



MANAGING TICKS ON YOUR PROPERTY

Prepared by Kirby C. Stafford III, Ph.D. (March 2005)

The Connecticut Agricultural Experiment Station, 123 Huntington St.-Box 1106, New Haven, CT 06504
(203) 974-8485, Web site: <http://www.caes.state.ct.us>

In Connecticut, the two most common ticks are the blacklegged tick, *Ixodes scapularis*, which is commonly known as the deer tick, and the American dog tick, *Dermacentor variabilis*. The establishment of homes in wooded areas has increased the potential for contact with wildlife and their ticks. You can reduce the number of ticks near your home by landscaping changes, manipulating or treating tick hosts, and the selective application of least-toxic pesticides. Most people acquire Lyme disease from the nymphal stage of the “deer” tick, which is active during late spring and summer. Therefore, most control efforts are targeted towards the nymphal stage. Adult *I. scapularis* are active in the fall, warm days of winter, and spring. More detailed information is available in the Experiment Station’s Tick Management Handbook or other fact sheets (available on our website).

Landscape modifications . . .

Deer ticks are most abundant in the woods where hosts for the tick flourish and ticks find high humidity levels necessary for survival. On lawns, most deer ticks (82%) have been recovered within 9 feet of the lawn edge, especially areas adjacent to woods, stonewalls, or ornamental plantings. Fewer ticks are found in the sunny, manicured areas of the lawn. Ticks may also be found in groundcovers such as *Pachysandra*.



Create a tick safe zone by altering the landscape to increase sunlight, reduce tick habitat and discourage rodent hosts. Create a clearly defined, manicured border. A dry wood chip, tree bark, mulch, or gravel barrier between woods and lawn can reduce tick migration into the lawn. The removal of leaf litter at the lawn perimeter also can help reduce the number of *I. scapularis* nymphs on the lawn. Landscape modifications include:

- Keep grass mowed.
- Prune trees, mow the lawn, and clear leaf litter and brush, especially along edges of the lawn, stonewalls, and driveways.
- Move play sets away from the woodland edge.
- Restrict groundcover in areas frequented by family.
- Adopt some landscaping practices such as gravel pathways, mulches, decking, stone, tile, and other hardscapes around the home. Wildflower meadows, herbal gardens, etc. have very few ticks and may be an acceptable alternative to grass in some areas.

Exclude key wildlife . . .

Deer are important to the reproduction of the deer tick. The exclusion of deer from large areas by fencing and reductions in the deer population has been shown to reduce tick abundance. For example, deer tick larvae, nymphs and adults were reduced by 100, 85, and 74%, respectively 300 feet within an area surrounded by an electric deer fence. Fencing smaller areas probably would not be as effective without the addition of other management strategies (eg. landscape modifications, perimeter barrier application of an insecticide, bait boxes, etc.).



Don't attract key wildlife hosts. . .

Discourage tick wildlife hosts (not all wildlife) by reducing targeted habitat and food sources. Clean up stonewalls near the home that provide shelter for mice and chipmunks. Place woodpiles away from the house.

Discourage browsing by deer around the home by planting landscape plants that are less palatable to deer. While no plant is



completely resistant from deer damage, some plants are highly susceptible to deer browse. Plant the most deer resistant plants along the edge of the property to deter deer from including your landscape as part of their feeding territory. A list of susceptible and resistant annuals, perennials, shrubs, and trees is available in Experiment Station Bulletin No. 968 Limiting Deer Browse Damage to Landscape Plants. A deer repellent may also reduce the attractiveness of plantings to deer.

Chemical control . . .

Acaricides (pesticides or insecticides that kill ticks) may be applied to lawns and woodland edges to kill ticks around the home. Many pesticide products are restricted to licensed commercial pesticide applicators. Both liquid and granular formulations have been reported effective against *I. scapularis*. A sufficient spray volume and pressure for thorough coverage and penetration of the vegetation and leaf litter is needed. Wooded areas adjacent to the home should be treated for maximum effectiveness.

TIMING AND FREQUENCY OF APPLICATION: The optimum time for an application to control the nymphal deer ticks would be mid-May to early June. A single application of most insecticides is sufficient for the summer tick season. A fall application may be used to control adult *I. scapularis* (with an early spring application if no fall application was made).



Acaricides labeled for the control of ticks in the residential landscape include the following chemicals. Information is intended as a guide, always read and follow EPA approved label on product container.

- **Bifenthrin** (Talstar®, Ortho® products). A restricted use pyrethroid insecticide for use by licensed applicators only.
- **Carbaryl** (Sevin®). Carbamate insecticide. A common garden insecticide, some products are for commercial use only.
- **Cyfluthrin** (Tempo®, Powerforce™). A pyrethroid insecticide. Most products for commercial licensed applicator use only, some homeowner formulations now available. One of the most commonly used commercial products for tick control.
- **Deltramethrin** (DeltaGard®). A pyrethroid insecticide that can only be used by licensed applicators.
- **lambda-cyhalothrin** (Scimitar®, Demand®). A restricted use pyrethroid insecticide for use by licensed applicators only.
- **Permethrin** (Permethrin, Mosquito-Off®, Astro®, Ortho® products, Bonide® products, Tengard® SFR, others). A pyrethroid insecticide. Some are concentrates and some are ready to spray products, mainly for homeowners.
- **Pyrethrin**. (Pyrenone®, Kicker®, Organic Solutions All Crop Commercial & Agricultural Multipurpose Insecticide®) Pyrethrins are derived from the chrysanthemum flower. They are often combined with the synergist piperonyl butoxide (PBO), which increases the killing power of pyrethrin, or insecticidal soap. Only a combination of pyrethrin and PBO with either insecticidal soap or silicon dioxide (diatomaceous earth) was found highly effective against ticks. Thorough coverage appears vital for these materials to be effective as there is little residual activity. Two applications may be required.
- **Note that the Environmental Protection Agency has cancelled chlorpyrifos (Dursban) and diazinon for residential lawn use** (see www.epa.gov/pesticides).

Treatment of Tick Hosts . . .

Maxforce® Tick Management System. A rodent bait box that treats mice and chipmunks with fipronil has been shown to reduce the tick population in a large-scale island community trial. The Maxforce TMS is available commercially through a licensed pesticide applicator. Maximum benefit is most likely if many residents within a neighborhood use the box. Boxes are placed every 30-60 feet around the lawn-woodland perimeter of the property and potential mouse nesting sites (see www.maxforce.com).



Damminix®. Permethrin-treated cottonballs target larvae and nymphs of *I. scapularis* on white-footed mice. Product effectiveness is dependent upon the collection of the cotton as nesting material from distributed tubes. No reduction in the number of infected, host-seeking deer tick nymphs in woodland and residential areas of about 4 acres or less was found in CT and NY trials. A reduction in nymphal ticks was reported in a Massachusetts study with the treatment of one 18-acre site.

4-Poster Tickicide. Permethrin is labeled for passive application to deer in many states via the 4-poster deer feeding stations. Licensed by the American Lyme Disease Foundation, the devices have been shown to reduce tick populations in treated neighborhoods by roughly 60-70% over several years of use (~1 per 120 ac). Use of the 4-poster device is not approved in all states and permits from state wildlife authorities may be required.

Use pesticides safely!

The pesticide label provides information on the active chemical ingredients, formulation, pests and sites for which it can be legally used, directions for use, precautions, hazards to humans, wildlife and the environment, and first aid instructions. **Always read and follow pesticide label directions and precautions.** Not all brands of a particular pesticide will be labeled for area tick control, check the label. Medical information about the active ingredients in a pesticide is available from the **National Pesticide Information Center**, telephone (800) 858-7378. Most of these chemicals are highly toxic to fish and other aquatic organisms and application to or near water should be avoided.

Mention of a pesticide product does not constitute an endorsement by the CT Agricultural Experiment Station