

## Lyme Disease: An Occupational Hazard

Outdoor occupations have distinct advantages over office jobs. Most sports turf managers value the outdoor aspect of their profession. They should remember, however, that being outside has certain potential drawbacks. One is being exposed to deer ticks and the disease they transmit, Lyme disease.

Most people associate ticks with wild, unmaintained areas of tall grass, brush, and trees. The incidence of this disease in humans in the Northeast, the northern portion of the Midwest, and northern California reveals that the ticks do infest maintained turf areas where they make contact with their human victims.

The connection between the tick and the disease was first identified in the 1970s in Lyme, CT. Researchers found a high percentage of the people contracting a form of arthritis had pets. Infected tick nymphs and adults hiding in leaf litter or thatch would hitch a ride on a cat or dog then bite humans handling the pets.

The victims would first notice a rash at the bite location. As the disease progressed, they suffered headaches, fever, chills, nausea, fatigue, and pain in their muscles and joints. If untreated, the disease resulted in arthritis, meningitis, cardiac disorders, encephalitis, or facial paralysis. Since antibiotics can cure victims in the early stages of the disease, prompt detection and treatment are advised by physicians.

Summer is the peak deer tick season. Tick adults lay eggs in leaf litter. After hatching, the six-legged larvae seek a blood meal from a human, dog, cat, or other mammal. If the mammal they bite carries the disease pathogen, the tick becomes infected. After overwintering, the larvae become eight-legged, nymphs about the size of the head of a pin. The nymphs seek a spring blood meal before molting into adults, mating, and laying their eggs. It is the victim of this second blood meal that gets the disease. That victim could be anyone working in areas where infected ticks hide.



Deer tick on human skin.

### Disease Prevention

One obstacle to detection and treatment is the fact that Lyme disease symptoms mimic other diseases. Even its classic symptom, an expanding lesion or rash, is absent in 30 to 40 percent of the cases. Because the disease is hard to pinpoint, health experts in areas where the disease has been detected emphasize prevention.

Prevention centers around identifying and avoiding infested sites. If a site happens to be a park, golf course, or athletic field, the only practical alternative is treating with a pesticide. Furthermore, the peak season for the tick is also the peak season for recreational facility use.

Other means of protection include wearing protective clothing and applying insect repellent to shoes and exposed skin. Health experts recommend that people who are outside for any length of time examine themselves thoroughly for ticks immediately after returning indoors.

### Reducing Tick Populations

Although the deer tick is responsible for 80 to 90 percent of all reported cases, southern and western black-legged ticks have been linked to transmission of the disease in the Southwest and parts of Texas, Oklahoma, Arkansas, and Louisiana.

In 1990, the Environmental Protection Agency approved the registration of carbaryl (Sevin and Sevimol) for control of all three ticks. Tests by the New Jersey Department of Public Health revealed that a June application of the insecticide provided complete control of nymphs within 21 days and an 85-percent reduction in deer tick populations the following spring. A similar test by the New York State Department of Health of a November application showed 99-percent control of adults within 10 days. Rhone-Poulenc entomologist Dr. Jack Boyne says that deer ticks do not reinfest treated areas quickly, therefore, control lasts longer than the actual residual of the insecticide.

The application rate for the carbaryl products is two pounds per acre, a lower rate than needed for other turfgrass pests. Treatments for other turfgrass pests will control deer ticks.

A study by the chemical company established two major misconceptions about the deer tick problem. The first is that the ticks will not infest well-kept lawns. They can and have. Secondly, few homeowners realize that the pest is easily controlled with insecticides. When told of this option, 75 percent said they would have a pesticide applied if they felt endangered by the tick.

Although no means of control can offer complete protection against Lyme disease, insecticide applications, protective measures, and population reduction are critical to disease control. Since sports turf managers may be exposed to tick-infested areas more than others, they should be aware of the disease and know how to control tick populations at their facilities. □

*Technical credit: Rhone-Poulenc.*