**Lyme Disease and Tick Management**

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Lyme disease is caused by a bacteria that is carried and transmitted through bites from several species of ticks. This disease was first recognized in 1976 and has now occurred in 47 states, including Nebraska. By 1993, Nebraska health officials reported 35 human cases: 11 of these cases were confirmed as having been contracted in Lancaster county. Early signs of the disease include: a red rash which expands in concentric circles outward from the tick bite producing a “bulls-eye” effect. Later, flu-like symptoms occur which include headache, fever, chills, lethargy, and joint and muscle pain. In advanced untreated cases, there may be arthritis-like symptoms in the knees and shoulders and cardiac abnormalities. In most cases, antibiotics have shown to be an effective treatment of this disease, especially in early stages of the disease. There is no vaccine presently available for humans.

Lyme disease can also infect dogs, horses and cattle. In dogs, Lyme disease can cause fever, joint swelling, pain, arthritis, and lameness. Infected dogs may also exhibit a loss of appetite, depression and lethargy. This disease is rarely fatal in dogs, but it can be debilitating and antibiotic treatments can be long and expensive. A vaccine against Lyme disease for dogs is available from a veterinarian and is an initial series of two shots, followed by a yearly booster shot.

The most common carriers of Lyme disease are the deer tick and the western black-legged tick, neither of which are found in Nebraska. We do not know for sure what tick is vectoring Lyme disease in Nebraska. Based on circumstantial evidence, it is believed that immature stages of lone star ticks are responsible for most of the cases of Lyme disease in Nebraska. The lone star tick is found primarily in the southeastern part of Nebraska, and this geographical region has the greatest numbers of Lyme disease cases and the greatest risk of contracting the disease. In addition, the white-tailed deer is a host for adult lone star ticks in the fall, and high populations of deer in southeast Nebraska may related to increases in tick populations in that area.

Exposure to ticks can be reduced by employing the following practices:

1. **Cultural.** Keep grassy and weedy areas trimmed to reduce harborage for tick hosts. The reservoir tick host that carries Lyme disease is the white-footed mouse.

2. **Avoidance.** Whenever possible, stay out of tick-infested areas, grassy pastures, prairies, and wooded areas. Restrict movement of your dog.

3. **Proper Clothing.** When entering tick-infested areas, wear long-sleeved shirts and long trousers with tight-fitting cuffs. Wear light-colored clothing. Ticks are easier to see on a light background.

4. **Repellents.** Use an insect repellent containing the active ingredient diethyl toluamidide (DEET). Apply to clothing and areas of exposed skin such as hands, wrists, ankles and neck. Protect dogs with flea and tick collars. Be sure to read and follow label directions.

5. **Inspection and Removal.** Inspection and removal of ticks reduces the risk of Lyme disease transmission. After crawling on a potential host, a tick may take up to a day to attach and feed, so you may be able to remove a tick before it has attached. In addition, the risk of disease transmission is related to the length of feeding so attached ticks should be removed promptly. Ticks tend to concentrate on the head, shoulders, neck and in ear canals. Remove embedded ticks with forceps, by gripping the tick carefully at the point of attachment and pulling upward in a slow but firm manner. Care should be taken when removing a tick from pets or humans to insure that the entire tick is completely removed from the skin (the head often breaks off). After removal, wash the wound with soap and water and apply alcohol or some other disinfectant to help prevent infection.

6. **Insecticides.** Around the outside of the home, tick numbers can be reduced by using residual insecticides such as carbaryl (Sevin®), chlorpyrifos (Dursban®) and diazinon. Follow label instructions. For tick control on pets, use only baths, sprays, and dips that are recommended by your veterinarian.

To check for ticks in your yard or acreage, you can drag a white cloth (such as an old pillowcase) through the vegetation as you walk. Ticks, waiting at the top of a blade of grass or shrub for a passing host to wander by, will grab hold of the cloth and be easy to see against the white background.

**Summary**

Lyme disease can be a serious health problem if left undiagnosed and untreated, but the disease is usually easily treated with antibiotics when in early stages. A red rash that resembles a “bulls-eye” is an early sign of the disease. Because the bacteria that causes Lyme disease is transmitted through tick feeding, efforts to reduce exposure to ticks will help reduce incidence of the disease. Management tactics include mowing tall grasses, avoidance of infested areas, wearing appropriate clothing and using tick repellents, inspection for and prompt removal of ticks, and insecticide sprays around the outside of the home. Tick management strategies utilizing several of these tactics will be the most effective.