

# Equine HEALTH REPORT

A National Institute for Animal Agriculture Publication

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## Equine Encephalomyelitis Prevalence Up Causing Problems in Several States

State animal health officials, already on alert for the return of West Nile virus (WNV) this year, are also on the lookout for the re-emergence of another mosquito-borne disease in the Southeast – eastern equine encephalomyelitis (EEE). A higher than average rainfall this summer is believed to have contributed to the vicious outbreak.

Also called eastern equine encephalitis, the disease is 75 percent to 90 percent fatal in horses, where the virus attacks the central nervous system. In Florida, EEE had been diagnosed in approximately 190 horses as of the end of

August, compared to only 25 cases in 2002.

The virus has also been diagnosed in South Carolina, Georgia, Louisiana, Alabama, Tennessee, and as far north as Maryland. Cases in South Carolina have

*"This has been a more serious outbreak than anything in our history. Weather, mosquito hatch, bird migration. When it has the right conditions, this is what you get."*

DR. VENAYE REECE  
EQUINE PROGRAM COORDINATOR  
S.C. STATE VETERINARIAN'S OFFICE

exceeded 100, North Carolina was approaching 75 cases at last report, and Georgia officials have reported more than 50 cases.

In Alabama, positive EEE cases outpaced WNV cases this past summer, a trend documented in most other southeastern states. "Although WNV gets most of the media attention, it is worth noting that EEE is a much more severe disease," said Alabama State Veterinarian Tony Frazier. He said that while the mortality in horses from WNV is reported at around

30 percent, the mortality rate in EEE cases approaches 90 percent.

EEE is a viral disease that attacks the central nervous system (CNS) of people and horses. It is spread by mosquitoes, which transmit the disease from infected birds – much like West Nile, but it is significantly more virulent. Transmission of the disease from horse to horse or from horse to humans is thought to be highly unlikely.

Vaccinating horses properly will prevent them from contracting the disease. "The existence of the disease and an increased prevalence is reason enough to encourage equine owners to vaccinate for these viruses," said Frazier. "We continue to recommend that horses be vaccinated every six months for both WNV and EEE."

Florida officials recommend vaccinating horses two to three times a year because of the potential for exposure to the mosquito-borne disease year round.

Signs of the disease in horses include fever, impaired vision, irregular gait, reduced reflexes, inability to swallow, occasional convulsions and death. Animal health officials say symptoms can closely resemble rabies.

"Definitive diagnosis is important in tracking the spread of viral infections," said Tennessee State Veterinarian Ron Wilson. "It

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## AAEP Offers Tips For Reducing West Nile Risk in Horses

Since first being recognized in the United States in 1999, West Nile virus (WNV) has posed a serious threat to horses and humans alike. In the equine population, the virus is transmitted when a mosquito takes a blood meal from a bird infected with WNV, then feeds on a horse.

According to the American Association of Equine Practitioners (AAEP), while many horses exposed to WNV experience no signs of illness, the virus can cause inflammation of the brain and spinal cord. In some cases, especially in older horses, WNV can be fatal.

AAEP reminds horse owners that prevention is the key and is offering the following guidelines to protect horses against WNV:

1. Consider vaccinating your horse against the disease. Talk with your veterinarian about the most appropriate vaccination schedule for your horse.

2. Eliminate potential mosquito breeding sites. Dispose of old receptacles, tires and containers and eliminate areas of standing water.

3. Thoroughly clean livestock watering troughs at least monthly.

4. Use larvicides to control

mosquito populations when it is not possible to eliminate particular breeding sites. Such action should only be taken, however, in consultation with your local mosquito control authority.

5. Keep your horse indoors during the peak mosquito activity periods of dusk to dawn.

6. Screen stalls if possible or at least install fans over your horse to help deter mosquitoes.

7. Avoid turning on lights inside the stable during the evening or overnight.

8. Using insect repellants on your horse that are designed to repel mosquitoes can help reduce the chance of being bitten.

9. Remove any birds, including chickens, located in or close to a stable.

10. Don't forget to protect yourself as well. When outdoors in the evening, wear clothing that covers your skin and apply plenty of mosquito repellent.

For more information about the virus, consult an equine veterinarian. Additional information about WNV can be found on the AAEP's horse-health Web site, [www.MyHorseMatters.com](http://www.MyHorseMatters.com).

## MRLS Proceedings Available

The University of Kentucky Department of Veterinary Science has announced that the proceedings of the first workshop on Mare Reproductive Loss Syndrome (MRLS), held in August of 2002, are now available in print and online.

To access the proceedings on the Internet, go to [www.uky.edu/Agriculture/VetScience/mrls/index.htm](http://www.uky.edu/Agriculture/VetScience/mrls/index.htm) and follow the link for the online version. The online version of the proceedings is in PDF format.

For a print copy of the proceedings contact Gracie Hale, [ghale@uky.edu](mailto:ghale@uky.edu), Morris Library, Maxwell H. Gluck Equine Research Center, University of Kentucky, Lexington, Kentucky, 40546.

A bibliography of resources related to MRLS is also available from the Morris Library. To request a copy of the bibliography, use the contact information above.

## Cooperative Economic Impact Study on WNV Released

A collaborating group of agencies and institutions have released a study of the economic impact of West Nile virus (WNV) using the Nebraska and Colorado equine industries.

Officials hope the study will assist individual horse owners and the equine industry in preparing for WNV in the future, identifying research needs and prioritization of management control efforts. It is

the first of its type.

The data suggest that WNV had a marked economic impact on the equine industries in the two states in 2002. For example, the 2002 estimated total cost attributed to equine death from WNV in Colorado and Nebraska was \$600,600. The estimated cost of treating mild, moderate, and severe WNV equine cases in the two states totaled \$490,844.

The U.S. Department of Agriculture's Center for Epidemiology and Animal Health, Colorado State University College of Veterinary Medicine and Biomedical Sciences, and the state veterinarian's offices in Colorado and Nebraska cooperated in the study.

Additional information resulting from the study can be obtained on the Internet at [www.aphis.usda.gov/vs](http://www.aphis.usda.gov/vs).

# Equine Encephalomyelitis Prevalence Up

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requires a commitment on the part of horse owners working with their local veterinarian and verifying test results through laboratory analysis."

Exports of U.S. horses have been adversely impacted by the epidemic. The American Quarter

Horse Association reports that Mexico has restricted the importation of horses that originate from or have transited through the United States. USDA is said to be working with Mexican officials in an effort to remove the restrictions.

Dr. Venaye Reece, equine pro-

gram coordinator in the South Carolina state veterinarian's office, told the Associated Press, "This has been a more serious outbreak than anything in our history. Weather, mosquito hatch, bird migration. When it has the right conditions, this is what you get."

## Encephalomyelitis or Encephalitis???

EEE has been said to stand for eastern equine encephalomyelitis and, perhaps more commonly, eastern equine encephalitis. So what's the difference? Dr. Leroy Coffman, state veterinarian and director of the animal industry division for the Florida Department of Agriculture and Consumer Services explains it in lay terms:

"Encephalitis means pertaining to the brain only. Encephalomyelitis pertains to both the brain and spinal cord. The disease typically involves both the brain and spinal cord and is the correct scientific terminology. It is easier for most lay (persons) and the press to use encephalitis, but not technically, totally correct."

## American Horse Council Recommends Vaccination Against EEE

As the number of cases of Eastern Equine Encephalomyelitis (EEE) rises to unusually high levels, the American Horse Council is reminding horse owners to vaccinate their horses for EEE and to boost that vaccination at regular intervals. In the recent outbreaks of EEE, affected horses have either been unvaccinated or were not vaccinated following the recommended intervals.

"The mortality rate in unvaccinated horses runs about 75-90 percent," says Dr. Tim Cordes, senior staff veterinarian for equine diseases with the USDA's Animal and Plant Health

Inspection Service, Veterinary Services. "This is significantly higher than the case mortality rate seen with the West Nile virus outbreak." The mortality rate associated with West Nile virus is about 33 percent.

According to the recommendations of the American Association of Equine Practitioners, horses should be vaccinated against EEE each year, preferably in the spring. Horses residing in endemic areas, however, should have an additional booster vaccination every six months. Owners seeking recommendations for vaccinating foals, weanlings and broodmares should consult an equine practitioner.



## Plans Underway for 2003 AAEP Annual Convention



New Orleans, La. More than 2,500

The 49th annual convention of the American Association of Equine Practitioners will be held Nov. 21-25 in

veterinarians are expected to attend the annual gathering, featuring an offering of over 100 continuing education credits and a trade show with nearly 400 exhibitors.

Opening the scientific session on Saturday, Nov. 22, will be a keynote address by renowned ethicist William D. Brown, Ph.D.

Brown's address, "Ethics in Action for Equine Practitioners", will focus on giving practitioners the tools to ensure ethics remain the foundation of veterinary practice.

Convention information is available on the Internet at [www.aaep.org](http://www.aaep.org) or by contacting the AAEP office at 800-443-0177.

## Eastern Equine Encephalomyelitis Overview

Eastern Equine Encephalomyelitis (EEE) is a mosquito-borne viral disease of all equine species such as horses, asses, and zebras. After infection, equines may suddenly die or show progressive central nervous system disorders. The rapidity of deterioration and eventual outcome of infection vary among individual horses. The equine mortality rate due to EEE ranges from 75 to 90 percent.

Humans can also contract this disease. Healthy adults who become infected by the virus may experience flu-like symptoms such as high fevers and headaches. The young, the elderly, and people with weakened immune systems can become severely ill or die from this disease.

More information regarding the human form of EEE can be found on the Centers for Disease Control and Prevention Web site at [www.cdc.gov](http://www.cdc.gov).

### History

Eastern equine encephalomyelitis virus (EEEV) is thought to have been the cause of EEE in North American horses since 1831. However, the virus itself may have been present in its endemic form long before that. The virus did not receive its name until a major outbreak occurred in horses in coastal areas of Delaware, Maryland, New Jersey, and Virginia in 1933.

Additional outbreaks occurred in Virginia and North Carolina in 1934 and 1935 respectively. Mosquitoes were first determined to be potential carriers of EEEV in 1934. Since then, a number of studies have shown that various mosquito species of *Aedes* and *Culex* could become infected with and transmit EEEV from one vertebrate to another.

It was during the 1935 outbreak that birds were considered to be a possible reservoir host for the virus, but it was not until 1950 that the first virus isolation was

made from a wild bird proving that to be true. Subsequent studies have shown that many birds, including almost all passerine species (i.e. jays, blackbirds, warblers, finches, and sparrows), are susceptible to EEEV infection.

Because outbreaks of EEE are infrequent, the disease has a significant economic and social impact once a specific area has been identified. When the disease appears in an area for the first time, there is a loss of horses and/or poultry. The area may also experience an increase in human morbidity and mortality.

### Clinical Signs

Equines infected with EEE may show one or more of the following signs:

- Fever
- Depression
- Loss of appetite
- Weakness
- Central nervous system disorders (lack of coordination, chewing movements, head pressing, "sawhorse" stance, circling, paddling motion of the limbs, and convulsions)
- Irritability and aggressiveness towards handlers
- Blindness
- Excitability
- Abnormal sensitivity to light and sound.

In some cases, horses infected with EEE may show no clinical signs before dying.

### Confusion with Other Diseases

The clinical signs of EEE can be confused with those of other diseases that affect the central nervous system. These include Venezuelan equine encephalitis, Western equine encephalitis, West Nile equine encephalitis, African horse sickness, rabies, tetanus, and bacte-

rial meningitis. EEE might also be mistaken for toxic poisoning. Definitive diagnosis can be made by isolating the virus in a laboratory or by testing blood for the presence of antibodies to the virus.

### How it Spreads

The virus that causes EEE is transmitted primarily by mosquitoes that bite an infected animal and then bite and feed on another animal or human. The speed with which the disease spreads depends on the density of mosquito populations.

### Control Measures

EEE probably will never be eradicated from the United States because of the reservoirs that exist in so many areas throughout the country. Therefore, continual vigilance and conscientious immunization programs will always be necessary.

Monovalent, bivalent, or trivalent horse vaccines containing EEE are available. Horse owners should choose such vaccines depending on the prevalence or likely occurrence of the disease.

General control measures aimed at reducing mosquito-carrying populations will significantly diminish but not eliminate the risk of equine infection.

### Report Suspicious Signs

Owners of equines have an essential role in preventing EEE from spreading. Horse owners are encouraged to vaccinate their animals and put safeguards in place that prevent animals' exposure to mosquitoes, as well as report any suspicious signs of EEE in animals to a veterinarian.

*Source USDA, August 2003*

## N.Y. Governor Signs Bill to Assure Healthy Animals

Governor George E. Pataki has signed legislation designed to improve the overall health of New York's farm animal population, while also promoting good environmental stewardship and increased farm productivity. The new law will expand the state's existing Cattle Health Assurance Program to include other domestic farm animals, such as horses, goats, pigs and sheep.

"This new law will expand our existing Cattle Health Assurance program to include all of our livestock industries in New York State," Gov. Pataki said. "Our state is committed to proactive measures that promote the healthy breeding of farm animals, while providing our farmers with the tools they need to protect their animals from harmful diseases."

Animal health assurance programs are voluntary programs that promote animal health and welfare, improve farm productivity, enhance environmental protection and protect public health. To achieve these

goals, a variety of methods expressly suited to the particular animals and farm operations are utilized.

In 1998, the state created its first animal health assurance program, New York State Cattle Health Assurance Program (NYSCHAP). NYSCHAP was designed as a comprehensive, on-farm, integrated disease prevention program to help livestock producers address issues pertaining to product quality, animal health, food safety, environmental stewardship and public health. Administered by the State Department of Agriculture and Markets and Cornell University with the support of the U.S. Department of Agriculture, NYSCHAP has been popular with every sector of the livestock industry and currently has over 700 livestock farms across New York State enrolled.

In the past year, the state started a Horse Health Assurance Program to promote healthy breeding of horses. This new law will codify and strengthen this program.

State Agriculture Commissioner

Nathan L. Rudgers said, "The health and productivity of our animals is critical to farm productivity and viability. These programs will allow our farmers to continue to raise superb, healthy livestock, while enhancing the protection of our own public health."

Recent animal health issues such as foot-and-mouth disease, bovine spongiform encephalopathy and West Nile virus have emphasized the need to create an on-farm, systems approach to animal health.

Risk identification, risk assessment and implementation of best management practices to address risks are the three core elements of animal health assurance programs. Management practices, fitted for various species, are then applied to reduce the likelihood of disease introduction, minimize transmission within an operation and prevent the dissemination of the agent. After a farm has completed its assessment, the plan is reviewed by the veterinarian and the producer to ensure proper implementation.

## Development of National Animal ID Plan Underway

A national animal identification plan is being developed to help protect American animal agriculture.

The draft plan draws on existing voluntary and compulsory animal identification programs currently in place in the U.S. and coordinates these into a truly national program for the first time.

The goal is to develop a national standardized program that has the capability to identify all premises and animals that had direct contact with a foreign animal disease within 48 hours of its discovery. This goal may require that certain data be housed in a central database.

States, industry and the USDA

have been working in partnership on the plan through the National Animal Identification Development Team. The team, which includes a steering committee and five working groups, has produced a draft plan with the working name of the U.S. Animal Identification Plan (USAIP).

"Maintaining the health of the U.S. animal herd is the most urgent issue for the industry and is the focus of the draft plan," said Hammerschmidt. "The benefits of a national animal health identification system include enhanced disease control and eradication capabilities, rapid containment of foreign animal disease outbreaks

and enhanced ability to respond to threats to biosecurity.

"Without identification, our livestock industries would be vulnerable to any disease situation that required rapid tracking of animal movement," said Hammerschmidt.

The draft plan will be presented in October during the U.S. Animal Health Association Annual Meeting. The plan can be viewed on the Internet at [www.usaip.info](http://www.usaip.info).

It is expected that a final plan will be open to review and comment by industry stakeholders later this year and that the plan will be adapted to meet specific species requirements.

## APHIS Opens New Emergency Operations Center

A state-of-the-art facility that will significantly improve the Animal and Plant Health Inspection Service' (APHIS) capability to coordinate responses to animal and plant health emergencies has been officially dedicated.

Located at USDA's Veterinary Services headquarters in Riverdale, Md., the emergency operations center (AEOC) will serve as the national command and coordination center for APHIS emergency programs' disaster management.

According to Dr. Joseph Anelli, director of emergency programs for USDA, APHIS, Veterinary Services, the center can be used in both routine and emergency situations. "During an emergency, the AEOC can support 40 or more personnel and operate 24 hours a day, seven days a week," said Anelli. "When an emergency operation is not underway, the AEOC facilities will be used to monitor and report on international and domestic surveillance of pest pathogens and disease conditions of concern and to conduct advanced training."

The AEOC will be used through all phases of an emergency, from initial situation assessment through response coordination and support and then to wrap-up phases.

The AEOC features advanced technology that allows AEOC team members to communicate with field personnel and USDA leadership. Communications capabilities include video conferencing, advanced computer interfaces, geo-

graphical information system mapping, and a strong multimedia component.

*"Teams working in the AEOC now have a greatly enhanced ability to collect, analyze, and disseminate information, enabling them to meet any animal or plant health emergency with a well-orchestrated and technologically advanced emergency response."*

"Teams working in the AEOC now have a greatly enhanced ability to collect, analyze, and disseminate information, enabling them to meet any animal or plant health emergency with a well-orchestrated and technologically advanced emergency response," said Anelli. He said national response management team can direct neces-

sary resources and communicate with appropriate stakeholders by coordinating with other federal, state, and international organizations, including the Department of Homeland Security.

"AEOC team members are trained in incident command system procedures of emergency management and now have an enhanced ability to keep leadership informed of the status of emergencies," said APHIS Administrator Bobby Acord.

"Having this world-class facility to coordinate and support emergency response helps APHIS to provide leadership during national emergencies and greatly enhances our ability to work with partners."

### APHIS Appoints Associate Deputy Administrator for Emergency Management

APHIS Deputy Administrator for Veterinary Services (VS) Dr. Ron DeHaven has announced the selection of Dr. Larry Granger as the new associate deputy administrator for emergency management, a new senior level position with VS.

"Dr. Granger's background and expertise will help VS and APHIS navigate these challenging times of increased national security, END eradication and other issues yet to emerge," said DeHaven. "I know he is up to the challenge and will be a terrific addition to the APHIS team."

Granger most recently served as TB program coordinator for the Michigan Department of Agriculture, Animal Industry Division, where he coordinated statewide TB eradication efforts in livestock. Granger has been with

MDA since 1990.

Before being assigned to his current position in 2000, Granger worked for the MDA Office of Agriculture Development as a veterinary consultant where he was responsible for macroeconomic issues, department policy and legislative initiatives. Prior to that he served the MDA Animal Industry Division as pseudorabies eradication program coordinator and official pseudorabies epidemiologist.

Granger also worked as a veterinary medical officer with USDA, APHIS, VS in southern Ohio for two years, and owned and managed a mixed animal veterinary practice for nine years. He received his Doctor of Veterinary Medicine from Michigan State University in 1979.

## Survey Results, New Test Prompt Interest in Equine Piroplasmosis

Research-based survey work being conducted by animal health officials in Florida is providing a new perspective on equine piroplasmosis (EP) in the United States. However, results thus far are raising more questions than answers.

Industry leaders gathered with state and federal animal health officials recently to discuss the concerns with EP and identify solutions to the growing problem.

A newer, simpler test for EP, *cELISA*, developed by Agricultural Research Service Scientist Don Knowles was embraced by the group, which is now urging USDA to have the test recognized internationally as an approved official test.

Knowles is studying EP in Brazil and in endemic areas of Puerto Rico, and those at the meeting are hoping his findings

combined with the ongoing surveys in Florida will yield additional answers in the future.

What to do with horses that test seropositive was another question discussed at the meeting. It was suggested that a reasonable response would involve quarantine, epidemiological investigation, tick surveillance, management plans and additional research.

The group viewed developing a protocol for testing and interpretation of test results as a major priority. "Without a common protocol and interpretation standard in place, there is a greater risk that future findings may fuel inappropriate actions and reactions on the part of states, horse owners, and the industry," said Dr. Timothy Cordes, equine veterinary specialist with USDA's Center for Animal

Health Programs.

Somewhat of a mystery to researchers at this time is the fact that some of the EP seropositive horses in Florida do not exhibit clinical signs of the disease and later convert to negative status.

Such unknowns, said Cordes, warrants an intensification of research efforts and possibly surveillance enhancements.

In the meantime, Cordes said, the situation presents a window of opportunity to interpret and communicate with the U.S. horse industry and animal health officials on these new findings. "Without such background, there will be a tendency for counterproductive reaction as this information becomes more widely known in this country and with our trading partners."

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National Institute for Animal Agriculture  
1910 Lyda Avenue  
Bowling Green, KY 42104