

TICKS AND DISEASE: ANSWERS TO OFTEN ASKED QUESTIONS

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Few pests evoke as many questions from people as ticks. Besides their repulsive appearance, ticks are vectors of potentially debilitating and life-threatening diseases. Lyme disease, in particular, has attracted national attention and is now the number one arthropod-borne disease in the United States. Although Lyme disease is more prevalent in eastern and midwestern states, media coverage has prompted many questions and concerns from citizens here in Kentucky. This publication provides answers to often asked questions about ticks and the diseases they may transmit.

► **I've been finding ticks on my child/pet. Where do they come from, and what can I do to prevent further occurrences?**

Ticks prefer to live in woods, tall grass, weeds and brush. They climb onto low vegetation and attach to suitable hosts which pass by, including pets and people. Ticks are seldom a problem in well-maintained lawns although edges of property supporting tall weeds and brush can be a source of infestation. The best way to avoid acquiring ticks is through prevention.

1. Avoid walking through uncut fields, brush and other areas likely to harbor ticks. When hiking or picnicing in these areas, wear long pants tucked into socks and consider using tick repellents. Walk in the center of mowed trails to avoid brushing up against vegetation.
2. Inspect family and pets after being in tick-infested areas, and promptly remove any ticks which are found (ticks most often attach at the neck and scalp). Use the method of removal described below.
3. Keep grass and shrubs in your yard trimmed, and clear overgrown vegetation from edges of your property. Ticks avoid direct sunlight and will not infest areas which are well maintained.
4. Free-roaming pets are much more likely to become infested with ticks than are those which are confined. Pets may be treated with insecticide dips or sprays, although these products generally lose effectiveness in about a week.

5. Treating lawns is of little benefit since this is not a preferred habitat for ticks. If insecticides are used, treatment should be concentrated in areas where pets, rodents, and other potential wild hosts of ticks are likely to frequent, e.g., dog house, fenceline, and along margins between wooded or brushy areas and the lawn. Carbaryl (Sevin), chlorpyrifos, and diazinon are effective materials, as is permethrin. Make 1-2 applications – the first during April or May when ticks are detected, and another, if needed, in early July. A good way to determine if ticks are present is to drag a 3x3-ft white flannel or cotton sheet through suspected areas. Ticks will attach to the sheet and be visible against the white background.

► **What's the best way to remove an attached tick?**

Using a fine-point tweezers, grasp the tick just behind the point of attachment and pull slowly and steadily until the tick is dislodged. Vaseline, matches and other alternate methods of removal should be avoided. Wash the bite area, apply antiseptic and cover with a band-aid

► **What is Lyme disease?**

Lyme disease is a potentially serious bacterial infection, transmitted through the bite of certain species of ticks. The disease affects humans and a wide range of animals including pets and livestock. Lyme disease manifests itself in many ways and if left untreated may progress through several stages. The disease is difficult to diagnose clinically because early symptoms often mimic the flu (i.e., fatigue, headache, stiffness or pain in neck, muscles or joints, fever, or swollen glands). The most definitive early symptom is a gradually expanding circular or oval-shaped red rash. This rash only develops in about 70% of infected individuals, however, and may be overlooked.

Persons who experience any of the above-mentioned symptoms after being bitten by a tick (or having spent time in tick-infested areas), should consult a physician immediately. Lyme disease can be treated successfully in these early stages with antibiotics. As the disease progresses, it becomes more difficult to manage. Later symptoms of infection may include heart and neurological disorders, and arthritis.

► **How can I tell if the tick I just removed is capable of transmitting Lyme disease?**

The two tick species which are most common in Kentucky are the American dog tick and the lone star tick. Neither has been shown to transmit Lyme disease. The adults of these species are comparatively large, being about the size of a pencil eraser. Adult ticks of the variety most often responsible for transmitting Lyme disease (e.g., *Ixodes dammini*), are considerably smaller – adults are about the size of the head of a pin.



Photo courtesy of University of Florida Entomology
AMERICAN DOG TICK

Therefore, if the tick that was found is pencil eraser-size or larger, it's probably an American dog tick or lone star tick and, consequently, not a vector of Lyme disease.

Definitive tick identification, however, requires the expertise of an entomologist. Immature stages of lone star and *Ixodes* ticks are both extremely small (about the size of a sesame seed), and are easily mistaken for one another. The University of Kentucky Entomology Department will identify ticks originating from Kentucky at no charge. Specimens should be sent to the Department of Entomology Insect Identification Lab,



Photo courtesy of University of Florida Entomology
LONE STAR TICK

S-225P Agricultural Science Center North, University of Kentucky, Lexington, KY 40546-0091. Place the ticks in alcohol-filled vials accompanied by the date and county from which the tick was

collected.

It should be noted that ticks capable of transmitting Lyme disease must be attached for at least 24 hours for infection to occur. A person cannot become infected simply by having a tick crawl over their skin or clothing.

► **Just how prevalent is Lyme disease in Kentucky?**

Fifty-one cases of Lyme disease were reported to the Kentucky Department of Health Services during 1985-90. Forty-four additional cases were reported in 1991. It is unclear how many of these infections actually resulted from tick bites received in Kentucky, since many of the victims had previously visited or lived in other states where Lyme disease occurs. Agencies within our state also are surveying for ticks and animal hosts infected with the Lyme disease bacterium (*Borrelia burgdorferi*). Neither the American dog tick nor lone star tick (the two

most common ticks in Kentucky) appears to be a vector of the disease. And to this point, none of the proven tick vectors of Lyme disease (*Ixodes* spp.) have been found.

In summary, Lyme disease is present in Kentucky but the mechanism of transmission is not yet known. Until more is known, people should be aware of the early symptoms of the disease, and should see a physician if they suspect they may have been bitten by a tick.

► **I've heard the term "deer tick" used when describing ticks which transmit Lyme disease – don't we also have deer ticks in Kentucky?**

"Deer tick" is the term commonly used when referring to *Ixodes dammini*, the principal vector of Lyme disease in the Northeast. In Kentucky, the same term is used when referring to nymphal lone star ticks which are commonly found in western and south central portions of the state. Lone star ticks are not considered to be a vector of Lyme disease, although they can transmit Rocky Mountain spotted fever

► **How important is Rocky Mountain Spotted Fever (RMSF) in Kentucky?**

Rocky Mountain spotted fever has not received the media attention of Lyme disease, but is potentially more deadly. Each year there are roughly 10-30 reported cases of RMSF in Kentucky. (there were 31 reported cases in 1991). Although RMSF can be successfully treated with antibiotics, medical experts estimate that without treatment, 20% of those infected could die.

In Kentucky, the primary vector of RMSF is the American dog tick, although lone star ticks may also transmit the pathogen (a rickettsia). Symptoms of RMSF are flu-like, accompanied by headaches and a very high fever (104-106 degrees F) two to twelve days after being bitten by a tick. The most characteristic symptom of RMSF is a rash that appears on about the second to fifth day on the wrists and ankles, later spreading to other parts of the body. In most cases, the tick must be attached for at least a day for infection to occur.

In conclusion, ticks are the small price we pay for living in a state which is esthetically pleasing. By taking certain precautions against acquiring ticks, and knowing early symptoms of tick-borne illness – you will be able to enjoy the outdoors with greater peace of mind.