

## Least-toxic Control of Ticks

Ticks have been receiving a great deal of attention because of the concern over Lyme disease. Early in the 20th century, European physicians observed patients with a red, slowly expanding rash. They associated this rash with the bite of ticks, and postulated that it was caused by a tick-borne bacterium. In the 1940s, similar tick-borne illness was described that often began with same type of rash and developed into multi-system illness. A physician in Wisconsin diagnosed a patient with this rash, called erythema migrans or EM, and successfully treated it with penicillin in 1969.

In the mid-1970s, physicians observed clusters of children with arthritis in and around Lyme, Connecticut. Other clinical symptoms and environmental conditions suggested that this was a distinct illness probably transmitted by an arthropod. Researchers linked the presence of EM rash lesions to tick bites and determined that early treatment with penicillin not only shortened the duration of EM but also reduced the risk of subsequent arthritis.

In 1982, spirochetes were identified in the midgut of the adult deer tick. Finally, conclusive evidence that the black-legged tick caused Lyme disease came in 1984, when spirochetes were cultured from the blood of patients with EM, from the rash lesion itself, and from the cerebrospinal fluid of a patient with meningoencephalitis and history of prior EM.

The disease is caused by the bacteria *Borrelia Burgdorferi*. It is spread by a number of different ticks, but the deer tick is the most common vector. The white footed mouse usually carries the bacteria. Ticks often reside in the den of the mouse, feed on the mouse's blood in the early stages of their life and pick up the bacteria. During later feeding on humans, they can pass on the bacteria.

Symptoms of Lyme disease can vary from person to person, but in most cases a bump that looks like a bulls eye develops along with a possible rash at the site of the bite or elsewhere on the body. The bump will be red on light skin and look like a bruise on dark skin., and will usually occur within 30 days of a bite. In that time, the person may also develop flu-like symptoms: fatigue, chills, headache, muscle and joint aches, and a low fever. In about 25% of cases no rash or bump will develop at all. Anyone bitten by a tick in an area with a high rate of Lyme disease should contact their doctor.

Contact with ticks occurs when we venture into the grassy or wooded areas where they live. They can also be brought into homes on pets that roam outside - especially if pets wander in areas that provide a good mouse habitat. Common mice habitats include woods, bushes, leaf piles, burrows and other areas that provide cover to protect them from their predators.

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There is no way to completely rid an area of ticks. Conventional pesticides have been ineffective and create risks for people and the environment. For a pesticide to work, it must come in with or be consumed by the pest. Ticks do not eat vegetation and are likely to spend most of their lives in sheltered areas, like mouse burrows, where pesticides will not come in contact with them.

Some techniques have been effective in significantly reducing the population of ticks in a given area. It is important to understand the life cycle of the ticks and their relationship to other animals.

### **Prevention**

- Do not let your pet go outside, especially in the summer.
- If your pet goes outside, keep it out of known tick-infested areas.
- Confine your pet to certain areas for sleeping, and wash bedding regularly to remove ticks.
- Reduce tick populations by discouraging mice.
  - Remove piles of leaves or other debris that may provide shelter for mice.
  - Clean around bushes and under trees.
  - Store wood piles away from the home and elevate them.
  - Keep metal trash containers with tightly closed lids.
- Wear light-colored clothing that covers your body, especially your legs. It is easiest to spot ticks on light clothing, and they can be removed before they bite.
- Tuck your pants into your socks.
- Wear a hat.
- Use only unscented deodorant, soap and shampoo. Packers Tar Soap seems to keep ticks from biting once they have been picked up.
- Use an herbal repellent that is effective against ticks.

### **Monitoring**

- Regularly check your pet for ticks using a flea/tick comb, available at most pet stores. Check your pet each time they have been outdoors, or at least twice a week. Pay special attention to the areas behind the ears and between toes. Be careful not to break off any embedded ticks, and remove any found

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ticks in the same way described for humans. Clean the wound with soap and water and apply antiseptic. The tick can be killed by placing it in soapy water or alcohol.

- Rub a masking-tape lint roller over the trunk and heads of small cats or dogs to capture ticks.
- Frequently check the areas where your pet sleeps.
- Check your entire body for ticks if you have been in an area where ticks are present, soliciting help or using a mirror for hard-to-see areas. Pay special attention to behind the ears, the back of the neck, between toes, and the groin.
- Take a shower to wash off any ticks that have not yet become embedded.
- Check anything you were carrying and wash clothing in soapy water to kill any unnoticed ticks.

### **Control**

- If you find an embedded tick, **remove it** carefully. Protect your hands with gloves or a tissue. Use blunt, curved tweezers, not your bare fingers, and exert pressure on the head of the tick and gently pulling the tick straight out very slowly. Do not twist and do not crush the tick. The body fluids can cause infection if exposed to even unbroken skin. Do not kill the tick while still embedded. Coating with petroleum jelly will block its breathing apparatus and force it to withdraw, usually within 30 minutes. Kill the tick in soapy water or alcohol, clean the wound with antiseptic, and monitor carefully for any signs of infection.
- Use a **tick drag** to reduce tick populations in an area. The idea is to drag a piece of light-colored flannel cloth across vegetation where ticks may be waiting for a host. Ticks will attach themselves to the cloth and then can be killed by placing the cloth in soapy water. It is best to drag any areas where you or your pets may be walking – along a path or where your pet rests. Use caution when doing a tick drag, as the person doing the drag is at risk for being bitten by a tick.
- **Carbon dioxide traps** also effectively reduce tick populations, as ticks are attracted by the carbon dioxide emitted by their hosts. Dry ice is placed in a trap where it will emit carbon dioxide and attract ticks.

Place 2 lbs. dry ice in a bucket and punch ½ inch holes near the bottom. Place the bucket on a piece of plywood or flannel material with a strip of masking tape around the edge, sticky side up. The tape can be secured with tacks or

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staples. The trap will last about 3 hours. Check the trap frequently, removing any ticks found with tweezers. After the dry ice is gone, check again for any ticks, and soak the cloth in soapy water to kill any ticks found.

### **References**

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