usually take a week or two to heal. However, if a bite persists for a prolonged period of time, people are advised to visit a medical doctor. A medical doctor may prescribe steroid shots to calm itching and swelling, though this is only in rare cases. If bites become infected, a doctor may also prescribe antibiotics.

If necessary or desired, the following chigger management options are recommended:

Control of chigger infestations in large yards, parks, camps, picnic sites, and other recreational areas is often impractical. However, chiggers in play and picnic areas and around trails can be reduced by vegetation management. Regular mowing and brush removal creates a less favorable habitat for chiggers and the rodents and other small animals on which they feed. These practices are best for a long-term solution. Insecticide sprays may provide some temporary reduction of chiggers. They are most effective when directed into areas where chiggers and their animal hosts are likely to frequent. Options include dusting sulfur (various brands), bifenthrin (Hi-Yield Bug Blaster Bifenthrin 2.4, Ortho Bug-B-Gon MAX Insect Killer for Lawns, and others), carbaryl, (GardenTech Sevin Concentrate Bug Killer), cyfluthrin (Bayer Advanced PowerForce Multi-Insect Killer Concentrate), and a number of products containing permethrin. Be sure to read the product label carefully to ensure the site you are planning to treat is on the label. Also, look for specific instructions for applications against chiggers that can improve control.

All chemical information provided is given with the understanding that no endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned. Individuals who use pesticides are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Before purchasing or using any pesticide, always read and carefully follow the label directions.

Sugarcane Aphids

Kelly M. Loftin

We have had a few calls from proactive producers preparing for sugarcane aphid (*Melanaphis sacchari*) infestations in sorghum-sudan hybrids. The sugarcane aphid was first confirmed in June 2014 in the southeast region; and by the end of the growing season it had been found in most grain and forage sorghum producing areas of the state. In forage production, only sorghum (including sorghum-sudan hybrids) and Johnsongrass are affected. A similar forage, pearl millet, is not affected. This year we have the potential to experience high sugarcane aphid populations on sorghum-sudan hybrids as well as Johnsongrass.

Sugarcane aphids feed by piercing the plant and sucking plant sap. As aphids feed on the sorghum plant, the plant will turn yellow to purple to black. During feeding, they also excrete sticky



Honeydew coated sorghum leaf. Photo by Jason Kelley.



Black sooty mold on sorghum leaf. Photo by Jason Kelley.

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honeydew (a sugary substance) on the leaf surface, which is often the first sign of the aphid's presence in the field. Black sooty mold can grow on the buildup of honeydew. Buildup of black sooty mold on the plant surface can reduce plant photosynthesis and palatability of forage sorghum.

Sugarcane aphids as well as other aphids have two forms: wingless and winged. The wingless form is pale yellow to white with dark cornicles (the "stove pipe" or "tailpipe" structures at the rear end) and darkened antennae and feet. The winged or "alate" form is darker than the wingless form and is the first to migrate into the field.



Winged and wingless forms of the sugarcane aphid. Photo by Nick Seiter.



Comparison of aphids found on sorghum.

Early harvest or grazing is a good option especially when canopy is too dense for good insecticide coverage and the yield is sufficient for harvest. After the crop has been cut or grazed, the field should be scouted at least weekly to determine if the sugarcane aphids have re-infested the field.

Forage sorghum should be scouted at least weekly to determine their presence. Once detected or reported in the area, scouting should be intensified (at least twice weekly) to make the best treatment decision. Examine a least 15 plants within fifty feet of row, then repeat in four different locations of the field. Examine the underside of the leaves for aphids. Also, observe the plants for honeydew, and if honeydew is observed, examine the underside of leaves above the honeydew-covered leaves. In **grain sorghum**, insecticide control is recommended if 25% or more of the plants have 50 or more aphids per leaf. An action threshold specific to forage sorghum is unavailable.



Sugarcane aphids on sorghum leaf.

Effective application of insecticide is dependent on good coverage of the canopy. Sufficient water volume is important for good canopy coverage. Use at least five gallons water per acre for aerial application and at least ten gallons of water per acre for ground application. In addition, insecticide choice for management of sugarcane aphids is critical. Broad spectrum insecticides such as the pyrethroids will

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cause sugarcane aphid populations to flare and should be avoided unless absolutely necessary for other pest issues. Insecticides labeled for use against other aphid pests in sorghum are largely ineffective against the sugarcane aphid. Sivanto Prime (fluyradifuron) applied at four to seven ounces per acre is effective against sugarcane aphids and approved for forage sorghum. A 24(c) registration for Sivanto Prime allows for a reduced pre-harvest interval of seven days for forage.

The sugarcane aphid we have in Arkansas is exclusively an economic pest of forage, grain and sweet sorghum (*Sorghum* spp.). Alternative forage crops such as pearl millet (*Pennisetum glaucum*) are poor hosts for sugarcane aphids.

Removing Predator and Nuisance Wildlife Species on Private Lands

Becky McPeake

On July 25, the Arkansas Game and Fish Commission voted for less restrictions on hunting and trapping certain predator species on private lands. Coyote, raccoon, opossum, and striped skunk may be hunted year-round on private lands, without any daily or possession limits. A free Predator-Control Permit will be available by late August for shooting or trapping bobcat, coyote, gray fox, red fox, opossum, raccoon, and striped skunk day or night. The Commission's reasoning is fewer predators will help increase bobwhite and wild turkey populations in the state. With lower pelt prices and fewer trappers, the Commission believes opening opportunities for predator removal will allow for better control of these species. Note a hunting license is required.



Raccoon in a tree.
Photo by David Cappaert,
Bugwood.org.



Raccoon damage to a watermelon.
Photo by Whitney Cranshaw, Colorado State
University, Bugwood.org.



Eastern fox squirrel on a bird feeder. Photo by Karan A. Rawlins, Univ. of Georgia, Bugwood.org.

Current laws regarding nuisance wildlife allow for removal of certain species causing damage. According to the Arkansas Game and Fish Commission's website, "Beaver, coyote, muskrat, nutria, opossum, raccoon, squirrel, striped skunk and nongame wildlife other than migratory birds and endangered species that are causing damage to personal property may be taken during daylight hours or trapped the entire year." Additionally, "English sparrows, blackbirds, starlings, and crows

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committing damage to agriculture crops and personal property may be taken without a permit.” A Depredation Permit is required to trap nuisance game animals other than beaver, coyote, muskrat, nutria, opossum, raccoon, squirrel, and striped skunk out of season (e.g., river otter), to shoot nuisance deer out of season, to shoot nuisance wildlife at night, and any other removal methods or species not mentioned.

In areas where shooting or leg-hold traps are not permissible or unsafe, the state allows using live traps to relocate nuisance wildlife (e.g., squirrel, opossum, raccoon, striped skunk, and armadillo). A Depredation Permit is not required. Before using a live trap, however, check county, municipal, and local ordinances about its legality and whether a local permit is required. According to state law, live-trapped wildlife must be released unharmed outside the municipality’s boundaries within 24 hours. Live traps must have attached one of the following for trapper identification: (a) the trapper’s name and address, (b) vehicle operator’s license number, or (c) the current vehicle license number registered to the trap user. When relocating nuisance wildlife, release animals several miles away with travel barriers (such as a river) between the release location and the trap site.

Feral hogs are an invasive species and not considered wildlife, and therefore can be killed or trapped off private land without a hunting license year-round, day or night. Feral hogs cannot be killed or trapped by anyone whose hunting license has been revoked. Regulations for public land vary.

Contact your local wildlife officer with questions or clarifications about these laws. When removing nuisance game species such as squirrels, discuss the situation with a wildlife officer in advance, and document damage by photos or other means before conducting lethal removal. Purchase a hunting license and follow applicable laws when removing a game species during its hunting season. For additional ideas about release sites in your area for nuisance wildlife, contact your local wildlife officer. <https://www.agfc.com/en/enforcement/contact-your-local-wildlife-officer/>

Tubakia Leaf Spot of Oak

Sherrie E. Smith

Although Tubakia leaf spot of oak, caused by *Tubakia dryina* (*Actinopelte dryina*), is often confused with Oak anthracnose, it is not usually as destructive a disease. Anthracnose symptoms begin in the spring. Symptoms of Tubakia become noticeable during mid-to-late summer. Small to large tan to reddish-brown round spots develop on the leaves. The small black fruiting bodies of the fungus can be seen with a hand lens. When the lesions develop on the veins collapse of the leaf tissue occurs beyond the point of the vein necrosis. Severe infections can cause complete defoliation, although this is unusual. Fortunately, this usually occurs so late in the season that tree health is little affected. Rake up fallen leaves and dispose of them. Fungicide applications are not normally recommended. Trees that suffer from stress are more susceptible.

Oak Leaf Spot-*Tubakia dryina*



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Oak Leaf Spot-*Tubakia dryina*



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Oak Leaf Spot spore-*Tubakia dryina*



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Name That Weed

Tommy Butts



This month's weed is a perennial herb that can be found in cultivated areas, fields, pastures, open woodlands, roadsides, and waste sites. It can germinate from seeds and/or rhizomes from below the soil surface. Stems tend to develop a deep purple color as the plants age, and the leaves of this plant release a potato odor when crushed. If consumed, this weed can be toxic to some animal species. Leaves are alternately arranged and have a lobed margin (Picture 1 and 2). The primary identification characteristic of this weed are the thorns that develop on the stem and the underside of the leaf mid-vein (Picture 1 and 3). This weed is a member of the nightshade family, and its scientific name would probably remind you of the Carolina states.



Picture 1.

Management of this weed can be difficult due to the rhizomes. Tillage may cut and spread these rhizomes throughout a field, worsening the problem. Systemic herbicides such as glyphosate, dicamba, and mesotrione (Callisto) have shown to provide excellent control of this weed species especially when applied at the early- to mid-bloom stage as the maximum amount of herbicide will be translocated to the roots and rhizomes at that time. However, repeated applications of these herbicides across multiple years may still be required to eliminate the problem.



Picture 2.



Picture 3.

Be the first to email Dr. Tommy Butts at tbutts@uaex.edu with the correct common name and win a prize!

To The Readers

Please offer any suggestions for Urban or Livestock Integrated Pest Management topics (insect pests, plant diseases, weed problems, wildlife control problems) that you would like to see – **OR** – feel free to submit an article that you have prepared. Kelly and I will be glad to include it (subject to editing). Send feedback to jhopkins@uaex.edu or kloftin@uaex.edu

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