



Choosing the Best Bug Spray to Protect Your Family From Mosquitoes and Ticks

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May and June include the months when those outdoor blood feeders — like ticks and mosquitoes — are most active in Nebraska. Not only are these pests annoying, but they have the potential to spread diseases that pose significant health threats. There are a variety of preventative measures that can minimize exposure to bites, but this article will focus primarily on repellents.

Mosquito Repellents

There are hundreds of products sold for mosquito control, but not all are equal in their ability to prevent bites. Products that have an EPA registration number on the label were evaluated against the pests listed on the label and shown to be effective and safe when applied according to instructions. Products without an EPA registration number marketed as “natural” may provide little to no protection at all.

Options: Repellents such as DEET prevent mosquitoes from detecting and biting people. Coverage on exposed skin (not under clothing) must be thorough and can be accomplished using different application methods such as aerosol sprays, pump sprays, skin wipes and lotions. There are a number of popular brand names (i.e. Off!® Repel®, Coleman®, Saywer, Ben’s®, Natrapel®, Cutter®, Ultrathon®). Consumers highly rate four active ingredients: DEET,

Picaridin, IR3535 and Oil of Lemon Eucalyptus. The concentration level (which ranges from 5–100%) indicates the length of protection before having to reapply.

DEET products: DEET has been an effective insect repellent for over 40 years. Research has shown no adverse reactions to people or the environment when used according to label directions. Some people experience bad reactions to DEET, others dislike the odor and the oily/sticky feeling. DEET is a plasticizer and can damage rubber, plastic, vinyl and elastic materials (i.e. watches, cameras, sunglasses and rain jackets) if sprayed. DEET products are available in a wide variety of concentrations, but products 25–30% often provide sufficient and long-lasting (8 hours) protection. It is better to reapply after 8 hours rather than use a higher percentage.

DEET-free options: An effective and comparable DEET-free option is



Labels on insect repellents indicate active ingredients and concentration levels. Always follow label directions.

picaridin 20%, which is odorless, safe on plastics, and does not feel greasy or sticky on skin. Another DEET-free mosquito repellent is oil of lemon eucalyptus 30%. The EPA-registered product offers protection against

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VARIOUS EPA-REGISTERED, SKIN-APPLIED INSECT REPELLENTS

ACTIVE INGREDIENT CONCENTRATION	FORMULATION/APPLICATION TO SKIN	HOURS OF PROTECTION
DEET 5–7%	Aerosol spray, pump spray	2 hours
Picaridin 5%	Pump spray	3–4 hours
DEET 15%	Aerosol spray	5–6 hours
Oil of Lemon Eucalyptus 30%	Pump spray	6 hours
DEET 25–30%	Aerosol spray, pump spray, wipes	8 hours
IR3535 20%	Aerosol spray, pump spray	8 hours
Picaridin 15%	Aerosol spray	10 hours
DEET 98–100%	Pump spray	10 hours
Picaridin 20%	Aerosol spray, pump spray, lotion	12 hours
DEET 34%	Lotion	12 hours

mosquitoes for up to 6 hours. Oil of lemon eucalyptus is NOT the same as lemon eucalyptus oil or lemongrass essential oil, so do not be fooled.

Devices: A product called the TheraCell® Portable Mosquito Repeller is a portable, odorless repelling device that releases the synthetic pyrethroid (*d-cis/trans* allethrin), to repel mosquitoes within a 15-foot zone of protection. It requires butane cartridges for power and replaceable repellent mats. On a smaller scale, the battery-powered Off!® Clip-On® Mosquito Repellent clips on to the waistband and releases a vapor of an insecticide (metofluthrin) into the immediate environment. This may help for stationary individuals for a short period of time, but should not be used as a primary repellent. Products that DO NOT repel mosquitoes effectively and

consistently include wearable bracelets, bands and patches, citronella candles, bug zappers, using smart phone apps or plug-in ultrasonic devices.

Tick Repellents

Due to the biology and questing behavior of ticks, there are limitations to skin repellents and they should not be relied upon to stop tick bites. Luckily, a permethrin 0.5% clothing spray (i.e. Coleman®, Ben's®, Sawyer, Repel®) is very effective at protecting people from ticks while outdoors. Permethrin is a synthetic pyrethroid used as a contact insecticide and repellent against a wide variety of arthropods. It is not safe for use on skin, but can be sprayed onto clothing, allowed to dry and then remain effective against ticks through multiple washings. It is a good

idea to treat clothes, socks, shoes and backpacks before outdoor activities. There are also commercial, pre-treated clothing that can be purchased from stores/online, designed to repel ticks for up to 70 washes.

IMPORTANT: Despite the use of repellents, the best way to avoid a tick bite and tick-borne diseases is to perform a tick check periodically while outdoors and a thorough tick check of your person, children and pets after completing outdoor activities. Put clothing in the dryer for 20–30 minutes to kill ticks which may have hitched a ride.

Last, consult your veterinarian for the safest, most effective preventive measures to protect your pets from mosquitoes and ticks.