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TNH4001-Control of Infectious Diseases of Horses

The University of Tennessee Agricultural Extension Service

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EQUIFACTS

Control of Infectious Diseases of Horses

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An effective disease control program is extremely important to maintain the health and usefulness of a horse. A disease control program is just part of a total management scheme of proper health, nutrition, reproduction, growth and performance. A healthy, disease-free horse will have the opportunity to maximize its genetic potential or simply carry the horse owner on a Sunday afternoon pleasure ride. This fact sheet will provide Tennessee horse owners information about diseases and their control.

Equine Encephalomyelitis

Equine encephalomyelitis is a viral disease which causes degeneration in certain areas of the brain. This disease is commonly referred to as sleeping sickness. It affects horses and is a threat to humans as well. Eastern Equine Encephalomyelitis (EEE) and Western Equine Encephalomyelitis (WEE) are diagnosed in the United States. Venezuelan Equine Encephalomyelitis (VEE) is present in South and Central America. The disease is transmitted to horses primarily by mosquitoes from wild birds and rodents, which serve as carriers.

The amount of virus in the blood of horses affected with EEE and WEE is very low and makes horse-to-human transmission very unlikely. This is not the case with VEE. Therefore, VEE presents a much greater public health threat. Multiple horses may become affected. This indicate that the horses are susceptible and that the insects in the area are carrying the virus. The death rate for WEE is approximately 50 percent, while EEE and VEE have death rates of 70 percent to 90 percent.

Symptoms of the disease actually occur in four stages. Stage I is characterized by an extremely high body temperature for a short period of time. In addition, nervous signs appear at peak of fever, with the horse being very sensitive to sound. In stage II, the horse shows signs of depression and drowsiness as well as abnormal gait and circling. The horse in stage III shows signs of paralysis. Typically, the horse cannot raise its head, the lower lip drops and the tongue may hang out. Complete paralysis and death occur in stage IV.

An effective vaccination program is available to prevent Equine encephalomyelitis. Many vaccines are available and can be secured from veterinarians. Vaccinations will include a two-shot series, four to six weeks apart, for an unvaccinated horse. Thereafter, annual vaccination is recommended in the spring or early summer. Horses in the extreme Southern United States should be vaccinated semi-annually. Many Tennessee horse owners also have started a semi-annual vaccination program. Foals may be started on a vaccination program at 2-3 months of age. This vaccine is often combined with other vaccines like tetanus toxoid.

Tetanus

Tetanus is a usually fatal bacterial disease which poses a continual threat to horses. This *clostridial* bacteria is present in all equine manure, and horses have an unusually high susceptibility to the disease. The mortality of affected horses is greater than 80 percent. Protective immunization against this disease is mandatory.

Clostridium tetani bacteria prefer an environment low in oxygen, which allows the bacteria to multiply and produce toxins. Therefore, deep wounds (puncture wounds) are the most dangerous. The bacteria produce spores which can live in the environment for years and often enter the body on rusty nails or wire. The toxins interfere with the nervous system of the animal, resulting in a very tight, stiff muscles. Other clinical signs include a stiff, stilted gait, elevated tail, persistent protrusion of the third eyelid and a classical "sawhorse" stance. As the disease progresses, most horses will be unable to eat or drink and generally die of respiratory paralysis.

Two products are available for protecting horses against tetanus. These are tetanus antitoxin and tetanus toxoid. Tetanus antitoxin gives immediate but short lived protection. It is given to horses not previously vaccinated that have a wound or to newborn foals from unvaccinated mares. Tetanus toxoid gives long-acting protection but takes two weeks for the protection to develop after the initial vaccination series is given. This vaccine is given as two shots, one month apart, followed by a yearly booster. Foals can be given the vaccine beginning at 3 months of age. Pregnant mares should be given the vaccine one month before foaling, and any horse with an injury or having surgery should be given a booster.

Equine Influenza

The influenza virus is the most common cause of respiratory disease in horses. Influenza is caused by two specific types of viruses — *myxovirus A/Equi* and *myxovirus A/Equi 2*. The disease is highly contagious and is spread by horses coughing and others breathing the droplets as they move through the air. A horse infected with the virus can cough and spread the virus as far as 35 feet. The virus settles on feed, feed buckets, etc. and is eaten or breathed in by the horse. Isolation of affected horses is essential

Clinical signs of the disease include high body temperature (101 to 106 F), runny nose, depression, cough and loss of appetite. The incubation period for this disease can be very short — one to five days. This disease can initiate other secondary disease processes like pneumonia, laminitis and colic. It is essential to give adequate rest of three to four weeks to allow complete regeneration of the upper respiratory tract. If a horse is not properly rested, secondary bacterial infection could result. These secondary infections could be much more severe than the influenza virus itself. Chronic Obstructive Pulmonary Disease (Heaves) may often result from severe cases of influenza.

Vaccines for equine influenza are available to the veterinarian from many manufacturers. These vaccines provide adequate protection for only 60 to 90 days. It is recommended that horses at substantial risk of exposure to the virus (show horses, race horses, horses at boarding stables, etc.) be vaccinated every 60 to 90 days. Horses with little exposure to other horses may not require vaccinations or might receive them annually or semi-annually. This vaccine is often combined with other vaccines for tetanus, EEE, WEE and rhinopneumonitis. Mare should be vaccinated one month prior to foaling.

Rhinopneumonitis

Rhinopneumonitis is a herpes virus infection that affects all ages of horses. This virus can cause several different syndromes in the horse. The respiratory form has clinical signs very similar to equine influenza (fever, cough, nasal discharge). Its mode of transmission is also similar. The abortion form will cause abortion in late pregnancy and will cause weak or stillborn foals. The neurologic form of the disease may cause rear limb ataxia or even paralysis. There are two vaccines available to protect horse against rhinopneumonitis virus, modified live and killed. These vaccines can be given to horses 3 months old and older for protection against the respiratory and abortion forms of the disease. Pregnant mares should be vaccinated for rhinopneumonitis at the fifth, seventh and ninth months of pregnancy to give them the best protection against abortion.

For protection against the respiratory form of the disease, high-risk horses should receive

vaccinations at 60-to 90-day intervals. This is similar to the recommendation for equine influenza. Combination vaccines with equine rhinopneumonitis are now available which allow easy immunization against both respiratory viruses.

Strangles

Strangles is a highly communicable bacterial disease primarily affecting young horses, although older horses may contract the disease. The bacterial organism causes inflammation of the upper respiratory tract, and the lymph glands in the jaw and throat area become enlarged and swollen. Strangles is also known as distemper or shipping fever.

The disease can be spread by nasal discharge that contaminates water troughs, feed bunks or pastures. Once the bacteria are present, they are persistent in the area for years. Horses also develop varying degrees of immunity once they have contracted strangles.

Symptoms of the disease are high body temperature (103 to 104 F), swollen lymph glands, nasal discharge, cough and difficulty in swallowing. The lymph glands may abscess and burst. After rupture, the glands will produce a thick, cream-colored discharge. Some horses may develop pneumonia or internal abscesses.

Treatment recommendations for strangles may vary with each farm outbreak. Consult your veterinarian at the first possibility of the disease. All horses brought to a horse farm should be quarantined and all sick animals isolated. All feed buckets, water troughs, brushes, halters and other equipment or facilities that come into contact with infected horses should be disinfected.

A vaccine for strangles is available; however, many veterinarians only vaccinate horses where there is a recurring problem or direct exposure. The vaccine must be given in three doses, two weeks apart, followed by an annual booster. There have been reports of vaccine failures and abscesses occurring at the injection sites. As a result, this vaccine is best used under the supervision and advice of a veterinarian familiar with the horses or farm having problems with strangles.

Potomac Horse Fever

Potomac Horse Fever was identified in 1979. The disease was first described in those states near the Potomac River (Virginia, Maryland, Pennsylvania). This disease now appears to be most prevalent in the Eastern United States but has been identified in 33 states. The disease appears to be associated with rivers or large bodies of water. The causative agent has been identified with a group of organisms which includes the one causing Rocky Mountain Spotted Fever. However, it is not the same organism.

Symptoms of the disease include mild depression, refusal to eat, increased body temperature and stoppage of intestinal movement. In many cases, a profuse watery diarrhea develops which leads to rapid dehydration. Laminitis often occurs secondarily to the disease. Most cases occur between March and October. Factors which are still unknown about Potomac Horse Fever include the mode of transmission, cause of the diarrhea and the high incidence of laminitis. Twenty-five to 30 percent of affected animals die. A significant number of the horses that no not die will be permanently affected from secondary laminitis.

Vaccines are available for the control of this disease; a two-shot series at four to six week intervals is recommended for non-vaccinated horses. Annual boosters in the spring are recommended for previously vaccinated horses. Vaccination can begin at 3 months of age and can also be given to pregnant mares one month prior to foaling.

Rabies

Rabies is a viral disease that is fatal to horses. Rabies is the result of an infected wild animal biting a horse on the muzzle, face or lower limb. Although rabies is not a major problem in most areas of Tennessee, horses which may have contact with wildlife should be vaccinated. A vaccine is available for use in the horse, and annual boosters are recommended for horses in areas where rabies is a problem.

Equine Infectious Anemia

Equine infectious anemia (EIA) is a viral disease affecting less than 1 percent of the horse population in Tennessee. The recognized test for EIA is the agar-gel immunodiffusion (AGID) test developed by LeeRoy Coggins. The test is not actually for the EIA virus but for antibodies developed to fight the

disease. A horse that reacts positively to the test is classified as a carrier. The test is simple and accurate.

This viral disease has some unique characteristics. It is specific for the equine family (horse, ponies, mules), the infection is permanent and there is no known cure. Furthermore, there is no preventive vaccine available to horse owners. Horses may show no signs of the disease or may die a few days after symptoms appear.

EIA is transmitted "blood-to-blood" by blood-sucking insects (flies and mosquitoes) and contaminated syringe needles. The incubation period is about 30 days but can be as long as 90 days. Since there can be a long incubation period and insects are still active through late fall, the best time to test for EIA is during the winter months (January, February, March).

The EIA virus may occur in three different forms — acute, subacute and inapparent (chronic). Symptoms of the acute form of the disease would include extremely high temperature (104 to 108 F), depression, weakness, loss of appetite, drop in red blood cells and even death. The subacute form would show similar but less severe signs and seldom death. The inapparent carrier may just appear weak or unthrifty or may be very normal.

Summary

A disease control program can be tailor-made not only for each horse farm but also for each horse within the farm. The amount of contact that one horse has with other horses can greatly influence the need for appropriate disease control. A recommended vaccination program for horses in Tennessee is shown in Table 1. Show horses, broodmares, foals and backyard horses all have different requirements for disease control. Prevalence of a disease in a certain locality or outbreak of a disease can affect vaccination programs from year to year. A local veterinarian can assist the horse owner in developing a comprehensive disease control program.

Table 1: Vaccination Programs for Horses in Tennessee

A. **Vaccination schedule for show horses**
- Spring
  - Tetanus
  - EEE and WEE
  - Influenza
  - Rhinopneumonitis
  - Potomac Horse Fever
- Boosters required every 60 to 90 days
  - Influenza
  - Rhinopneumonitis

B. **Vaccination schedule for broodmares**
- One month prior to foaling
  - Tetanus Toxoid
  - EEE and WEE
  - Influenza
- Rhinopneumonitis
  - 5th - 7th - 9th month of pregnancy

C. **Vaccination schedule for foals***
- Birth
  - If the mare was vaccinated one month prior to foaling and the foal received adequate colostrum, no vaccination is required. If not, tetanus toxoid and tetanus antitoxin should be given at birth.
- Third month
  - Tetanus, EEE and WEE, Influenza and Rhinopneumonitis
- Fourth month
  - Tetanus, EEE and WEE, Influenza and Rhinopneumonitis

D. **Vaccination schedule for a backyard horse with very little exposure to other horses**
- Annual
  - Tetanus Toxoid
  - EEE
  - WEE

* Booster Influenza and Rhinopneumonitis every 60 to 90 days

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