

## **POSTING FROM STATE VETERINARIAN'S OFFICE**

### **Mosquito-borne Viral Diseases**

The American Mosquito Control Association says there are more than 2500 different species of mosquitoes throughout the world, with around 150 species living in the United States. As one of the most diverse species on earth, each species of mosquito is adapted to live in specific habitats, exhibiting unique behaviors and biting different animals. There are species of mosquitoes that bite in the morning and those that bite after dark. There are mosquitoes that bite in the shade and those that prefer the brightness of day. There are some species that prefer to bite mammals like humans and those that prefer birds, horses, dogs and livestock.

Several mosquito-borne viruses circulate in Georgia each year and are capable of causing disease in humans and other animals. The most common mosquito-borne viruses in Georgia include West Nile virus, Eastern Equine encephalitis virus, and LaCrosse virus. Mosquito-borne viruses are most active late spring through early fall in Georgia. The Animal Industry Division of the Georgia Department of Agriculture is responsible for monitoring, detecting, and controlling over 100 animal diseases that can have a significant impact on the agricultural economy and trade, or that can be contagious to both animals and people (i.e. zoonosis). This includes West Nile Virus and Eastern Equine Encephalitis.

### **West Nile Virus (WNV):**

West Nile is a flavivirus, a member of a large group of viruses that are called arboviruses. Arboviruses are transmitted by blood-sucking vectors, such as a mosquito or even a tick. Arboviruses require a host, which in West Nile's case are birds. Mosquitoes act as a vector, and during periods of adult mosquito blood feeding, mosquitoes become infected when they feed on infected birds. Because birds tend to collect in flocks, it is easy for the disease to quickly spread. After an incubation period of 5 to 15 days, infected mosquitoes can then transmit the virus to humans and animals. The West Nile Virus has quickly become established as a real threat to horses, with 40 percent of horses that contract the disease dying from the illness. Just as in humans, following a bite by an infected mosquito, the West Nile Virus multiplies in the horse's blood system, and crosses into the brain, where it infects the brain, causing inflammation and interference with the central nervous system. Clinical signs of the disease in horses include fever, stumbling/tripping, muscle weakness/twitching, partial paralysis, inability to stand, convulsions and coma. There is no documented evidence of person-to-person or animal-to-person transmission of the West Nile Virus, so an infected horse cannot infect human or other horses. In addition to birds and horses, West Nile Virus has been shown to infect cats, bats, chipmunks, skunks, squirrels, and domestic rabbits, although unlike in horses and birds, it does not appear to cause extensive illness. There is now an equine vaccine for West Nile Virus. Contact your veterinarian for further information to prevent infection of this deadly illness in horses. For other sources of information on the West Nile Virus go to, [www.cdc.gov/ncidod/dvbid/westnile/index.htm](http://www.cdc.gov/ncidod/dvbid/westnile/index.htm) and [www.aphis.usda.gov](http://www.aphis.usda.gov).

Tips to help slow the spread of Mosquitos and West Nile Virus:

Mosquito-borne diseases are a serious threat to both pets and humans, but with control and prevention, it is possible to protect us and our pets from the deadly diseases they carry. For all mosquitoes, however, water is the critical component of a successful habitat when laying their eggs. For this reason, pet owners should be aware of any sources of stagnant water around their property, in buckets, rain spots, clogged

gutters, birdbaths, etc. Because mosquitoes like to rest on weeds and in other vegetation, pet owners can also help reduce mosquitoes by cutting down weeds near their homes' foundations and mowing the lawn regularly. There are also a number of insecticides available that can be applied to trees, shrubs and walls. Other effective measures include keeping pets inside at dawn and dusk, when mosquitoes are most active, and installing bug tight window and door screens, even on stables, and replacing outdoor lights with yellow "bug" lights. For more information on mosquitos-borne viral diseases go to:

<http://www.fda.gov/AnimalVeterinary/NewsEvents/FDAVeterinarianNewsletter/ucm110414.htm>.

### **Eastern Equine Encephalitis (EEE):**

Eastern Equine Encephalitis is a viral disease caused by infected mosquitoes. When an EEE-infected mosquito bites a non-immune horse (or human), the virus spreads through the body and attacks the central nervous system (brain and spinal cord) causing nervous signs such as profound depression, blindness, staggering and even seizures. Most affected horses die within several days. All horses are at risk although young adults (six months to two years) are particularly vulnerable. For more information go to:

<http://largeanimal.vethospitals.ufl.edu/services/internal-medicine/eastern-equine-encephalitis-eee/>.

Eastern Equine Encephalitis Virus (EEEV) is transmitted by blood-sucking vectors, such as a mosquito or even a tick. Eastern equine encephalitis virus (EEEV) requires a host, which in this case are birds.

Mosquitoes act as a vector, and during periods of adult mosquito blood feeding, mosquitoes become infected when they feed on infected birds. People, horses and birds can become infected from a bite by a mosquito carrying the disease, but there is no evidence that horses can transmit the virus to other horses, birds or people through direct contact. Symptoms of EEE include impaired vision, aimless wandering, head pressing, circling, inability to swallow, irregular staggering gait, paralysis, convulsions and death. If you think you or a family member may have EEE, it is important to consult your healthcare provider for proper diagnosis. For more information go to: <http://www.tryondailybulletin.com/2013/05/13/horse-owners-urged-to-vaccinate-horses-against-mosquito-borne-diseases/>.



Picture of a *Culiseta melanura* mosquito, courtesy of the Virginia Mosquito Control Association.

What you can do to prevent Eastern Equine Encephalitis is to first of all Vaccinate your horses for EEE at least twice yearly. This is by far the most important step you can take to prevent this fatal disease. Vaccination of foals begins at 6 months of age if their dams have been vaccinated, or 3 months if they have not. Your veterinarian is your best resource for detailed information on correct vaccination

schedules for your area.

- Remove sources of standing water in pastures on your property.
- Apply fly masks, fly sheets and/or fly leggings to horses when they are at pasture.
- Spray horses with insect repellent. Regular fly sprays work but only for a few minutes. Longer-acting oil-based repellents are available through your feed store or veterinarian.
- Keep horses inside during the hours around dawn and dusk. These are the peak feeding times for mosquitoes.
- Turn fans on in barns for stalled animals or open barn windows to create a breeze. The more powerful the fan, the better the protection.
- Don't forget to protect yourself by using insect repellent or wearing protective clothing.

For more information go to: <http://largeanimal.vethospitals.ufl.edu/services/internal-medicine/eastern-equine-encephalitis-eee/>.