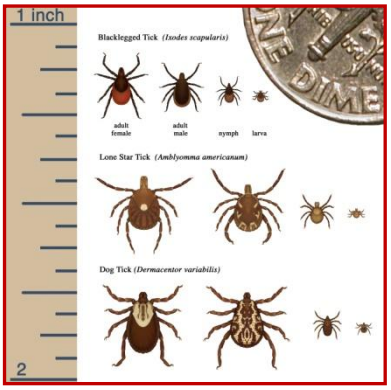


TICK SAFETY TIPS!

Start by dressing safely:

- ✓ **Cover yourself with light-colored clothing as much as possible.**
- ✓ **Tuck pants into socks.**
- ✓ **Cover your head and hairline.**

Use insect repellents safely according to the labels:

- ✓ **Spray specified DEET compounds on your clothing only.**
- ✓ **Spray safer tick repellents on your skin (see attached guidance).**

Stay away from areas that have higher numbers of ticks:

- ➢ **Stay in the center on open trails, away from tall grasses and shrubs.**

This is so very important!
Find and remove any ticks as soon as possible!

- ➢ **Do a tick check often while you are outside. – *Removing ticks before they attach to your skin prevents disease.***
- ➢ **Be thorough! Check all over your body, especially warm areas, creases, and the scalp-hairline.**
- ➢ **Change all clothing immediately when you get home and wash and dry the clothing thoroughly.**
- ➢ **Shower soon after getting home and conduct another thorough check for ticks (they may be small and feel like a tiny poppy seed !**
- ➢ **Continue to check daily. – Make "checking" part of your post-shower/bath routine!**

If you find an attached tick; carefully remove it using tweezers grasped close to the skin at the mouth of the tick.

- ➢ **Report any ticks found attached to your skin to your health care provider.**
- ➢ **Ticks may be submitted to your local Health Department and sent to the CT Agricultural Experiment Station for testing. (See below.)**
- ➢ **Become informed about symptoms of the various illnesses that may be associated with different types of ticks.**
- ➢ **Contact your health care provider immediately if you have any symptoms of tick borne diseases listed in the following information.**
- ➢ **Look for any rashes, red rings, or red areas on your body for up to 30 days after removing the tick.**

The following information can be found on the Centers for Disease Control and Prevention (CDCP) website at :

https://www.cdc.gov/ticks/

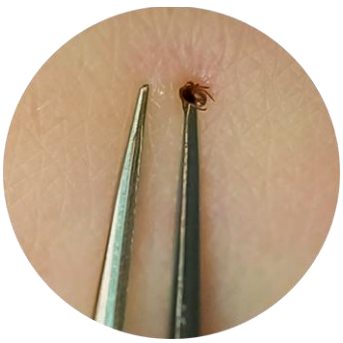
Ticks are generally found near the ground, in brushy or wooded areas. They can't jump or fly. Instead, they climb tall grasses or shrubs and wait for a potential host to brush against them. When this happens, they climb onto the host and seek a site for attachment.

Prevention

1. Use Environmental Protection Agency (EPA)-registered insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone. Treat clothing and gear, such as boots, pants, socks and tents with products containing 0.5% permethrin. Additional repellent options are available. EPA's "repellant search tool" can help find the product that best suits your needs. ***Use only as directed!***
   https://www.epa.gov/insect-repellents
2. Treat dogs and cats for ticks as recommended by a veterinarian.
3. Check for ticks daily, especially under the arms, in and around the ears, inside the belly button, behind the knees, between the legs, around the waist, and on the hairline and scalp.
4. Shower soon after being outdoors.
5. Learn more about landscaping techniques that can help reduce tick populations in the yard.

Tick Removal

1. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible. The key is to remove the tick as soon as possible. Avoid folklore remedies such as using nail polish, petroleum jelly, or heat to make the tick detach from the skin.
2. Pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin. If this happens, remove the mouth-parts with clean tweezers. If you are unable to remove the mouth parts easily, leave them alone and let the skin heal.
3. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.
   (Photos courtesy of Mike Wren, NY State Department of Health)


The information below may be found on the CT Agricultural Experiment Station website: https://portal.ct.gov/CAES

Create a Tick-Safe Zone Through Landscaping

You can make your yard less attractive to ticks depending on how you landscape. Here are some simple landscaping techniques that can help reduce tick populations:

- Clear tall grasses and brush around homes and at the edge of lawns.
- Place a 3-ft wide barrier of wood chips or gravel between lawns and wooded areas and around patios and play equipment. This will restrict tick migration into recreational areas.
- Mow the lawn frequently and keep leaves raked.
- Stack wood neatly and in a dry area (discourages rodents that ticks feed on).
- Keep playground equipment, decks, and patios away from yard edges and trees and place them in a sunny location, if possible.
- Remove any old furniture, mattresses, or trash from the yard that may give ticks a place to hide.
- Refer to the Connecticut Agricultural Experiment Station's Tick Management Handbook for a comprehensive guide to preventing ticks and their bites through landscaping.

https://portal.ct.gov/CAES/Tick-Office/Tick-Office/Tick-Related-Information

Information on Submitting Ticks

Who may submit a tick?

Ticks will be accepted only from residents of Connecticut. Ticks should be submitted by residents to their municipal health departments. The health departments will then submit ticks to us with a request for identification and/or testing for the causative agents for Lyme disease, anaplasmosis, and babesiosis.

How to locate your local health department or district:

Contact information for your local health departments can be found online at:
https://portal.ct.gov/DPH/Local-Health-Admin/LHA/Local-Health-Administration---Site-Map

How much do you charge to test a tick?

Tick testing is offered by The Connecticut Agricultural Experiment Station as a public service and there is no fee for tick identification and/or testing. Municipalities or local health departments/districts may charge a nominal fee for handling and mailing.

What information should be submitted with the tick?

The CAES Tick Submission Form should be completely filled out and packaged along with your tick. Please read the entire form carefully to ensure you are providing the proper information. Please leave a note if you are submitting more than one tick with a single submission form.

How should ticks be prepared for sending?

Preparing the tick:

- **Do not place the tick on tape.**
- Ticks should be placed in a crush-proof container, but if one is not available a sealed plastic bag will suffice.
- Do not package the tick in glass or in other fragile containers.
- Do not package the tick with any objects. This includes paper towels, cotton swabs, plant matter, bandages, or any other materials.
- Do not place the tick in any solution. This includes substances like water and alcohol. All ticks should be submitted dry.

Preparing the envelope:

- The crush-proof container housing the tick should be tightly sealed and packaged in a padded envelope.
- If a padded envelope is not available, a small sheet of bubble wrap can be added to a regular envelope to help protect the tick from being damaged.
- Please request the mail carrier to handle the envelope containing tick manually and not through a machine. “Please hand sort” can be written on the envelope to help achieve this.

Where should tick samples be sent?

If you are unable to send the tick through your local health department, please submit samples directly to: The Connecticut Agricultural Experiment Station
Tick Testing Laboratory, Slate Laboratories, Room # 303
123 Huntington Street, P.O. Box 1106
New Haven CT, 06504

Samples may also be dropped off in-person at the Tick Testing Laboratory located at the aforementioned address.

Do all ticks submitted get tested for Lyme disease?

We accept all ticks for identification but only test those who have a risk of transmitting the causative agents of Lyme disease, anaplasmosis, and babesiosis to a human host. Due to limited resources at the Tick Testing Program and relatively small percentage of ticks infected, ticks are not currently tested for Powassan virus. However, in view of the potential human health risk, preparations are underway to test ticks for this virus, in addition to the other pathogens. *Ixodes scapularis*, also known as the blacklegged or deer tick, is the primary vector for these pathogens and is the only species of tick tested in our lab. We do not test the American dog tick (*Dermacentor variabilis*), or the lone star tick (*Amblyomma americanum*) as they are not vectors for the aforementioned disease-causing agents.

Larval ticks of all species are not tested as they have not had the opportunity to become infected with any pathogens. Ticks that are unengorged are not tested. Ticks need to feed for nearly 40 hours to transmit the causative organisms of Lyme disease to humans, though this may vary for anaplasmosis and babesiosis. Ticks without blood in their midguts have not been attached long enough to pose a risk of infection. Male ticks are not tested as they rarely and briefly engage in blood-feeding and have not been documented to transmit pathogens.

Due to limited resources, we only test ticks that have fed on humans. If you submit a tick found on your pet, it will be identified to the species level and engorgement status but will not be tested.

How are results communicated and how long does it take to receive a report?

Results are communicated via e-mail only. Please wait for communication from the Tick Testing Laboratory for results. Phone inquiries cause delays in the analyses of ticks. If you submitted your tick through your health department they may communicate the results to you as well.

Reporting time depends largely on the number of ticks received throughout the year. During high points in tick activity, processing time may be delayed. Ticks are tested on a first-come first-serve basis.

Table 1. List of insect repellents by active compound for The Prevention of Tick Bite and Tick-Borne Disease: Tick Checks and the Use of Tick Repellents Factsheet.

Active Ingredient	Concentration Protection Time	Brands or formulations	Characteristics
DEET	5-98% Lasts 2-5 hours depending on concentration	Many brand names and formulations available from several manufacturers (~230 products); major drug store chains also carry their own labels.	Cheap, good safety record, broad-spectrum efficacy, but oily, can damage plastics
DEET	33% Lasts 8-12 hours	3M Ultrathon™ (polymer-based) Sawyer Controlled Release (microencapsulated)	Controlled release formulations
Picaridin KBR3023	5-30% Lasts 2-10 hours depending on concentration	Available US in 1999 (since 1970s as Bayrepel® or Autan® in Europe). Brands incl. Sawyer, Avon Skin-so-Soft, Cutter® , KBR30123, Natrapel	Safe, some labels not registered for ticks. ≥ 20% conc. effective against ticks. No oily or greasy feel.
p-menthane-3,8-diol	10-40% Lasts 2-8 hours	Oil of Lemon Eucalyptus; brands include Coleman Botanicals, Cutter®, Off! and Repel® formulations	Repellent to ticks
IR3535® Merk3535	7-35% Lasts 2-8 hours depending on concentration	Avon® Skin-so-Soft, Sawyer®, Coleman, Bug Repel®, and Bullfrog are major brands, sometimes combined with sunscreen	≥ 20% conc. as effective as DEET against ticks.
2-undecanone	7.75% Lasts 2 hours ticks, longer for mosquitoes	BioUD®, Registered US in 2007. Active ingredient derived from wild tomato plants	Repellent to ticks, but less effective than alternatives.
Other essential oils	Varies, generally < 1.0 hour	Citronella (4.2%), soybean oil, catnip oil Most are not registered for ticks	Less effective than alternatives
Permethrin	0.5% Lasts about 2 weeks	Repel® Permanone, Sawyer® Clothing Repellent, Cutter® Outdoorsman Gear Guard, 3M™ Clothing and Gear Insect Repellent, Expel. Available in pre-treated clothing.	Toxicant for use on clothing only; not applied to skin.

Get specific medical information about the active ingredients in repellents and other pesticides by calling the National Pesticide Information Center (NPIC) at 1-800-858-7378. NPIC operates from 6:30 a.m. to 4:30 p.m. (Pacific Time),9:30 a.m. to 7:30 p.m. (Eastern Time), 7 days a week. The NPIC Web site is http://npic.orst.edu/ and their insect repellent locator is http://pi.ace.orst.edu/repellents/.

Table 2. U.S. Environmental Protection Agency (EPA) recommendations when using insect repellents for The Prevention of Tick Bite and Tick-Borne Disease: Tick Checks and the Use of Insect Repellents Factsheet.

- Follow the directions and precautions given on the repellent label.
- Apply repellents only to exposed skin and/or clothing (as directed on the product label). Do not use under clothing.
- Never use repellents over cuts, wounds, or irritated skin.
- Do not apply to eyes and mouth, and apply sparingly around ears. When using sprays do not spray directly onto face; spray on hands first and then apply to face.
- Do not allow children to handle the products, and do not apply to children's hands. When using on children, apply to your own hands and then put it on the child.
- Do not spray in enclosed areas. Avoid breathing a repellent spray, and do not use it near food.

- Use just enough repellent to cover exposed skin and/or clothing. Heavy application and saturation is generally unnecessary for effectiveness; if biting insects do not respond to a thin film of repellent, then apply a bit more.
- After returning indoors, wash treated skin with soap and water or bathe. This is particularly important when repellents are used repeatedly in a day or on consecutive days. Also, wash treated clothing before wearing it again. If you suspect that you or your child is reacting to an insect repellent, discontinue use, wash treated skin, and then call your local poison control center. If/when you go to a doctor, take the repellent with you.

Selected References

Barnard, D. R. and R. Xue. 2004. "Laboratory evaluation of mosquito repellents against *Aedes albopictus*, *Culex nigripalpus*, and *Ochlerotatus triseriatus* (Diptera: Culicidae). J. Med. Entomol. **41**: 726-730.

Bissinger, B. W., and R. M. Roe. 2010. Tick repellents: Past, present, and future. Pesticide Biochem. Physiol. 96:63-79.

Consumers Union. 2015. How to win the battle of the bugs, Consumer Reports, p. 34-37, July 2015.

Carroll, S. P. 2008. Prolonged efficacy of IR3535 repellents against mosquitoes and blacklegged ticks in North America. J. Med. Entomol. **45:**706-714.

Carroll, J. F., J. P. Benante, L. Kramer, K. H. Lohmeyer, and K. Lawrence. 2010. Formulations of DEET, picaridine, and IR3535 applied to skin repel nymphs of the lone star tick (Acari: Ixodidae) for 12 hours. J. Med. Entomol. 47:699-704.

Connally, N. P., A. J. Durante, K. M. Yousey-Hindes, J. I. Meek, R. S. Nelson, and R. Heimer. 2009. Peridomestic Lyme Disease Prevention: Results of a Population-Based Case-Control Study. American Journal of Preventive Medicine 37:201-206.

Dethier, V. G. 1947. Chemical Insect Attractants and Repellents. Philadelphia, Blakiston.

Fradin, M. S. 1998. "Mosquitoes and mosquito repellents: A clinician's guide." Ann. Intern. Med. 128(11): 931-94

Fradin, M. S. and J. F. Day 2002. "Comparative efficacy of insect repellents against mosquito bites." J. Amer. Med. Assoc. 347(1): 13-18.

Katz, T. M., J. H. Miller, and A. A. Herbert. 2008. Insect repellents: Historical perspectives and new developments. J. Am. Acad. Dermatol. 58:865-671.

Pages, F., H. Dautel, G. Duvallet, O. Kahl, L. de Gentile, and N. Boulanger. 2014. Tick repellents for human use: prevention of tick bites and tick-borne diseases. Vector Borne Zoonotic Dis 14**:**1-9.

Quarles, W. 1996. "Botanical mosquito repellents." Common Sense Pest Control Quarterly **12**(4): 12-19.

Schreck, C. E., D. Fish, and T. P. McGovern. 1995. "Activity of repellents applied to skin for protection against *Amblyomma americanum* and *Ixodes scapularis* ticks (Acari: Ixodidae)." J. Am. Mosq. Cont. Assoc. 11(1): 136-14

Schreck, C. E., E. L. Snoddy, et al. 1986. "Pressurized sprays of permethrin or deet on military clothing for personal protection against *Ixodes dammini* (Acari:Ixodidae)." J. Med. Entomol. **23**: 396–399.

U. S. Environmental Protection Agency (998. Office of Pesticides and Toxic Substances. Reregistration Eligibility Decsion (RED) DEET (EPA738-R-98-010). Washington, D.C., U.S. Environmental Protection Agency**:** 118 p.

Vazquez, M., C. Muehlenbein, M. Cartter, E. B. Hayes, S. Ertel, and E. D. Shapiro. 2008. Effectiveness of personal protective measures to prevent Lyme disease. Emerg. Infect. Dis. 14:210-216.

The material in this fact sheet is provided for informational purposes only. Mention of a repellent product does not constitute an endorsement by The Connecticut Agricultural Experiment Station (CAES). The list of repellents is not meant to be comprehensive and brands are subject to change. Not all products may be registered in all states.