



Arkansas Plant Health Clinic Newsletter

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Ground Pearls

Ground pearls, *Margarodes* spp., are a type of scale insect found in the soil that feed on the roots of turf. Like other scale insects, they are sap feeders. They prefer centipedegrass, but are also found on bahiagrass, carpetgrass, St. Augustine, Zoysia, and Bermuda. They are often associated with low pH soils. Symptoms are circular to irregular areas of sickly looking, thin turf. The grass yellows, then turns brown and dies, especially in hot, dry weather. Adult females have pinkish sac-like bodies, about 1.6mm long, with well-developed front legs and shorter second and third legs. Males are tiny white to pinkish gnat-like insects. Mature females emerge from their overwintering cysts in late spring, and crawl to the soil surface where they mate with the tiny, winged males (they can also reproduce without mating). Once they have mated, the females dig back into the soil where they lay a cluster of 20 to 100 eggs in a mass of waxy strands. The eggs hatch into crawlers. The crawlers attach themselves to grass roots and begin to cover themselves with a protective coat of yellowish to light purple wax, giving them their characteristic pearl shape. This waxy coating, unfortunately, makes them impervious to most insecticide applications.

Applications twice a year of a mixture of imidacloprid, fine horticultural oil, and wetting agent have been only moderately effective. Removal of the soil and existing turf is only successful when at least a foot of the soil is removed, which is impractical for most homeowners. Healthy turf can tolerate some levels of infestation. Damage can be minimized by proper pH, fertilization, mowing height, and watering during dry periods.

Turf Ground Pearls-Margarodes spp.



**Photo by Sherrie Smith, University of Arkansas
Cooperative Extension**

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Turf Ground Pearls-Margarodes spp.



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Turf Cinch Bugs

Chinch Bugs, *Blissus spp.*, feeds and reproduces on a wide range of host plants, including corn, rice, small grains, bunch grasses, and turf grasses. In turf cinch bugs prefer St. Augustine grass, but also feed on Bermuda and Zoysia. Chinch Bugs feed by inserting their sucking mouthparts into the plant tissue and feeding on the sap. Symptoms usually become noticeable mid to late summer as turf becomes stressed by cinch bug feeding activity on top of high temperatures and drought. Yellow wilted, stunted, areas that become dead spots appear in turf grass. The spots enlarge as the populations of cinch bugs increases. As the affected turf dies, cinch bugs migrate from infested patches to neighboring turf as the season progresses. Cultural control practices include water and fertility management, and

thatch control. A heavy thatch layer provides a protected place for chinch bugs to feed and reproduce. Turf should be de-thatched via vertical cutting when thatch becomes greater than ½ inch thick. Insecticides should only be applied when populations are high and cultural controls have failed, as insecticides also kill cinch bug predators. Insecticides labeled for homeowner chinch bugs control include Naturalis-T, Ortho, Sevin, Bayer Advanced Insect Control, Spectracide Insect Control, Bonide, DeltaGard, Scimitar, Talstar, Tempo, and Hi-Yield permethrin. There is a simple method of determining if your lawn has chinch bugs. Place a coffee can with both ends removed into the soil so it will hold water. Fill the can with water. Cinch bugs will float to the top in a few minutes.

Chinch Bug Nymph-*Blissus* spp.



Photo by Raven Bough, formerly Plant Health Clinic lab tech



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Chinch Bug Stages-*Blissus* spp.



Photo by David Shetlar, The Ohio State University,
Bugwood

Turf Billbug

Billbugs are major pests of turf across the US. The four pest species found in the US are the bluegrass billbug, hunting billbug, Denver billbug, and Phoenician billbug, all belonging to the Genus *Sphenophorus*. The hunting billbug, *S. venatus vestitus* Chittenden, is the most common in the southern US. Adult billbugs are reddish-brown to black weevils that are 1/2" to 3/4" long and are characterized by having a "snout" or "bill". The adult hunting billbug can be identified by markings on the pronotum that appear to be a "Y" surrounded by parentheses. Billbug larvae are C-shaped grubs that are white with a brown headcapsule. Unlike true white grubs, billbug larvae don't have legs. Young larvae burrow into grass stems and feed on the internal contents. While doing so, they leave sawdust-like frass. Often this frass can be seen during a "tug" test. Damaged grass will easily be pulled from the thatch and the sawdust-like frass will fall from the damaged end or be visible. Billbugs overwinter as larvae and emerge in spring. In the South, there may be

two generations per year with the second generation emerging in early fall. Billbug damage appears worse with improper fertilization and irrigation; however, light damage can be masked by proper fertilization and irrigation. Early infestations can appear like dollar spot disease, but heavy infestations can lead to large dead patches. For long-term cultural control, choose resistant cultivars. Resistant cultivars have been identified in some Bermuda and zoysia varieties. Entomopathogenic nematodes, *Steinernema carpocapsae* and *Heterorhabditis bacteriophora*, can be applied at 1 billion juveniles per acre immediately followed by irrigation. Chemical control options include surface residual sprays for adults and white grub treatments for larvae. Effective white grub insecticides registered for homeowners in Arkansas are carbaryl (various brands), chlorantraniliprole (Acelepryn, GrubEx1), clothianidin (Arena), clothianidin + bifenthrin (Aloft), halofenozide (Mach 2), imidacloprid (Merit, Advanced Lawn Grub Control), thiamethoxam (Meridian), and trichlorfon (Bio Advanced).



Hunting Billbug-*Sphenophorus venatus vestitus*



Photo by David Shetlar, The Ohio State University, Bugwood.org

Bluegrass Billbug Larva-*Sphenophorus parvulus*



Photo by David Shetlar, The Ohio State University, Bugwood.org

Bermudagrass Mite

The bermudagrass mite, *Eriophyes cynodontiensis*, causes leaf sheath and stem gall which is recognized by stunted plant growth, shortened internodes, enlarged nodes, and growth in a rosette pattern. Leaf sheaths become swollen and bunched and grow tightly packed together. Damage becomes apparent in spring and later the grass turns brown and damaged areas start to thin.

This mite, like others in the Family Eriophyidae (gall mites), is incredibly tiny and almost impossible to see without the use of a dissecting microscope. They are yellowish to white in color, and measure 170-210 microns (.17 - .21 mm) in length. The mites live in the leaf sheaths and there may be a hundred or more mites in a single sheath. One generation takes seven to ten days in the warmer summer months.

Because they are protected by leaf sheaths, control can be difficult. In turfgrass, very close mowing or scalping and then removing clippings can help keep the population small. There isn't an established threshold for treatment, but if you decide treatment is warranted, the grass should be mowed very short, and clippings removed. This exposes more mites to the treatment and makes treatments more likely to penetrate protected areas within sheaths.

For home lawns, the following insecticides and formulations are recommended in Arkansas: azadirachtin (Azatrol), bifenthrin (Allectus GC



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SC, Bifenthrin 2EC, Quali-Pro Bifenthrin, Talstar F), deltamethrin (DeltaGard T&O 5SC), lambda-cyhalothrin (Quali-Pro Lambda GC-O, Scimitar). Always read and follow label directions.

For commercial turf and golf courses, the following insecticides and formulations are recommended in Arkansas: azadirachtin (Azatrol), bifenthrin (Allectus GC SC, Bifenthrin 2EC, Quali-Pro Bifenthrin, Talstar F), chlorpyrifos (Dursban Pro), deltamethrin (DeltaGard T&O 5SC), dicofol (Kelthane 50 WSP), lambda-cyhalothrin (Quali-Pro Lambda GC-O, Scimitar). Always read and follow label directions.

Bermudagrass Mite-*Eriophyes cynodontiensis*



Photo by Ricky Corder, formerly University of Arkansas Cooperative Extension

Bermudagrass Mite-*Eriophyes cynodontiensis*

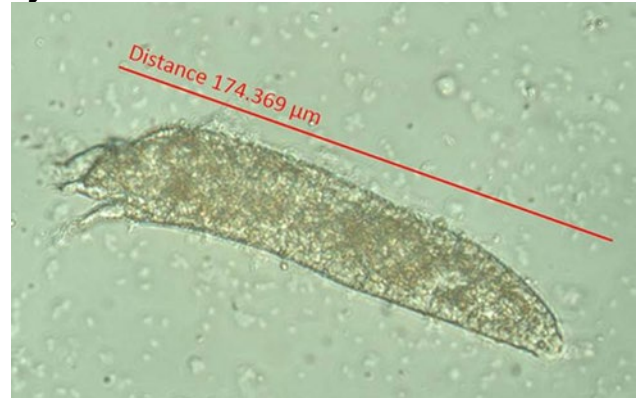


Photo by Ricky Corder, formerly University of Arkansas Cooperative Extension

This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.

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