

RESEARCH LABORATORY TECHNICAL REPORT



Ticks

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There are about seventy-five species of ticks in the United States, present in nearly all habitats. In most regions of the United States, the ticks most likely to be found on humans are the American dog tick (*Dermacentor variabilis*), blacklegged or deer tick (*Ixodes scapularis*), and lone star tick (*Amblyomma americanum*). All stages of the brown dog tick (*Rhipicephalus sanguineus*) prefer to feed on dogs; man and livestock are rarely attacked.

Damage

Ticks are parasites of nearly all land vertebrates, including snakes, tortoises, birds, and most species of mammals. Both male and female ticks are bloodsuckers. They remain attached for long periods of feeding (three to thirteen days) and can inject large amounts of their venom causing symptoms ranging from mild irritation to paralysis. One adult female American dog tick withdraws as much as two grams of blood and fluids in the act of engorgement. Large animal hosts, such as cows and horses, have been reported to lose 200 pounds of blood to ticks in a single year.

There are numerous human and animal disorders and diseases traceable to ticks. While inflammation, itching, and swelling at the site of the bite are the most common of these problems, tick-caused paralysis can occur if a tick becomes attached at the base of the skull and feeds there for five to nine days. Humans, particularly children, have been affected but most victims are domestic animals.

Lyme disease is caused by a bacterium transmitted to humans by blacklegged ticks. This disease has been confirmed in tens of thousands of US residents in recent years. Symptoms of Lyme disease include a skin rash, headache, fever and fatigue. Chronic infections

can have more serious long-term consequence to joints, the heart and the nervous system. Ticks acquire the bacterium from feeding on infected rodents during the early larval stage. Upon development into nymphs and adults, infected ticks feed on mammals and are able to transmit the bacterium to humans.

In the East, the American dog tick is the primary vector of the Rocky Mountain spotted fever. This rickettsia-caused disease of the small peripheral blood vessels kills approximately 20% of its victims. Ticks infected with the disease must feed on a human at least two hours for transmission to occur. In most areas, only a small percentage of ticks carry the disease and the virulence of the organism is variable. The most characteristic early symptom of Rocky Mountain spotted fever is a rash on the wrists and ankles appearing two to five days after a tick bite. Later symptoms include intense low backache, headaches, and fever.

Biology

Ticks are not insects, but are members of the class Arachnida, which includes spider mites. A female American dog tick lays 4,000 to 6,500 eggs after becoming engorged with blood. After hatching from the eggs, the unfed larvae, which have only three pairs of legs, crawl through vegetation seeking hosts. At this

stage, most of them will feed on meadow mice and other small animals. After engorging, they molt and become eight-legged nymphs. They feed on another animal, molt and become adults. It is the adult ticks which are most commonly encountered on pets and humans. The fact that ticks feed on three different animals makes them ideal vectors of disease. Ticks tend to climb vegetation and congregate along paths and roads, drawn by the vibrations, heat and carbon monoxide of passing animals. Adults may live for more than two years without feeding while they seek a host. Ticks normally contact people and dogs when they brush up against the tips of tall grasses and shrubs.

Preventing Tick Problems

Inspect children and pets daily when they have been exposed to high tick areas. Dogs and cats with ticks should not be allowed in the house until the pests are removed.

Proper tick removal is best accomplished by grasping a tick with tweezers near its head and with a slow, steady pull gradually remove the mouthparts from the skin. A tick may also be coated with Vaseline or fingernail polish to force it to withdraw its mouthparts. Dispose of ticks by dropping them into a container of alcohol or flushing them down a toilet. Do not crush ticks with the fingernails. If hands have touched a tick during removal, wash them thoroughly as tick secretions may carry disease organisms.

Repellants are effective when applied to socks, pants, and exposed parts of the body. Wear protective clothing, such as long pants and boots, when entering tick-infested areas.

Cutting grass and other vegetation in four to six foot bands along each side of walkways and paths will reduce tick populations. Grass over six inches high protects ticks against drying in the sun. Tall vegetation also has the disadvantage of providing cover for host animals, such as mice.

Applying insecticides can control ticks in areas of high human use. Treatments are generally applied to grassy and brushy areas along roadsides, picnic areas, and footpaths. Please contact your Bartlett Arborist Representative to learn about control options.



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