

## Planning ahead to protect your farm against Equine Viral Arteritis

Maria S Ferrer, DVM, MS, DACT  
Clinical Assistant Professor  
Equine Theriogenology

In 2006, the equine industry was shocked by the report of an Equine Viral Arteritis (EVA) outbreak. The outbreak was initiated in June 2006 in a Quarter Horse farm in New Mexico. Soon, other cases followed in Utah, Oklahoma, Texas and Kansas. Due to the devastating economic losses that EVA can cause, it is important that you learn how to protect your farm, your stallions and your foal crop.

### *What is EVA?*

Equine Viral Arteritis is caused by the Equine Arteritis Virus (EAV). It is a contagious, primarily respiratory viral disease that affects horses and other equids of any age. Although typically not life-threatening to healthy adult horses, it is of special concern because it can result in abortion in pregnant mares, illness and death in young foals, and establishment of the carrier state in stallions.

### *What are the signs of EVA?*

Most infected horses show no signs of disease and are asymptotically infected. However, even though signs are not present, they can still spread the virus. In cases where illness develops, affected animals can show fever, swelling of legs, scrotum, sheath, mammary glands and other dependent parts of the body, loss of appetite, depression, watery to mucoid nasal discharge, conjunctivitis, skin rash, pneumonia, pneumonia with enteritis, and abortions.

### *How is EVA transmitted?*

EVA can be transmitted through respiratory and venereal routes. Acutely infected horses shed the virus through their respiratory tracts. Other horses can become infected after direct contact with exhaled secretions. This is the main way EVA is spread in racetracks, shows and sales, but also in breeding farms. However, venereal transmission plays a major role in dissemination of the disease in breeding farms. EVA can be spread during teasing, mating or insemination through contact with semen or reproductive tract secretions of acutely infected stallions and mares. In addition, chronically infected carrier stallions also shed the virus in their semen. The virus is resistant to cooling or freezing and transmission can occur after insemination with infected fresh, cooled or frozen semen. Mechanical spread can also occur through tack or equipment shared by horses and hands and clothes of personnel. Finally, unborn foals can become infected by transmission of the virus across the placenta.

### *How does EVA affect my breeding operation?*

EVA possesses a major threat to immunologically naïve mares and stallions. The virus is generally first introduced into a farm by a mare that has recently been bred or inseminated with infected semen, or by an asymptomatic animal that has acquired the infection via respiratory route in a show or sale. If these animals are housed together with pregnant mares that have no antibodies to EAV, pregnant mares may abort after clinical or asymptomatic infection. Abortion rates can be as high as 70% and an entire foal crop can be lost.

Infection of a breeding stallion can result in temporary subfertility for up to 8 weeks. After acute infection, stallion fertility recovers but the stallion can remain chronically infected. Duration of virus persistence varies from several months to years. During the carrier state, the stallion harbors the virus in the accessory sex glands and shed virus in his semen. Venereal transmission rates can be as high

as 100%. Although some carrier stallions can spontaneously eliminate the virus, carrier stallions remain as the main reservoir of EAV in a breeding farm.

Direct economic losses to the breeding operation result from abortions, disease or death of foals, decreased commercial value of carrier stallions and their semen, reduced demand to breed to carrier stallions, denied export markets to carrier stallions and their semen, reduced export markets for horses positive for serum antibodies against the virus.

### *How can I protect my farm against EVA?*

Specific guidelines to control the EAV have been published in a document called "Equine Viral Arteritis-Uniform Methods and Rules". The following is a summary of the guidelines proposed:

1. Isolate all new arrivals and horses returning from other farms, sales or race tracks for 4 weeks
2. Segregate pregnant mares from other horses and keep mares in small groups based on anticipated foaling dates until foaling
3. Before each breeding season, blood-test all new breeding stallions for the presence of antibodies to EAV
4. Vaccinate all seronegative stallions against EVA, and isolate them for 28 days after initial vaccination. Make sure you keep a copy of the blood test results prior to vaccination and of the vaccination certificate for your records.
5. Annually vaccinate all noncarrier breeding stallions at least 4 weeks before the start of each breeding season
6. If a stallion has tested positive,
  - a. The owner of the seropositive stallion must provide documentation of seronegative status prior to initial vaccination. A valid EVA vaccination certificate must be provided
  - b. If documentation of seronegative status prior to vaccination is not available, have the semen tested for viral isolation
7. Physically isolate EVA-carrier stallions
8. Observe strict hygiene when breeding mares with infected semen
9. Breed EVA carrier stallions only to vaccinated mares or mares that have been tested positive for naturally acquired antibodies to the virus
10. Vaccinate seronegative mares bred to carrier stallions at least 3 weeks prior to breeding
11. Physically isolate mares bred to carrier stallions for 3 weeks
12. If you are buying cooled or frozen semen, make sure that you are provided with written evidence of the carrier or noncarrier status of the stallion. If the stallion is a known carrier the information should be disclosed to mare owners. If he is said to be a noncarrier, request written evidence from a USDA approved laboratory that the stallion:
  - a. Has a seronegative status
  - b. Had a seronegative status prior to initial vaccination and a valid EVA vaccination certificate
  - c. Was tested negative for virus isolation from semen if he is seropositive and no proof of vaccination is available
13. In areas or breeds with a high prevalence of EVA, vaccinate all colts under 270 days of age.

The vaccine is safe and effective and protection afforded by vaccination is considered to last several years. Immunization against EVA effectively reduces shedding of the virus by mares inseminated with infected semen, and prevents development of the carrier state in stallions.