



EVA is rarely lethal to horses. Its greatest danger lies in the chance of abortion in mares.

VH04

# EVA:

## A Manageable Problem

*Equine viral arteritis has reappeared  
but is manageable with care.*

**By Andrea Caudill**

THE NEWS BROKE IN EARLY JULY: NEW MEXICO SIRE DASH TA Fame, along with numerous other horses at MJ Farms in Veguita, New Mexico, was infected with equine viral arteritis, a virus transmitted via respiratory and venereal tracts.

EVA is a cause of concern for horse owners and breeders, not the least because horsemen are not very familiar with the virus. According to the U.S. Department of Agriculture's Animal & Plant Health Inspection Service Web site, it is most commonly spread via nasal discharge. EVA can also be spread via breeding – both live cover and artificial insemination – as the virus can be carried in a stallion's semen.

"It has significant implications from the standpoint of the breeding business," said Joe Manning, D.V.M., who specializes in reproduction at Equine Sports Medicine Services at Weatherford, Texas. "EVA is a virus and is one that causes abortion in mares pretty much throughout gestation. Mares that become infected while pregnant can abort their fetuses pretty much throughout, but they don't always."

### MJ Farms' Experience

MJ FARMS' JANIS SPENCER MURRAY, D.V.M., WHO OWNS AND runs the breeding farm with her husband Mac, noticed a problem during regular checkups on the broodmares.

"We first started picking up (on it) when we were routinely checking our mares on a 60-day pregnancy check starting about June 4," Murray said. "We found a couple open, so we started checking all of our pregnant mares and found quite a few more open that were originally in foal. We became quite

alarmed and had no clue what was going on."

One of the Murrays' first thoughts was that their mares had contracted Mare Reproductive Loss Syndrome (MRLS), caused by eating Eastern tent caterpillars. While talking with colleagues, they discovered an article about EVA and thought the symptoms fit. They called Peter Timoney, M.V.B., Ph.D., F.R.C.V.S., at the Gluck Equine Research Center at Lexington, Kentucky. He is a leading researcher and expert on EVA. On June 19, the Murrays began sending the lab blood and serum samples for testing. They tested the open mares first, then the rest of the horses.

"Every one came back positive (for EVA)," Murray said.

Murray immediately contacted the New Mexico Livestock Board and state veterinarian and provided information on horses in and out of the farm and all cooled semen shipments. She soon discovered her farm wasn't the first to experience it.

"There was an outbreak last year in New Mexico on a nearby breeding farm that was not reported," Murray said. "Had it been reported and had we known, we could have vaccinated our stallions, vaccinated everything, and this never would have happened. We can prevent this in other parts of the country.

"We're in the spotlight, but we didn't start this," she continued. "We're the victims of this thing, and we're doing all we can to get the word out and educate people. If the farm that was infected last year would have done it the same way, this whole thing would have never happened."

She said that as of mid-July, the farm has lost about 50 percent of its pregnancies, but some of the infected mares

remain in foal. Other than the mares turning up open, there was little indication anything was wrong, she said. Two of the farm's three stallions showed minor fevers, as did a few mares, but, as she said "most of our mares that have lost their pregnancies showed absolutely no signs of any kind of ill health. They just turned up open (when) they shouldn't have."

She said Dash Ta Fame tested negative for the virus July 11, 2005. During this year's breeding season, the farm has bred nearly 200 mares and shipped semen to 16 states. They are still narrowing down which shipments of semen were positive for EVA.

"We don't think Dash Ta Fame contracted this before the middle of June, but we're not positive," she said. "We contacted all the owners and all the shipped semen (customers) that we've shipped to in May and June. We're still contacting people."

"It's a totally manageable disease," she continued. "Mares should be vaccinated, and in that case, you can breed a vaccinated mare to a positive stallion with no problems. So I think this should be a nationwide campaign. I didn't know a thing about this disease two weeks ago. Everybody was scratching their heads, wondering what in the heck was going on."

As far as Dash Ta Fame's breeding status, the farm hopes to return the stallion to breeding service next year.

Owned and bred by Bob Bert, Dash Ta Fame is a son of First Down Dash out of the Tiny's Gay mare Sudden Fame. The two-time Grade 1 winner has seen 12 crops to race that have earned more than \$10.7 million. His get includes multiple Grade 1 winner and multiple world record setter Kendall Jackson. New Mexico's leading sire, Dash Ta Fame currently stands 14th on the sires lists by money earned and 23rd by winners this year. On the all-time list as of 2005, the stallion stands 21st by earnings and 32nd by winners.

MJ Farms also stands the multiple Grade 1-winning stallion Heza Bold Man, owned by Sandy Erwin, who has also been confirmed with EVA and carries the virus in his semen. The farm's other stallion, Woodbridge, a son of Dash Ta Fame and full brother to Kendall Jackson, owned by the farm, has been diagnosed with EVA but has not yet been confirmed as carrier.

According to New Mexico state veterinarian Dave Fly, the state has not made any drastic changes. It has changed requirements on health papers, requiring veterinarians to write them within seven days of horses leaving the state. The state also has some premises under volunteer quarantine and some under official quarantine.

## WHAT TO REMEMBER

- Equine viral arteritis is an infection by the equine arteritis virus (EAV). It is communicable only to equines.
- EVA is not usually lethal to adult horses.
- The greatest danger of EVA is abortion in mares.
- EVA is transmittable via respiratory and venereal paths.
- Once infected, mares, geldings and sexually immature stallions recover within a few weeks. They shed the virus and become immune, but will test seropositive the rest of their lives.
- Sexually mature stallions can become carriers the rest of their lives and might shed the virus in their semen. The virus can survive being cooled and frozen.
- There is a vaccine available for EVA. It is safe for almost all horses.
- Horses exposed to EVA, including mares bred to EVA-positive stallions, must be properly quarantined to prevent the spread of the virus.
- Horses and semen testing positive for EVA may not be allowed to be exported to other countries. Before vaccinating, discuss the risks with your veterinarian.

"We are advising people (at) shows to be extra careful," Fly said. "It shows up as respiratory disease in young animals."

### What is EVA?

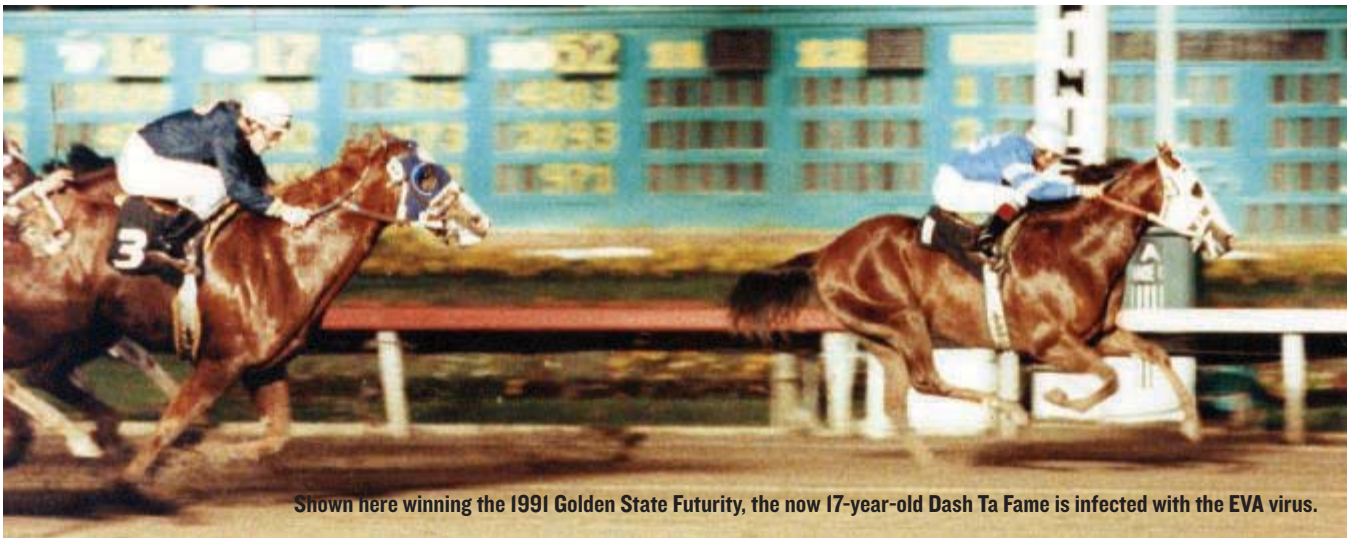
EVA IS INFECTIOUS ONLY TO HORSES, TIMONEY SAID, AND IS generally not a life-threatening illness, except to equine fetuses and very young foals.

EVA can be passed via respiratory infection, similar to influenza and rhinopneumonitis (both caused by viruses). It is transmitted via direct horse-to-horse contact, but can also be transmitted via indirect methods, such as shared equipment or handlers.

Unlike the other viruses, however, EVA can also persist in a stallion's semen and infect mares when the stallion is bred via live cover or AI.

Mares, geldings and sexually immature stallions will not become persistent carriers of the disease. They will acquire the virus and, within weeks, overcome and shed it. Foals born to vaccinated mares might test positive for EVA.

Stallions, however, can become carriers for an extended period of time, because EVA is a testosterone-dependent virus. Once they recover from the original infection, they



Shown here winning the 1991 Golden State Futurity, the now 17-year-old Dash Ta Fame is infected with the EVA virus.

Pregnant mares should be isolated from horses that travel to lower the risk of catching EVA.



CHRISTI HUFMANN

shed the virus only through their semen. The virus will remain in the semen even if cooled or frozen.

“It’s the only known testosterone- or androgen-dependent carrier state that I’m aware of amongst the mammalian viruses,” Timoney said. “That’s why it only occurs in the intact, sexually mature male.”

The virus can remain in the infected stallion’s reproductive tract for weeks, months, years or for the rest of his life. Some stallions have spontaneously eliminated EVA from their systems and ceased to be carriers.

## Symptoms of EVA

SYMPTOMS INCLUDE FEVER, EDEMA OR SWELLING (ESPECIALLY IN the legs, genitals and around the eyes), abortion, nasal discharge, skin rash (localized or generalized) and loss of appetite.

It is common for horses not to show symptoms while still being a carrier.

The greatest danger to horses infected with EVA is abortion in pregnant mares. It is also possible, although rare, for a foal to be carried to term while infected with the disease. Typically weak, the foals can die within a few days of birth.

Abortion, if it occurs, typically happens late in the acute phase or early in the convalescent phase of the infection, according to Timoney. This means within one to three weeks following exposure to the virus. Unlike equine herpesvirus-1, the stage of pregnancy does not seem to be critical – abortion can happen from two months to term.

“Abortion due to this virus does not occur as a sequel to infecting a mare with infected semen,” Timoney said. “Abortion occurs in mares that are already pregnant at the time of exposure to the virus, so (if breeding via AI), the exposure is invariably by the respiratory route through that mare coming in contact with a mare that’s acutely infected and shedding large amounts of the virus.”

In other words, an EVA-negative mare that was artificially inseminated with semen from an EVA-positive stallion is not at risk to abort. She is, however, at risk for being infected with EVA and, if allowed to intermingle with pregnant mares, can cause them to abort. The mare should be isolated for three weeks after breeding. Horses that have been recently exposed to the virus should be isolated as well, to prevent the

## FOR MORE INFORMATION

For more information on EVA, or to get horses tested, call the Gluck Research Center in Lexington, Kentucky, at (859) 257-4757.

The American Association of Equine Practitioners offers information about EVA at [www.xcodesign.com/aaep/displayArticles.cfm?ID=285](http://www.xcodesign.com/aaep/displayArticles.cfm?ID=285). The AAEP also offers information on how to breed a mare to an EVA-positive stallion at [www.xcodesign.com/aaep/displayArticles.cfm?ID=36](http://www.xcodesign.com/aaep/displayArticles.cfm?ID=36).

The United States Department of Agriculture has a 19-page pamphlet on EVA and proper outbreak and control protocol at [www.aphis.usda.gov/vs/nahps/equine/eva/eva-umr.pdf](http://www.aphis.usda.gov/vs/nahps/equine/eva/eva-umr.pdf). For a free copy of the USDA’s 11-minute video and brochure, “EVA: A Manageable Problem,” contact Peter Timoney, Department of Veterinary Science, 108 Gluck Equine Research Center, Lexington, KY 40546; (859) 257-1531; [ptimoney@uky.edu](mailto:ptimoney@uky.edu).

For a listing of countries’ exportation requirements, visit USDA’s Web site at [www.aphis.usda.gov/vs/ncie/iregs/animals/](http://www.aphis.usda.gov/vs/ncie/iregs/animals/).



The EVA vaccine is a modified-live vaccine and is administered on a yearly basis.

spread of the virus.

Diagnosis is most commonly made via a blood sample that checks for EVA antibodies, indicating exposure to the virus has occurred.

### Treatment and Prevention

BECAUSE EVA IS A VIRUS, ONCE CONTRACTED, THERE IS NO direct treatment for it. Treatment is focused on alleviating symptoms to ease the horse's recovery.

To prevent spread via respiratory methods, all hygiene rules commonly used to prevent the spread of viruses should be followed.

To prevent the disease, a live-virus vaccine is available. The vaccine, called Arvac and marketed by Fort Dodge Animal Health, has been around for nearly 20 years. It requires a yearly booster and is recommended for stallions, horses over the age of 6 weeks and nonpregnant mares. According to the manufacturer though, the stock was sold out and more will not be available until early fall.

After a serious outbreak of EVA in the early 1980s, regulations required all Thoroughbred breeding stallions in Kentucky and New York to receive the EVA vaccine. Timoney said there have been no instances of adverse reactions to the stallions from receiving the vaccine.

"As part of an annual breeding soundness evaluation of stallions, people should be screening them for EVA before they start shipping cooled semen or freezing semen," Manning said.

There is, however, a catch to vaccinating. Many countries around the world will not allow the importing of horses, semen or embryos that test positive for EVA – even if the horse tests positive solely because it was vaccinated against the disease. Some countries, however, will recognize a horse that has been vaccinated under proper procedures by a licensed veterinarian.

"The client has to weigh the pros of protecting their horse against a potential EVA infection and the cons, which are definitely export of the animal and/or semen and frozen embryos," Manning said.

Manning recommends discussing the advantages and disadvantages with your veterinarian. Specific countries' guidelines for importation of horses, semen and embryos can be obtained

from your veterinarian, but there is also a list at the USDA's Animal & Plant Health Inspection Service Web site (see "For More Information" on page 34 for the Web address). 📌

## WHAT SHOULD I DO?

**If there is a chance your horse or farm has been exposed to EVA, the first step is to separate all possibly infected horses from broodmares. Quarantine procedures should be followed to prevent any possible spread of the disease.**

**Second, test all horses. Have your veterinarian draw blood and send it for testing. The serum will be checked for antibodies against the virus. Unvaccinated and unexposed horses should have a zero reading, says Joe Manning, D.V.M., of Equine Sports Medicine Services of Weatherford, Texas. When exposed, the horse will produce antibodies to the virus, elevating the number.**

**Once exposed to the disease, whether by infection or vaccination, a horse will always have an elevated reading.**

**Stallions testing positive need to have their semen checked for the virus to see if they are shedding the virus in the semen.**

**"Not all stallions do shed (the virus)," Manning said. "So they can be a negative status and still have a serum that's positive."**

**In the face of an outbreak, Manning said, it might be beneficial to administer an immunostimulant drug.**

**"Because it's a virus, we have no antibiotics that make a difference," he said. "But (an immunostimulant), in the face of exposure, has a potential to be beneficial. There is at least some information that says in stallions even that have been exposed, it has converted some horses who are shedders of the virus in their semen to nonshedders by use of immunostimulants. So during the outbreak, finding horses that don't necessarily have a fever or a serum titer and boosting their immune system would probably be another good tool to use."**

**If horses test negative, consider administering the EVA vaccine to prevent infection. Peter Timoney, M.V.B., Ph.D., F.R.C.V.S., a leading researcher in EVA, recommended that if you are worried about your horses having been exposed to the virus, contact your veterinarian to discuss options.**