

Prepared by

A. M. Swinker PhD and Pat Comerford, Penn State Extension Horse Specialists

USDA Needs Help of Horse Owners with West Nile Vaccinated Horses

Veterinarians have been asked by the Pennsylvania Department of Agriculture to help determine the immune response of West Nile Virus vaccinated horses. The Fort Dodge equine vaccine for protection against disease from WNV infection was made available to Pennsylvania veterinarians in mid September. Very little information concerning the immune response in vaccinated horses is available at this time. The Pennsylvania Department of Agriculture is requesting that veterinarians ask clients with vaccinated horses to allow blood samples to be taken between 7 and 21 days after the second vaccine dose. These samples should be submitted in chilled red-top tubes to the Pennsylvania Veterinary Laboratory for antibody testing. At this time, there are no charges for shipping and testing of WNV samples. The dates of vaccinations should be included in the box with the samples. If your veterinarian asked for your help in this study please consider participating.

The ELISA test is used to detect IgG antibodies in vaccinated horses within a 7 to 21 day time period. Results of testing of vaccinated horses will be submitted to the USDA. You will not be sent the results.

Source, Pennsylvania Department of Agriculture, Bureau of Animal Health and Diagnostic Services

Recent Terrorist Attacks Call for Increased Biosecurity

Due to the recent terrorist attacks and the outbreaks of human anthrax, our nation is on a heightened state of security against the threats of bioterrorism. As individuals involved in animal industries we must be vigilant to these threats against our animals, our food supply, and the health of our nation.

Horse owners should heighten their awareness of the importance of biosecurity. The possibility of a biological attack on our food supply needs to be considered and a defense must be prepared. Horse facilities are considered low risk for terrorism because horses are not used for food or fiber. However, horses do provide an effective media to harbor or transport some foreign diseases. The ability to transfer disease increases the importance of monitoring the herd. Many veterinarians have been schooled in the knowledge of biological organisms and can play an important role in maintaining the safety of our country.

What you can do

Producers, stable owners and farmers should check their livestock regularly and immediately report signs of unusual disease to your veterinarian, or the Pennsylvania Department of Agriculture. Also, producers are asked to report suspicious activities, intruders or circumstances to local police or sheriff's departments. License plate numbers and descriptions of trespassers should be recorded if possible.

Signs to watch for in livestock include:

- Sudden, unexplained deaths in a herd.
- Severe illness that affects multiple animals.
- Blisters around an animal's mouth, nose, teats or hooves.
- Unusual ticks or maggots on the animals.
- Central nervous system disorders.

When a suspicious case is reported, a trained foreign animal disease diagnostician (FADD) will be dispatched to the premises to assess the situation, inspect the animals, collect samples, post quarantines, if appropriate, and take additional steps to protect animal and human health. Samples from suspect animals should NOT be submitted to the Pennsylvania Veterinary Laboratory or any other laboratory, samples should only be submitted by FADD to Plum Island or NVSL.

Suspicious cases can be reported to PDA at 717-772-2852 from 8AM to 4PM, and after normal working hours at 717-772-2852, or any other main office phone number. After hour calls will be forwarded to a voice mailbox, and instructions will be given for leaving an emergency message that will cause the veterinarian on call to be paged. The USDA also has a 24 hour phone number: 1-800-601-9327. Daytime calls can be made to the USDA Harrisburg office at 717-782-3442. Anyone reporting a case should be prepared to provide a description of the signs of disease, the species and number of animals involved, and the location of the animals.

John I. Enck, Jr., V.M.D., Director, Pennsylvania Department of Agriculture, Bureau of Animal Health and Diagnostic Services

Anthrax - horses and humans are less susceptible than cattle or sheep. The bacteria, *Bacillus anthracis*, causes anthrax. The bacteria are found in two states — the vegetative state and the spore state. The vegetative state is the growing, reproducing form of the bacteria found in infected animals and people. The vegetative form is the state that causes the disease, anthrax. If untreated the disease in animals is generally fatal. Anthrax organisms in animals or their secretions may be destroyed by pasteurization or ordinary disinfectants. However, if the animal carcass is opened and the organisms are exposed to air, they will form spores. Anthrax spores are highly resistant to heat, cold, chemical disinfectants and drying. The anthrax spore may live indefinitely in the soil of a contaminated pasture or yard.

Cattle and sheep are very susceptible to anthrax. Horses, swine, deer, and humans are less susceptible than cattle or sheep. Dogs, cats, and birds have been infected experimentally, but are less likely to become infected through exposure.

Infection in cattle, sheep, or horses usually is the result of grazing on infected pastures. The organisms usually enter through the mouth, and less often via nose or skin injury. Following ingestion or inhalation, the organisms spread rapidly throughout the entire body. Dead animals that are opened and not burned or buried provide an ideal source of the organism. It is imperative that diseased carcasses be cremated (burned to ashes) or buried deep and covered with quick lime before back filling with soil.

Anthrax spores may also spread by flooding pastures with contaminated water or dumping infected carcasses in streams or ponds. Flooding often contaminates low lying ground or marshy areas, and resultant stagnant water holes may serve as a source of infection. Hay that is infested with spores may account for outbreaks of acute anthrax during the winter months. However, anthrax is predominantly a warm weather disease. Anthrax spores are known to survive in the soil 35-100 years or longer.

Anthrax may also be spread through wounds caused by blood sucking insects, dehorning, or castration.

Humans may become infected by handling contaminated hides or wool, or by examining infected carcasses.

The symptoms associated with anthrax will depend on the species involved and the route of infection. When the anthrax organism enters the animal's body by mouth or nostrils, the symptoms occur soon after infection (acute form) followed rapidly by death. When infection takes place through the skin because of injury or insect bites, it appears localized at the site of injury in the initial stage. The affected area is initially hot and swollen, and becomes cold and insensitive. Later, the infection can become generalized. Anthrax usually is a fatal disease with no symptoms observed. Upon or near death, blood oozes from the body openings. This blood is heavily laden with anthrax organisms. There is a marked bloating and rapid decomposition of the carcass.

If the infection is less acute, there may be a sudden staggering, difficult breathing, trembling, collapse, and death. In horses, colic may be observed. Edema and swelling may be seen over the body, particularly at the brisket or chest. Illness is observed for one or two days, but it may last five days. Symptoms are preceded by fever, with a period of excitement in which the animal may charge anyone nearby. This excitable stage is followed by depression in cattle or sheep.

Sometimes in swine, the anthrax organism localizes itself in the throat area. The tongue, throat, and neck are extremely swollen and a frothy blood-tinged discharge comes from the mouth. Though this is the typical form of anthrax observed in swine, it may also occur in cattle and sheep.

Not all cases of "sudden death" are anthrax, but if anthrax is suspected, confirmatory laboratory examination is needed. If anthrax is suspected, do not have your vet perform a necropsy. Using aseptic technique, have a

veterinarian collect a jugular sample of venous blood and send or deliver it to the diagnostic laboratory in a sealed, sturdy, leak proof, iced container, with an accompanying history identifying it as an anthrax suspect. Producers should take every precaution to avoid skin contact with the potentially contaminated carcass and soil. Protective, impermeable clothing and equipment such as rubber gloves, rubber or leather apron, and rubber boots with no perforations should be used. No skin, especially that which is compromised with wounds or scratches should be exposed. Disposable personal protective equipment is preferable, but if not available, decontamination can be achieved by washing any exposed equipment in hot water and detergent. Disposable personal protective equipment should be burned and buried with the carcass.

Your state animal health agency (Pennsylvania Department of Agriculture) can provide helpful advise on disposal of carcasses. Proper carcass disposal is important to prevent surface soil contamination. Vaccines are available to protect animals in endemic areas when outbreaks occur.

Always keep in mind that anthrax can cause serious disease in humans as well as animals. Three syndromes are recognized in man. The skin infection form is usually seen in people who work with animal carcasses, wool, hides or fur. The infections are seen as large, local abscesses often on the hand or finger. These skin infections can spread to the blood stream and cause serious illness or death. Inhaling the bacteria causes the pulmonary form. Most lung infections result in rapid death. The intestinal form results from eating the bacteria and is seen as violent intestinal pain with vomiting and bloody stools. A high mortality rate is seen with the intestinal form of anthrax. For this reason, great care should be taken to protect anyone handling the carcass or live animals suspected to have anthrax. Meat obtained from animals dying of unknown causes, or suspected of having anthrax or another infectious disease, should not be consumed.

In summary, anthrax is caused by bacteria that can exist in two forms. The vegetative form causes disease in both animals and man but is rapidly killed in unopened carcasses. The spore form lives in the soil for years. When the spores surface, they revert to the vegetative form and cause further disease when eaten by animals. Suspected cases of anthrax should be reported to your veterinarian first and then to state animal health agencies. Animal health officials are available 24 hours a day to assist your veterinarian in managing an outbreak and minimizing losses. Use caution when handling dead animals suspected to have anthrax. Suspicious cases should be reported to PDA at 717-772-2852 from 8AM to 4PM, and after normal working hours at 717-772-2852,

References:

NDSU Extension Service, North Dakota State University of Agriculture and Applied Science, and U.S. Department of Agriculture. Anthrax -- A-561 (Revised) December 2000.

John I. Enck, Jr., V.M.D., Director, Pennsylvania Department of Agriculture, Bureau of Animal Health and Diagnostic Services

J. Kirk, and H. Hamlen, 2000, Anthrax. Veterinary Medicine Extension, School of Veterinary Medicine University of California Davis, Tulare, CA, California Department of Food and Agriculture, Animal Health Branch Disease Program, Sacramento.

Penn State University Equine Program Takes on a New Face

Penn State's equine program is evolving! We are excited about current projects and the future plans for the University's equine program. Penn State has a long history of involvement with the equine, beginning with horses and mules used for construction of early university facilities, and continuing in today's programs in undergraduate education, extension and research. The Department of Dairy and Animal Science is developing the equine program to address the needs of Pennsylvania's growing horse industry.

The department recently, hired a new equine faculty member, Dr. Ann Swinker. She began her Cooperative Extension/teaching appointment in July. Dr Swinker will implement and manage adult extension educational programs in equine science, teach and advise students and assist with the new equine minor.

Dr. Swinker received her Bachelor's and Master's degree's from Penn State University and her Ph.D. at West Virginia University. Ann began her career in extension in 1975 as an Agricultural County Agent in Allegheny County, Pittsburgh, Pennsylvania and worked there until 1990.

From 1990 to 2001, Dr. Swinker held the position of Extension Horse Specialist at Colorado State University. Ann and her husband Dr. Daniel M. Kniffen (Penn State Cooperative Extension Beef Team) are relocating to Pennsylvania with their Hereford cattle and purebred Arabian horses.

Dr. Swinker's research activities have addressed management and environmental issues related to the horse industry such as: stable air quality, small acreage management, manure management, water quality, economic impact studies, in addition to behavior and reproductive issues. Ann's undergraduate teaching responsibilities in Colorado and Pennsylvania have included: Equine Careers Identification and Preparation Course, Livestock and Equine Events Coordination; Equine Nutrition and extension related courses.

Penn State's undergraduate courses currently include Introductory Horse Production and Management, Advanced Horse Production and Management, Horse Handling and Training, Equine Facilitated Therapy, Advanced Judging, Independent Study, and Special Topics in Equine Science. Students are actively involved in production, management and equine industry activities through foaling, breeding and farm management projects, judging teams, internships, independent study and other educational programs. Extracurricular activities include Block and Bridle Club and Intercollegiate Horse Show Equestrian Team. Internships are available with horse breeding and training farms, feed and pharmaceutical companies, equine publications, racetracks and other equine industry enterprises.

Penn State has been a leader in the breeding of registered Quarter Horses and currently maintains a herd of approximately 35-45 horses. These horses are used for teaching, research and extension programs. The two-year-olds are sold each spring after completion of the handling and training course. Two stallions, The Clue Express and Lucky Zip are standing to Penn State mares and have produced successful show and pleasure horses. A primary goal of the breeding program is to produce quality horses for Penn State programs and sale to the public.

The department's extension programs include a strong youth equine program. Approximately 7,500 youth, thousands of volunteer leaders and families are involved in 4-H horse programs throughout Pennsylvania. These programs are designed to develop life skills in youth and knowledge of horse production, use, and management. Activities such as clinics, camps, horse shows and other 4-H events and competitions promote development of riding and horsemanship skills, while encouraging responsibility, self-confidence, sportsmanship, teamwork and responsible care of project animals. Several new 4-H horse programs and resources are under development including additional references and resources for leaders and 4-H members, a horsemanship skills advancement program, a comprehensive safety education program, 4-H horse judges training, and additional hands-on clinics.

In addition, Dr. Ed Jedrzejewski, DVM became the Assistant Horse Farm Manager in July 2001 and Dr. Nancy Diehl, VMD, joined the faculty in August 2000 as Assistant Professor of Equine Science. Dr. Jedrzejewski assists with daily management of the horse farm, including management and care of horses, supervision of students and assistance with classes. Dr. Diehl coordinates the undergraduate equine teaching program, advises students, conducts research focused primarily on equine behavior and is the faculty coordinator for the farm unit.

These new members join Mr. Ward Studebaker, Horse Farm Manager, Mr. Brian Egan, Equine Extension Assistant and Ms. Pat Comerford, Extension Horse Specialist, all of which have worked with the Penn State horse program for many years. Mr. Studebaker ably manages the university horse farm, supervises students, participates in clinics and demonstrations and assists with classes. Mr. Egan coordinates, conducts and assists with youth and adult extension activities, teaches the horse-handling course, coaches the horse judging teams and advises the Block and Bridle Club with Dr. Keith Bryan. Ms. Comerford provides leadership for the Pennsylvania 4-H horse program, develops educational resources, coordinates youth activities, assists with classes and advises students.

Penn State's Equine Team will provide strength to the University's horse educational extension, teaching and research programs. We look forward to providing additional opportunities for students, assessing equine industry needs and strengthening Penn State's ties with the equine industry. For more information about the Penn State equine program, please visit the horse program web site at: <http://www.das.psu.edu/> and click on horses.