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Mealybugs

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Mealybugs



Rhodesgrass mealybug adult females (courtesy NYSAES [H. Tashiro])

Common Names. Turfgrass mealybugs: Rhodesgrass mealybug, buffalograss mealybugs, etc.

Scientific Classification. (Homoptera: Pseudococcidae).

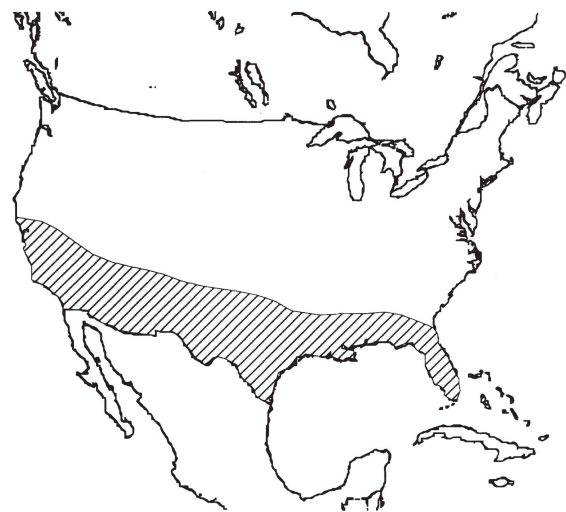
Origin and Distribution. Mealybugs occur worldwide and are widely distributed throughout the United States. In 1967, McKenzie recognized 46 genera of mealybugs in North America. Thirty-seven species within these genera were associated with grasses.

Description. Mealybugs are small, oval insects that are closely related to scale insects. Nymphs and adult females range in color from dark pink to light yellow and are usually covered with a white, waxy secretion. Some species have a series of short, waxy filaments projecting from the sides of the body. Individuals range in length from 0.008 in (0.2 mm) for early instar nymphs to over 0.20 in (5.0 mm) for adult females of certain species. Adult females are wingless and are similar in appearance to the nymphs, but adult males resemble tiny gnats and are characterized by a single pair of wings and three pairs of red, simple eyes. Because of the difficulty in obtaining males, mealybug identification is usually based on the adult female.

Pest Status. Mealybugs are sporadic, but occasionally serious, pests of many grasses including several important turfgrass species. Among the more important of the turfgrass-infesting mealybugs are the Rhodesgrass mealybug, *Antonina graminis* (Maskell) (formerly, Rhodesgrass scale), and the so-called buffalograss mealybugs, *Tridiscus sporoboli* (Cockerell) and *Trionymus* sp. The Rhodesgrass mealybug has a very wide host range and has been found in over 100 grasses. Turfgrass species

known to be seriously injured by this pest include bermudagrass, St. Augustinegrass, tall fescue, and centipede grass. The two buffalograss-infesting mealybugs were first discovered infesting buffalograss turf in Nebraska. They subsequently have been found associated with seeded and vegetatively propagated buffalograss lawns, rights-of-way, cemeteries, golf courses, and natural buffalograss stands in pastures. However, serious injury to buffalograss by these mealybug species has been observed in only a few isolated situations. Other turfgrass-infesting mealybugs include the ryegrass mealybug, *Phenacoccus graminosus* McKenzie, an occasional pest of canarygrass and ryegrass; the bluegrass mealybug, *Heterococcus pulverarius* (Newstead), which has been found primarily in the Pacific Northwest on bluegrass grown for seed; and the bermudagrass mealybug, *Chorizococcus rostellum* (Hoke), an occasional pest of bermudagrass in the Gulf states.

Injury. Mealybugs typically feed under leaf sheaths, on nodes, or in the crown of the plant. Several mealybug species are root feeders. Mealybugs injure the turf by inserting piercing/sucking mouthparts into plant tissues and withdrawing plant sap. During the feeding process, the plant's vascular system is disrupted, which interferes with the translocation of water and nutrients and causes plant tissues to discolor and wilt. Early mealybug damage usually appears as minor discoloration and wilting of the turfgrass foliage. As feeding and injury continues, the turf begins to dry out and gradually turns from green





Rhodesgrass mealybug nymph (courtesy NYSAES [H. Tashiro])

to yellow to brown. At high infestation levels, mealybug feeding can result in stunting, thinning, or even death of the turf stand. Heavily infested plants often become covered with tiny masses of white, waxy secretions. Many mealybug species excrete honeydew, which promotes growth of black sooty mold. Mealybug damage is usually heaviest in sunny locations during hot, dry periods and is often mistaken for drought stress.

Life History. The life histories of most turf mealybug species are not well investigated. In general, adult females deposit up to 300–600 eggs in a cottony mass called an ovisac. Certain species, such as the Rhodesgrass mealybug, are parthenogenetic and give birth to living young. In either case, females typically die shortly after producing their eggs or nymphs. Eggs hatch in 1–3 weeks. The first-instar nymphs, referred to as crawlers, are highly motile and disperse to new feeding sites on the parent plant or nearby hosts. Females may remain mobile and undergo three nymphal instars which change little in appearance, except for increasing in size. Near the end of the second instar, immature males produce a white, waxy cocoon in which they transform into tiny, two-winged, flylike adults. Rhodesgrass mealybugs are all females. They settle at nodes and form sessile, sac-like bodies. A wax tube arises from the anus that carries honeydew away from the insect. Depending on the mealybug species and geographic location, a generation may require from 30 to 70 days for completion, and there can be up to eight generations per season.

Management. Mealybugs can be detected by carefully inspecting the leaves, stems, crowns, and roots of plants in areas where mealybug infestations are suspected. Look for the presence of tiny white cottony masses attached to grass stems. Pull leaves away from stems and examine sheaths for the presence of mealybugs. The

presence of natural enemies, such as lady beetles, that feed on mealybugs or of ants that collect honeydew can also indicate an infestation. Effective cultural practices can substantially reduce the impact of mealybug injury. Selection of adapted turfgrass cultivars and proper fertilization and irrigation programs will minimize injury from minor mealybug infestations. In addition, certain turfgrass cultivars have natural resistance to mealybugs. A number of natural enemies, including lady beetles (especially the mealybug destroyer, *Cryptolaemus montrouzieri* Mulsant), bigeyed bugs, green lacewings, and parasitic wasps, often maintain mealybugs below damaging levels. When possible, adopt chemical, cultural, and other management practices that conserve natural enemy populations. There are no established treatment threshold levels for mealybugs on turfgrass. However, if large numbers of mealybugs are present and injury is increasing, an insecticide application may be warranted unless natural enemies are abundant. Apply a liquid insecticide to the mealybug infestation. Thorough coverage is important, and use of a surfactant should help improve the level of control. Do not irrigate for at least 24 hours after treatment. Closely mowing mealybug-infested areas and removing the clippings should help reduce mealybug numbers.

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—Frederick P. Baxendale and David J. Shetlar