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West Nile Virus Questions and Answers

We have received numerous questions about West Nile Virus. With the assistance of the Georgia Department of Human Resources Division of Public Health we have answered some of the questions about the human aspects of West Nile Virus, and our own staff here at the Georgia Department of Agriculture has answered other questions about West Nile Virus that relate to agriculture and areas that we regulate. If you need more information, please contact us at 404-656-3689 or 1-800-282-5852.

What is West Nile Virus?

West Nile Virus (WNV) is one of several viruses spread by mosquitoes. It is closely related to St. Louis encephalitis (SLE) virus. SLE virus is most prevalent in the Southeast and Midwest U.S. WNV is also found in Africa, Europe, and Asia (primarily in countries bordering the Mediterranean). Infection with this virus does not always result in clinical disease. Studies have shown that normally only a small percentage of humans infected with the virus will show symptoms of disease and even fewer will develop any serious complications.

Should I be worried about West Nile Virus?

No. Studies have shown that normally only a small percentage of humans infected with the virus will show symptoms of disease and even fewer will develop any serious complications. The disease caused by West Nile Virus is very similar to St. Louis Encephalitis (SLE), but is generally milder. SLE has been in Georgia for many years. Human infections with these mosquito-borne viruses are **very rare** and people can further reduce the risk by taking measures to avoid mosquito bites.

Is there a treatment for West Nile Virus for humans?

There is no specific treatment, medication, or cure for illnesses caused by West Nile Virus. However, the symptoms and complications of the disease can be treated. Most people who get the illness recover from it.

Is there a vaccine to protect humans from West Nile virus?

There is not a vaccine to protect humans against West Nile virus infection.

Should I keep my children indoors?

No. The risks of acquiring a mosquito-borne disease are so low that staying indoors is unnecessary. However, if you are in an area with a lot of mosquitoes, you can take some precautions while you are outside, such as wearing long sleeves and long pants and applying an insect repellent (containing DEET) according to label directions.

A mosquito bit my child. Should he be tested for West Nile Virus?

The odds of getting a mosquito-borne illness from a mosquito bite in Georgia are extremely low. Even if you live in an area where mosquitoes are known to carry West Nile Virus or other viruses, very few mosquitoes will actually be infected and capable of transmitting the viruses to humans. Even if an infected mosquito bites you, chances of becoming ill are very low. If an illness does occur after a mosquito bite, particularly with fever, confusion, muscle weakness, or severe headaches, or if your eyes become unusually sensitive to light, you should consult your physician. Your health care provider will determine what kind of treatment you require and whether or not you should have any specific laboratory tests performed.

Why isn't my neighborhood being sprayed for mosquitoes?

Health officials in your county will likely compare the risks of West Nile Virus infection and the benefits of applying mosquito-killing sprays in your community before providing a recommendation. The most effective means of prevention is the abatement of mosquito breeding areas and larvicidal applications, when appropriate. Broad applications of pesticides by aerial spraying are not encouraged because it is neither the most beneficial (short duration) nor the most cost-effective way to control mosquito populations or mosquito-borne diseases. It can also harm beneficial insects. There are also concerns about people with chemical sensitivities and lung problems.

I have seen dead birds. Should I report them?

If you find dead birds, contact your county health department and ask them if they need them for WNV testing. Health officials are testing crows, blue jays, and raptors (hawks) to determine where the virus may have spread. They may ask you to bring them in or they may have all the samples from your area they need for that week. Remember that birds may die for many reasons. Some birds die of old age, some are hit by cars or run into power lines, and some die of other causes.

Will the dead birds in my area make me sick from WNV?

No. The viral infection is spread from live birds to people by the bite of a mosquito.

I sometimes set my pet canary outside while I am working in my garden. Is it susceptible?

Yes. It may be best to keep birds indoors during peak mosquito feeding times (dusk) and to check the integrity of window screens. If you want your pet bird to have some fresh air, keep it in a screened-in area or consider mosquito netting over its enclosure.

What about chickens?

Although wild birds have been killed by WNV, it is unlikely the disease would seriously impact the state's \$2.42 billion poultry industry. The disease has not proven to be a significant disease in poultry, and since most of Georgia's chickens are housed inside, the risk is even less.

Can West Nile Virus cause illness in my cat or dog?

This is very, very unlikely. There are no confirmed clinical cases of WNV in dogs. Although two cats from New Jersey were reported with the disease (one in 1999 and one in 2000), more research is needed to determine if WNV is of significant risk to cats. With the virus first appearing two years ago in New York City and nearby areas with high dog and cat populations, there likely would be more clinical evidence of disease if dogs and cats were susceptible.

Should I use insect repellent on my dog?

There are insect repellents available for pets. Be sure to follow the label directions. Products intended for humans can be toxic to pets, however. Therefore, human repellents should not be used on animals without a veterinarian's recommendation.

Can West Nile Virus affect horses?

Yes. Horses can become sick and recover or possibly die from WNV. It is likely that many horses become infected with the virus but recover without showing any clinical signs of the disease.

Is there a vaccine to protect horses from WNV?

The U.S. Department of Agriculture has approved a conditional license for a vaccine for horses against WNV. (See our August 2 press release.) It is uncertain how effective this new vaccine is. It may be in short supply but Georgia veterinarians did start receiving shipments in September. Even if your horses are vaccinated with the new vaccine, we advise horse owners to keep all their other vaccinations up to date and practice mosquito control around their barns and stables. (See our press release about mosquito control for horse owners.)

Where can I get this vaccine?

The vaccine will be available through your veterinarian.

Will vaccinating my horse against Eastern or Western Equine Encephalitis protect against West Nile Virus?

No. The equine encephalitis viruses and WNV belong to different families, so the vaccines are not expected to provide cross-protection.

Will other states quarantine against my horse if it is infected?

Infected horses do not appear to be carriers of WNV so a quarantine is not helpful in controlling the disease.

Will boarding an infected horse next to uninfected horses cause them to get the disease as well? Can a mosquito bite an infected horse and spread the disease to other horses or to humans?

Boarding an uninfected horse with an infected one will not lead to the other one becoming infected. A mosquito that is not already carrying West Nile Virus cannot pick up the virus by biting a horse or a human. The virus is not concentrated enough in the blood of humans or horses to be spread this way.

Will West Nile Virus affect my cattle?

No.

Will an electric “bug zapper” help control mosquitoes in my yard or barn?

No. These are a waste of money. In fact, bug zappers actually make things worse by attracting more mosquitoes to the area, and they end up killing thousands of beneficial insects that do not bother people. Another drawback is the electric grid that kills the insects can cause the trapped insect to explode, spraying harmful bacteria into the surrounding area. Not a pleasant thought as you bite into that hamburger you grilled near your bug zapper.

What about machines that emit ultrasound to keep mosquitoes away?

They are a waste of money.

I saw an advertisement for a type of scented geranium that would help repel mosquitoes. Will this work?

The oils in some scented geraniums may have some mild mosquito-repellent properties if you rub them on your skin. The ads are totally false that claim if you grow these “mosquito plants” they will repel mosquitoes. Planting a whole garden of them would not deter even one mosquito.

Are citronella candles and coils effective at repelling mosquitoes?

Their effectiveness is limited to small areas (a few feet) and windless conditions.

I would like to put up a bat house for bats to roost in. I hear they eat lots of mosquitoes. Do you have any information?

Bats can eat a lot of mosquitoes and other insects as well. There are estimates that some species can capture 500 to 1,000 mosquitoes per hour. In many areas bat populations have been decimated by loss of habitat and ignorant destruction. Installing a bat house is a way to help these misunderstood and maligned creatures make a comeback. But will installing a bat house solve your mosquito problems? Probably not. First of all, there have to be bats in your area looking for a place to roost and your bat house must meet all the requirements as to design and location for the bats to take up long-term residence there. If bats move into your bat house, do not expect them to stay within your property during their nightly forays and feed only on mosquitoes that are trying to feed on you. For further advice, detailed bat house plans, or ready-made houses contact Bat Conservation International at P.O. Box 162603, Austin, Texas 78716 (Telephone: 512-327-9721) or visit their website at www.batcon.org.

I hear purple martins eat a lot of mosquitoes. Is this true?

Attracting a colony of purple martins with gourds or a purple martin house is a good way to enjoy the song and aerial acrobatics of these beautiful birds. They eat many flying insects but not the large numbers of mosquitoes so often claimed by companies that manufacture purple martin housing. For more information about these birds, contact the Purple Martin Conservation Association, Edinboro University of Pennsylvania, Edinboro, PA, 16444 (Telephone: 814-734-4420) www.purplemartin.org

What are some ways to prevent being bitten by mosquitoes?

- Minimize time spent outdoors when mosquitoes are most active.
- Wear clothing to cover exposed skin when outside in mosquito-infested areas.
- Use mosquito repellent according to label directions on exposed skin.
- Screen windows and doors to prevent mosquitoes from entering.

Why do many people recommend insect repellents containing DEET?

Because DEET (N, N-diethyl-methyl-meta-toluamide) has been shown to be very effective in repelling mosquitoes. As with any repellent, be sure to read and follow label directions. In general, pregnant women should take care to avoid exposure to DEET whenever practical. Consult with your physician if you have any questions about using DEET. Here are a few more tips:

- Do not allow children to handle any mosquito repellent. Keep them stored out of their reach.
- Do not apply DEET directly to children. Apply to your own hands and then put it on the child.
- Avoid prolonged or excessive use of DEET. Use sparingly to cover exposed skin and clothing. Do not apply to skin covered by clothing.
- Wash all treated skin and clothing with soap and water after returning indoors.
- Never use repellents over cuts, wounds, or irritated skin.

Will selecting a mosquito repellent with a higher concentration of DEET provide more protection from mosquitoes?

A higher percentage of DEET in a product does not mean it repels bugs better; it means it repels them longer. A five to 10 percent DEET product is appropriate for most situations where outdoor exposure is limited to two to four hours or insect infestation is minimal. The American Academy of Pediatrics recommends that products used on children contain no more than 10 percent DEET. Higher concentration DEET products are useful for prolonged exposure to areas of high insect infestation. Always read the label on any repellent before applying it.

My face becomes irritated when I use mosquito repellents on it. Is there anything else I can do?

You may consider a mosquito head net to use while working outdoors. They are available from camping and backpacking suppliers.

Friends tell me that Avon's Skin-So-Soft bath oil is good for repelling mosquitoes. Does it work?

Although some studies have shown this is not as effective as repellents containing DEET, lots of people use it and believe it does a good job for them. If you find something that works for you and you like it, then stick with it.

Does taking Vitamin B or eating garlic repel mosquitoes?

There is no scientific evidence to show these are effective in preventing mosquito bites.

Why are some people bitten more than others?

There are many reasons for this. Cologne, perfumes and scented body lotions can attract mosquitoes. Dark-colored clothing is also more attractive to mosquitoes. During evenings, nighttime and dawn, mosquitoes are most active in searching for blood, so people outdoors during that time are more likely to be bitten. Finally, everyone's body is different, and some people produce natural body odors that are more enticing for mosquitoes.

Do mosquitoes have to have standing water to breed?

Yes. Mosquitoes must have standing water for the first stages of development. Some things you can do to get rid of stagnant water where mosquitoes can lay their eggs are:

- Remove old tires, buckets, cans, drums, bottles or any containers that hold water.
- Fill or drain any low spots in your yard.
- Cover trash containers.
- Inspect rain gutters and downspouts and remove leaves and other debris.
- Empty stagnant water in birdbaths, plant pots, drip trays, small wading pools, pet dishes and other containers at least once a week.
- Repair leaky faucets.
- Properly maintain and treat your swimming pool. Cover pools not in use to prevent accumulation of leaves and rainwater. Be sure pool covers do not hold pockets of water.
- Clean gutters, flat roofs and air conditioner drains frequently.
- Eliminate water-holding tree stumps.
- Offer your assistance to elderly and disabled neighbors who may have difficulty doing the above. Also ask a neighbor to check your property when you are away on vacation.

Someone gave me a briquette that will kill mosquito wigglers but is not supposed to be harmful to fish, birds, or pets. How would this work?

Some health departments are distributing briquettes containing *Bacillus thuringiensis israeliensis*, a species of bacteria that kills only mosquito larvae (wigglers). These briquettes are available at garden centers and hardware stores. There is also a granular form for larger areas. Be sure to follow label instructions for maximum effectiveness.

What is a mosquito larvacide?

A larvacide is an agent that kills the larvae (wigglers) of mosquitoes. The briquette mentioned above is a type of larvacide.

Should I try to spray my farm pond for mosquitoes? It has fish in it.

You must be careful what pesticides you use around water because you could easily kill the fish. If your pond is stocked with fish, they should control the mosquitoes. You may consider cutting any tall grass at the edge of the pond where mosquitoes are likely to take refuge.

I have a self-contained, ornamental pond in my front yard. How can I prevent it from becoming a mosquito-breeding area?

Installing a pump of some sort to keep the surface of the water moving or having fish, such as goldfish, in the pond to eat the mosquito larvae will keep it from becoming a mosquito haven.

Do mosquitoes breed in tall grass? I see them flying out of there.

They do not breed in the grass but they may take refuge there from winds and predators. They are especially fond of tall grass and vegetation in moist areas, perhaps because they think there must be standing water nearby. You may consider trimming or thinning this vegetation to encourage better air circulation.

I want to have some friends over for a cookout. How can I keep them from being eaten alive on my patio?

You may consider using an over-the-counter yard fogger and providing your guests with repellent. Removing or thinning brush and grass where you notice large numbers of mosquitoes would be helpful. Of course, make sure there is no standing water where the mosquitoes can breed.

Is there only one kind of mosquito that can carry West Nile Virus?

Culex pipiens is the species most commonly associated with the WNV, but it is believed that several species of mosquitoes can carry the virus.

Is it possible for mosquitoes to breed inside my house?

Yes. Unused commodes in guest bedrooms can become mosquito-breeding sites. Flush them at least once a week. Houseplants grown in pebbles and water can also serve as a place for mosquitoes to lay their eggs.

How far can a mosquito travel?

Many believe that mosquitoes only travel a few hundred yards from their place of hatching. However, in some instances mosquitoes may travel several miles with help from the wind. In either case it stresses the importance of neighbors and communities working together for mosquito control.

Dove season is approaching. Can mourning doves get WNV? Can I get sick from eating one?

Although it is possible that mourning doves could be infected with West Nile Virus, the possibility of transmission of the virus to a dove hunter is very remote. As with all wild game, body fluid from the animal should not contact open wounds on the hunter's hands, or the hunter's mucous membranes (eyes, nose, mouth). Impervious gloves worn by the person who cleans the bird may be helpful in limiting this contact. Since thorough cooking will inactivate the virus as well as most pathogens people can acquire from game animals, consuming properly cooked dove meat is safe. Since WNV is transmitted by mosquitoes, hunters should take precautions to avoid mosquito bites by using mosquito repellent containing DEET on exposed skin and by covering up with long sleeves and pants when possible.

How long do adult mosquitoes live?

Generally, adult female mosquitoes have a life span of two weeks to a month while adult male mosquitoes live only a week. Only the female bites.

What is the life cycle of a mosquito?

A mosquito goes through four distinct stages: egg, larva, pupa and adult. Eggs are laid in clusters and float on the surface of water. They may be stuck together in rafts of hundreds, or laid separately on water or flooded soil. Most eggs hatch into larvae within 48 hours. Adult female mosquitoes can lay eggs every 10-14 days. Once hatched, mosquito larvae live in water from four to 14 days depending on the water temperature. The larvae of most mosquito species hang suspended from the water surface. An air tube extends from the larva's posterior to the water surface and acts as a "snorkel." The larvae filter-feed on aquatic microorganisms near the surface. As a defense mechanism, when alarmed, the larvae can dive deeper into the water by swimming in a characteristic "S" motion. In the next stage the larva transforms into a pupa. The pupal stage is a resting, non-feeding stage. Mosquito pupae must live in water from one to four days, depending on the species and water temperature. When development is complete, the pupal skin splits and the mosquito emerges as an adult.

Where do mosquitoes go in the winter?

In Georgia some species of mosquitoes overwinter in the egg stage and some in the adult stage. The adults that overwinter are females that will be able to start laying eggs again when warm weather returns in the spring. Mosquitoes that overwinter as adults undergo changes in body chemistry that enable them to endure the cold.

For more information visit the following websites:

Georgia Department of Human Resources - Public Health

<http://health.state.ga.us/epi/vbd.shtml>

Centers for Disease Control and Prevention

<http://www.cdc.gov/ncidod/dvbid/westnile/q&a.htm>

USDA Animal Health Inspection Services

<http://www.aphis.usda.gov/oa/wnv/index.html>

Georgia Veterinary Medical Association

www.gvma.net