Dealing with Ticks and Chiggers in the Turf Environment

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Encounters with ticks and chiggers can be annoying, painful and, in the case of ticks, life-threatening. Knowledge of their habits can help you to safeguard employees, golfers, and other turf users.

Chiggers

The maddening itch that accompanies chigger bites must be experienced to be fully appreciated. Adult chiggers are 8-legged mites, about 1/32 in. (1 mm) long, with a bright red, velvety appearance. Adults and nymphs live on or in the soil, where they prey upon small arthropods and their eggs. These older stages don’t bite humans. Adults overwinter in the soil, becoming active and laying eggs in spring. The eggs hatch into tiny, 6-legged larvae, the stage that bites humans. Larval chiggers are so small that they are barely visible to the unaided eye.

Larval chiggers crawl up grass blades, weeds, or other low vegetation and soon grab onto a passing victim. They normally feed on rodents, ground-dwelling birds, or other wild hosts, but will also attack people. After feeding for a few days, the engorged chigger drops off and transforms into a free-living, soil-dwelling nymph, and later to an adult. The entire life cycle from egg to adult takes about 30 to 60 days, depending on temperature. Chiggers are most common in the southern half of the United States, where they may be active almost year-round, but may be abundant in the summertime in northern states, too. There are 1 to 3 generations per year in temperate regions, and as many as six in the southern USA.

On humans, chiggers tend to crawl upward until they reach a place where clothing is pressed against the skin. Bites are most common around the ankles, waistline, armpits, back of the knee, or groin area. Chiggers do not burrow under the skin. They feed by sinking their mouthparts, often at the base of a hair, injecting saliva, which partially digests the subcutaneous tissues, and then sucking up the resulting soup. Most people react to chigger saliva by developing dome-shaped, reddish welts within 24 hours. Reaction to the chigger’s saliva causes intense local itching that lasts for a week or more. Scratching usually removes the chigger but can result in secondary infection, sometimes accompanied by fever. Fortunately, the chigger species found in the USA do not transmit human diseases.

Ticks

Ticks, like chiggers, tend to be most abundant in tall grass, or weedy or brushy areas where wild hosts such as rodents and rabbits occur. They can be very abundant in out-of-play areas of golf courses, or in overgrown vegetation bordering lawns, parks, or sports fields. Besides creating anxiety and discomfort, tick bites can transmit several serious diseases, especially Lyme disease and Rocky Mountain spotted fever. They are active from early spring through September in the temperate states, or longer in the south.

Adult ticks have eight legs and lack wings or antennae, making them closely related to mites and spiders. All life stages except for eggs are blood-feeding, and most species feed on three different hosts to complete their life cycle. Mating usually takes place on the body of a host. The female tick then drops to the ground to lay a mass of eggs, which hatch into tiny larvae, or “seed” ticks. The larvae attach to a small animal, feed, and then drop off and molt to eight-legged nymphs. These then seek another host, feed, and drop off to transform to adults, which require a third blood meal before they reproduce. When hungry, ticks crawl up low vegetation to await a passing host, detecting it by vibration, body warmth, and exhaled
Lyme disease is a potentially dangerous bacterial infection that is transmitted through the bite of a small tick called *Ixodes scapularis*. Adults of this tick are about 1/8 in. (2 mm) long, less than half the size of adults of the common dog ticks. The nymphs are even smaller. But, larvae and nymphs of many common ticks are fairly small, so it's wise to save the tick to take to a physician or extension specialist if one suspects that it may be the Lyme disease carrier. Most reported cases have been in the Northeast, upper Midwest, and in California, but incidence of the disease is spreading. The disease is hard to diagnose because the early symptoms mimic the flu (fatigue, headache, fever, swollen glands, pain or stiffness in the neck, muscles, or joints). The most definitive early sign is gradually expanding circular or oval red rash at the site of the bite. However, this rash only develops in about two-thirds of infected persons, and it may be overlooked. Persons experiencing any of the above symptoms after being bitten by a small tick should see a physician immediately. In its early stages, Lyme disease can be successfully treated with antibiotics, but therapy becomes more difficult as the disease progresses. Left untreated, Lyme disease can result in chronic arthritis, heart disease, and neurological disorders. A new, preventive vaccine is available for persons who live or work in high-risk areas.

Management strategies for ticks are generally the same as described for chiggers. To remove an attached tick, grasp its head with tweezers, close to the skin, and pull slowly and steadily until the tick is dislodged. Do not squeeze or crush the tick, or touch it with a hot match, as these actions can cause it to regurgitate infected fluids into the wound. For both Lyme disease and RMSF, the tick must remain attached for at least 12 to 24 hours for the pathogens to be transmitted. Thus, periodic body checks for ticks greatly reduce one’s chances of being infected.

No N-source was consistently associated with higher levels of general microbial activity, when compared to the nonfertilized plots. General soil microbial activity data, which were collected in 1999 only, indicated that there was no correlation between soil microbial activity and dollar spot severity. In May and June 1999, higher tissue N levels were observed in all fertilized turfs, when compared to Earthgro Dehydrated Manure® and the nonfertilized plots. When disease pressure was moderately severe (i.e., May and June), there was a strong negative correlation (P ≤ 0.01) between the amount of foliar N and dollar spot severity. That is, there was less dollar spot severity in May and June, when disease pressure was in the low to moderately severe range. Thus, periodic body checks for ticks greatly reduce one’s chances of being infected.

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