

Equine HEALTH REPORT

A National Institute for Animal Agriculture Publication

Inaugural Issue

Kentucky Breeders Face More Losses *MRLS impact will extend into 2002-03*

By Jerilyn Johnson



The mysterious killer that hit Kentucky's Bluegrass Country horse breeding farms last spring took a serious toll on fetuses and foals. This epidemic, tagged Mare Reproductive Loss Syndrome (MRLS), came with a high price tag.

Initial estimates were that it cost the horse industry some \$225 million.

And the horse industry is not out of the woods yet. The syndrome seriously affected the 2001 breeding season, resulting in many open mares. The University of Louisville completed a report last summer indicating that reproductive losses could have an economic impact of \$336 million over the next three years. This is based on potential loss of income from the sale of yearling and older horses.

The report, commissioned by Kentucky Governor Paul Patton, said the losses from MRLS will extend well into 2002 and 2003. Impacted most will be the Thoroughbred industry. It's estimated that 5% of the 2001 foal crop and 20% of the 2002 crop are lost. Besides breeding farms, others affected include feed suppliers, sales companies and agents, veterinarians, farriers and horse transport companies who serve the industry. Cases of MRLS also were reported among other horse breeds in Kentucky and hit a few states bordering it to the north.

Solving the mystery. Dr. Lenn Harrison, director of pathology at the University of Kentucky's Livestock Disease Diagnostic Center, admitted that this was the most difficult case he'd ever encountered. He and other scientists on the University of Kentucky investiga-

tion team worked diligently to define and diagnose the problem.

The investigation team now believes that MRLS is the result of a deadly combination of an unusual weather pattern, a poisonous tree used in fence rows and an insect pest that nests in it. Environmental agents, specifically cyanide secretion from eastern tent caterpillars and/or black cherry tree leaves, remain the primary suspects. Harrison was one of the first to examine fetal tissue samples sent to his lab in Lexington in late April and early May. On May 23, he was informed by telephone that fetal tissues submitted to the veterinary toxicology lab at the University of Illinois, were positive for cyanide.

Cause and effect. Before the spring of 2001 the eastern tent caterpillar was considered an occasional nuisance to trees, not a deadly threat to foals. It spins tent-like nests in trees, especially favoring the black cherry tree. But the presence of moderate to high numbers of the caterpillars in broodmare pastures was one of the top risk factors identified in a MRLS survey of 133 Kentucky farms.

The onset of Kentucky's MRLS in 2001 was coincidental with a record warming period in early April, with a frost on April 17-18, followed by a strong warming trend. Additional weather stress occurred during April due to the

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Welcome to NIAA's Equine Health Report

The need for shared information between industry, government and the research community is greater today than ever before.

On behalf of the National Institute for Animal Agriculture (NIAA), I want to welcome you to the inaugural issue of *Equine Health Report*. This quarterly newsletter was created to provide a communications link between owners, practi-

tioners, researchers, academicians, government veterinarians and regulatory personnel.

NIAA's mission is to provide a forum for building consensus and advancing solutions for animal agriculture. This publication will be devoted to equine health news and information. It will bring you the latest information on industry issues pertinent to equine research,

disease control and eradication strategies. It also will be an information source for advancements in horse health care and welfare.

NIAA is proud to serve the U.S. equine industry through this new communications tool. We expect to make continued improvements in this publication during the first year. We welcome your input and suggestions as we work toward accomplishing this goal and making *Equine Health Report* a valuable resource for you in years to come.

—Glenn N. Slack, CEO, NIAA



Equine Health Report

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EVA Educational Video Released by USDA

The U.S. Department of Agriculture (USDA) has released an educational videotape and brochure entitled, *Equine Viral Arteritis, A Manageable Problem*. The video was produced to educate horse owners and breeders of the United States about a serious disease, Equine Viral Arteritis, or EVA.

EVA is an acute, contagious viral disease known to affect horses and other members of the equid family. EVA is not transmissible to humans or domestic animal species. It is considered primarily a viral infection of the equine respiratory tract.

EVA was thrust into the limelight of industry attention following a 1984 epidemic on a number of large Thoroughbred breeding farms in Kentucky. No outbreaks of EVA had previously been reported in Thoroughbreds in North America, although the veterinary literature details outbreaks of a clinically indistinguishable disease in Germany and Great Britain as early as the 19th century.

EVA is found in various horse populations throughout the world. It has been reported from countries in North and South America, Asia, Europe, Africa, Australia and New Zealand. EVA outbreaks don't often

occur, but when they do, they are frequently associated with movement of horses or shipment of stallion semen.

The video and accompanying brochure address facts and fiction about EVA, signs or symptoms of the disease, common means of transmission, economic consequences, confirming a diagnosis, preventing spread, and immunization against EVA.

According to Senior Staff Veterinarian Dr. Tim Cordes, with USDA's Animal and Plant Health Inspection Service (APHIS), EVA has been the subject of considerable misinformation and misperception. The video seeks to correct any myths and to inform horse owners and breeders that EVA is controllable.

Collaborating with Cordes on the project was EVA expert Dr. Peter Timoney, director of the Maxwell H. Gluck Equine Research Center at the University of Kentucky, Lexington, and Dr. William McCollum, a professor in equine viral diseases, also based at the Gluck Equine Research Center.

To receive a free copy of the 13-minute video and brochure, contact Dr. Cordes' office at 301-734-3279.

MRLS Impacts Horse Industry

(continued from page 1)



drought conditions. Researchers noted that this was an exact replica of weather conditions observed during April 1981, when a similar syndrome was reported in central Kentucky, although the cause was not identified.

Weather data will be closely monitored to see if the 2001 pattern is repeated, and alerts will be issued when appropriate. Counts of egg masses indicate that caterpillar populations will be high in 2002, reported Lee Townsend, University of Kentucky Extension entomologist.

In addition to reproductive losses, Harrison and other equine veterinarians in central Kentucky are concerned about 60 cases of pericarditis (inflammation or fluid in the sac around the heart), plus other cases of uveitis (eye infection) and bacterial encephalitis. They have yet to determine if these infections are linked to MRLS.

Plan of action. The Kentucky Department of Agriculture was in the process of developing an emergency procedures plan when MRLS happened, said Harrison. "What was done during the MRLS crisis by those involved was consistent with

the recommendations outlined in that plan. I believe we now have in place an excellent emergency plan to deal with any disease outbreak."

The University of Kentucky College of Agriculture released a list of recommendations last fall (see sidebar) for horse breeders. It's making available a number of Extension fact sheets on pasture management, caterpillar control and black cherry tree removal. All horse owners in regions east of the Rocky Mountains should consider these contingency measures to reduce the risk of MRLS in 2002.

Kentucky researchers note the decision to implement these measures should be based on the recog-

University of Kentucky's Livestock Disease Diagnostic Center received 421 late-term fetuses and 129 early-term fetuses between April 28 and June 20 that likely were MRLS cases. Most horse farms only brought one or two aborted fetuses to the LDDC for testing. History obtained from breeders indicate the numbers were far greater than lab counts.

nitition that risk factors for MRLS are multifaceted and that the onset was associated with abnormal weather conditions and presence of unusually large numbers of the eastern tent caterpillar in 2001. Elimination of all risk factors may not be feasible on many farms.

Editor's Note: For further information and updates on MRLS, visit the University of Kentucky College of Agriculture Web site, <http://www.uky.edu/Ag/VetScience/>

Photos courtesy of University of Kentucky Agricultural Communications

How to Prevent MRLS in Your Broodmare Band

The University of Kentucky College of Agriculture recommends that horse farms consider the following contingency measures to reduce the risk of Mare Reproductive Loss Syndrome:

- Minimize or eliminate exposure of pregnant mares to the eastern tent caterpillar.
- Keep pregnant horses out of proximity to wild cherry trees. There's a strong correlation with MRLS and the known danger of cyanide poisoning from wilted leaves from fallen limbs.
- Frequently clip pastures used by pregnant mares. Frequent mowing will minimize seed-heads and ensure new vegetative growth. UK's field-by-field farm visits found that mowing appeared to reduce MRLS in 2001.
- Offer good quality hay to horses on pasture.
- Increase the grass-to-clover ratio in pastures. A common factor identified during visits to farms experiencing MRLS losses was the presence of higher than average amounts of white clover. Increase the proportion and vigor of grass in the pasture by overdrilling grass seed and applying nitrogen fertilizer in the late fall. White clover can be minimized by herbicide application. This is not a recommendation to remove all white clover from pastures.
- Restrict time on pasture when a hard freeze is expected following a warm period.
- Reduce exposure of pregnant mares to endophyte-infected tall fescue. Although this factor was not correlated to MRLS and fetal losses, it's a good management practice in any year.

West Nile Virus Alert

Control is Critical as U.S. Cases Spread

West Nile virus (WNV), a vector-borne virus recognized in the Western Hemisphere for the first time in 1999, is on the move.

An estimated 504 cases of WNV-infected horses were confirmed in the United States in 2001. While the first cases were seen primarily in the Northeast, the virus has now spread to southern coastal states and the Midwest.

Randy Crom, senior staff veterinarian at USDA-APHIS, Riverdale, Md., said WNV was found in 19 states this past year. Florida was hit hardest with 370 equine cases. He warns that it may continue to spread to other regions.

"The virus is moving and is now established in tropical areas to the south," said Crom. "West Nile will very likely show up again through migratory birds. I believe the West Coast could see cases in 2002 or 2003."

How is it spread?

Invertebrate vectors, such as mosquitoes, circulate the virus among wild birds. Occasionally the virus is introduced into other vertebrate populations, such as humans or horses, that serve as incidental hosts. Incidental hosts are infected animals that do not pass the virus on to vectors or other animals.

The only vectors found to be associated with U.S. outbreaks of WNV in 1999 and 2000 in the Northeast were mosquitoes. At least 14 species of mosquitoes were found positive for WNV.

Horses are affected by WNV more often than other domestic animals. Many horses infected with WNV do not develop any illness, but of the 85 that did become ill in the 1999 or 2000 outbreak, 32 (38%) died or were euthanized. Other livestock and poultry do not commonly

show illness if infected with WNV.

Given that mosquitoes are associated with WNV transmission, the key to preventing or controlling future outbreaks of WNV among horses is to control mosquito populations and to prevent horses from being exposed to any adult mosquitoes that may be present.

The following recommendations are based on our current knowledge of WNV and of the 1999 and 2000 U.S. outbreaks. Similar recommendations would apply for other livestock or poultry should illness due to WNV in those types of animals come to be commonly recognized.

Mosquito breeding site control

Reducing the population of mosquitoes, especially species that are apparently involved with bird-to-bird transmission of WNV, such as some *Culex* species, can help to reduce or eliminate the presence of virus in a given geographical area.

The most important step any property owner can take to control such mosquito populations is to remove all man-made potential sources of stagnant water in which mosquitoes might breed. Dispose of any water-holding containers, including discarded tires. Drill holes in the bottom of containers that are left outdoors. Clean clogged roof gutters annually. Turn over plastic wading pools or wheelbarrows when not in use and do not allow water to stagnate in bird baths. Aerate ornamental pools or stock them with fish, such as *Gambusia*, that eat mosquito larvae. Clean and chlorinate swimming pools that are not in use and be aware that mosquitoes can breed in the water that collects on swimming pool covers.

You can also use landscaping to

eliminate standing water that collects on your property; mosquitoes can breed in any puddle that lasts more than four days. Thoroughly clean livestock watering troughs monthly. Local mosquito control authorities may be able to help in assessing the mosquito breeding risks in your area.

Decrease exposure to mosquitoes

It's also important to prevent horses from being exposed to adult mosquitoes. Several actions may help in that effort.

- **Screened housing.** Housing animals in structures with well-maintained insect screening can be useful to reduce exposure to adult mosquitoes. Use of such mosquito-resistant structures may actually lead to mosquito exposure unless precautions are first taken to eliminate mosquitoes from inside the structure. This may be accomplished through a number of means, including the use of mosquito adulticides. In addition, use of fans may reduce the potential ability of mosquitoes to feed on horses.

- **Insect repellents.** Use of insect repellents may be of some value in decreasing exposure of horses to adult mosquitoes.

Due to limited duration of effectiveness of some formulations under certain conditions (e.g., perspiration), repellents should not be solely relied upon to prevent mosquito exposure. Use according to label instructions regarding appropriate species, method of application, and other precautions.

Topical application of a product containing a synthetic pyrethroid compound (e.g., permethrin) as the active ingredient may offer the best combination of safety and efficacy.

- **Outdoor exposure.** Although
(see *Prevention*, p. 5)

USDA Issues Conditional License for West Nile Virus Vaccine for Horses

The U.S. Department of Agriculture has announced that it has issued a conditional license to Fort Dodge Laboratories, Inc., for a vaccine intended to aid in the prevention of disease in horses caused by West Nile virus.

USDA's Animal and Plant Health Inspection Service (APHIS) issues conditional licenses for veterinary biologics products to meet an emergency situation, limited market, local situation, or special circumstance. The special circumstance addressed here is the need for a product to aid in the prevention of West Nile virus.

Under these regulations, a product that is shown to be pure and safe and demonstrates a reasonable expectation of efficacy may be licensed while data to establish efficacy and potency are being obtained.

West Nile virus is a mosquito-borne virus that was first detected in the United States in 1999. The virus, which can cause encephalitis,

or inflammation of the brain in animals and in some cases, humans, has been found in Africa, western Asia, the Middle East, the Mediterranean region of Europe, and most recently in various parts of the eastern United States.

West Nile virus infection in horses may include both central nervous system and peripheral nervous system signs. Although horses can be infected by the virus, there is no documentation that infected horses can spread the virus to uninfected horses or other animals. In 1999 and 2000, 85 horses were infected with the virus, and 32 of these cases resulted in death.

The most common signs of West Nile virus infection in U.S. horses have been stumbling or incoordination, weakness of limbs, partial paralysis, muscle twitching and death. Fever has been detected in less than one-quarter of all confirmed cases.

Conditional licenses are generally issued with restrictions and for

a limited period of time. At the end of the period, data obtained in support of the product's efficacy, potency, and product performance are evaluated to determine if the conditional license should be renewed or if a regular product license may be issued.

In keeping with these regulations, the vaccine product described above has been issued a conditional license for one year. The product is restricted to use by a veterinarian in those states where use of the new vaccine product has been approved by the appropriate state regulatory authorities.

Horse owners planning to ship their animals to other countries should be aware that vaccinated animals may not meet the import requirements of those countries due to the presence of certain antibodies in their blood. While the presence of this antibody is not permanent, it could lead to complications in shipping the horse.

West Nile Prevention *(continued from p. 4)*

some species of mosquitoes feed at dusk or dawn, others are daytime feeders. As it is not yet clear which mosquitoes are responsible for the transmission of WNV to horses and other mammalian species, making recommendations as to when certain animals should avoid outdoor exposure may not be particularly useful at this time. However, a recently completed epidemiologic study of WNV suggests that stalling horses at night may be helpful in reducing risk of infection.

New vaccination

In addition to the mosquito-related prevention measures outlined above, there's now one addi-

tional action that can be taken to help prevent illness in horses with WNV infection. On Aug. 1, 2001, a conditional license was issued by the USDA-APHIS' Center for Veterinary Biologics for an equine WNV vaccine. It's a killed virus product that initially has a one-year license (see article above).

Conditional licensing means that the product has been shown to be safe, pure, and have a reasonable expectation of efficacy in preventing illness caused by WNV. Each state veterinary authority must also approve the use of the product in their state. Use of this vaccine is restricted to veterinarians.

Horsin' Around On the Internet

To learn more about the equine industry, health care, nutrition, training or horse-related activities, check out these informative Web sites on the Internet:

www.Horsecouncil.org
www.aphis.usda.gov/vs
www.MyHorseMatters.com
www.TheHorse.com
www.4ahorse.com

Articles from *Equine Health Report* and other reports can be found at NIAA's Web site, www.animalagriculture.org

USDA Announces Rule for Humane Transport

The U.S. Department of Agriculture published a final rule Dec. 7, 2001 that establishes minimum standards to ensure the humane movement of equines to slaughtering facilities by way of commercial transportation.

The regulations address food, water and rest provided to animals. Owner and shippers of horses are required to take certain actions in loading and transporting the animals, and they must certify that the commercial transportation meets certain requirements.

In addition, the regulations prohibit the commercial transportation to slaughtering facilities of horses considered to be unfit for travel, the use of electric prods and, within five years, the use of double-deck trailers. The number of double-deck trailers has been reduced in the last few years, being replaced with single-deck trailers.

After being published in the Federal Register, the new rule becomes effective Feb. 5, 2002. APHIS documents published in the Federal Register and related information, including the names of organizations and individuals who have commented on APHIS dockets, are available on the Internet at <http://www.aphis.usda.gov/ppd/rad/webrepor.html>.

Conditions under which horses are transported to slaughter have been a public and industry concern

for some time. Horses, some old, some lame, and some blind, are sold at auction terminals and transported in double-deck, straight, or gooseneck trailers to one of four plants in the U.S. approved for the slaughter of horses.

To address the concerns, Congress included authority in the Federal Agriculture Improvement and Reform Act of 1996 (the Farm Bill), for the Secretary of Agriculture to issue guidelines to regulate the commercial transportation of equines to slaughter.

Since 1989, about 2 million horses have been slaughtered at USDA-approved horse slaughter plants, according to agency figures. In 2001, 62,379 horses were slaughtered at plants in Texas, Nebraska and Illinois.

The humane transportation of equines regulation will include seven requirements addressing food, water and spacing requirements, identification and other shipping documentation, and training of transport personnel (see sidebar below).

USDA's Animal and Plant Health Inspection Service (APHIS) funded several research projects and used data obtained in developing the proposed regulations.

In one of the projects, Colorado State University looked at the physical condition of equines upon

arrival at slaughtering facilities via commercial transportation. Researchers observed equines being sold for slaughter at an auction, monitored trailer loads arriving at slaughtering facilities, and examined equines ante and post mortem for signs of physical trauma.

In another project, researchers at Texas A&M University and the University of California-Davis evaluated the effects of water deprivation in equines. The studies showed that equines deprived of water can begin to experience serious physiologic distress within 24 hours if the animals did not have access to water in the six-hour period before deprivation occurred.

Additional research at UC-Davis looked for and evaluated stress levels in horses transported to a slaughtering facility in Texas.

The regulations will apply only to transportation, or during transit. Agency officials said it is not necessary and is logistically impossible to regulate the care provided to equines maintained at feedlots or at private residences prior to shipment to a slaughtering facility.

Some of the research conducted showed that the vast majority of injuries caused to horses in transit to slaughter occur when the animals are actually in transit or during loading or unloading.

Final USDA Rule— Humane Transportation Requirements for Horses

1. Adherence to a food and water schedule prior to shipping to the slaughter plants.
2. Issuance of USDA "backtags" to each equine in the shipment.
3. Completion of an owner/shipper certificate, including an authorized signature for each equine.
4. Compliance with specific loading guidelines, which include allocating floor space and segregating aggressive animals.
5. Establishment of an educational program for personnel responsible for ensuring the care, safety, and welfare of animals in transit.
6. Inspection of horses, trailers, or trucks by USDA authorities.
7. Enforcement of specific requirements at the slaughtering facility by USDA officials. Requirements include inspecting and examining the horses as well as collecting the owner/shipper certificate(s).

Equine Practitioners Gather in San Diego

The American Association of Equine Practitioners (AAEP) held the largest convention in the association's history when 5,151 veterinarians, students, guests and exhibitors attended the 47th Convention in San Diego, Nov. 24-28.

It offered scientific presentations, professional development seminars and a sold-out trade show featuring the latest in veterinary products and services.

The AAEP honored its 2001 award winners at the President's Luncheon. Those receiving awards were: Dr. Peter Haynes, Distinguished Life Member; Dr. M.B. Teigland and Dr. Robert Baker, Distinguished Educator Award; and Dr. Nat Messer and David Foley, Distinguished Service Award.

The AAEP Foundation's exhibitor and silent auctions raised a record-breaking \$62,000 to support equine research and scholarships.

Nearly 100 scientific sessions highlighted this year's convention.

In-depth seminars and expert panels explored lameness in the western performance horse, the use of frozen semen, concepts in equine osteoarthritis, pediatrics, and use of antimicrobials. The popular wet lab sessions addressed dentistry, lameness, neurology, reproduction and ultrasound. The AAEP's second-ever Horseman's Day, an educational event for horse owners, attracted nearly 400 participants eager to learn the latest advances in equine health care.

Keynote speaker Morgan MacArthur, DVM, opened the convention with his talk on managing the professional and personal demands of veterinary practice.

"AAEP strives each year to present the most up-to-date information on the scientific, political, ethical, economic and social issues that affect the practitioners and the horse," said Jerry B. Black, DVM, new AAEP president and program chairman of the convention.

The 2002 AAEP Executive Committee was formally installed. Members are: Jerry Black, DVM, president; Thomas R. Lenz, DVM, MS, president-elect; Lawrence Bramlage, DVM, MS, DipACVS, vice president; C. Wayne McIlwraith, BVSc, PhD, FRCVS, DipACVS, immediate past president; and Harry Werner, VMD, treasurer.

Mark your calendar. The 2002 AAEP Convention will be held in Orlando, Fla., Dec. 4-8. For more information, call the AAEP office at 859-233-0147, or visit the AAEP Web site at www.aaep.org.

Headquartered in Lexington, Ky., AAEP was founded in 1954 as a non-profit organization dedicated to the health and welfare of the horse. It reaches more than 5 million horse owners through its 6,500 members worldwide. It's actively involved in ethics issues, practice management, research and continuing education.

Task Force Acts on Racehorse Drug Testing

The National Thoroughbred Racing Association (NTRA) recently unveiled a report of the Task Force on Racing Integrity and Drug Testing, at the 49th annual Jockey Club Round Table on Matters Pertaining to Racing, held in Saratoga Springs, N.Y.

The 56-page report includes five key recommendations to improve drug testing for Thoroughbred and Quarter Horse racing in the United States, in addition to a benchmark, national survey on programs and practices relating to testing and the preliminary findings of the Supertest, a study of selected samples from 28 states.

The task force issued five steps to protect and enhance horseracing's integrity and credibility:

1. Use a more rigorous screening process on post-race samples;
2. Reassess medication rules and enforcement policies in light of more sophisticated testing methods;
3. Develop withdrawal guidelines for commonly used therapeutic medications;
4. Establish a national, external quality-assurance program for drug-testing laboratories; and
5. Create a national organization to implement improvements in drug testing and provide leadership in jurisprudence and communications relating to drug testing.

The 11-member task force, formed in August 1998, is co-chaired by NTRA board member Ogden Mills Phipps, chairman of The Jockey Club, and



Jack K. Robbins, VMD, president of Oak Tree Racing Association and a distinguished life member and former president of the American Association of Equine Practitioners.

Editor's note: The full report is available at the NTRA Web site, www.ntra.com

Scientists Isolate Culprit of Uterine Infections

Scientists have characterized the bacterial culprit behind nocardioform placentitis, a reproductive disease of Thoroughbred racehorses that's caused hundreds of cases of weakened or stillborn foals on farms in Kentucky's Bluegrass region since 1986.

Genetic analysis of the bacterium led scientists to conclude it is a new species in the genus *Crossiella*, named *C. equi*. The accomplishment narrows down the list of potential suspects veterinary scientists have to check when diagnosing horses or researching the nature of the disease for clues on how it might be prevented using antibiotics, new animal husbandry practices, or other measures.

There were 144 U.S. cases of nocardioform placentitis in 1999 and 48 in 2000—all on central Kentucky farms. The disease is characterized by lesions that compete for nutrients flowing across the placenta to the developing fetus from the mare's uterus. This can result in an aborted fetus during late gestation, or a weak or stillborn foal.

In 1999, J. Michael Donahue and colleagues at the University of Kentucky's Livestock Disease Diagnostic Center in Lexington noticed portions of *C. equi*'s genetic code matched those of other bacterial strains in a collection maintained by microbiologist David Labeda at the Agricultural Research Service. Labeda oversees the Actinobacterial

Germplasm Collection at the ARS National Center for Agricultural Utilization Research in Peoria, Ill.

Through analysis of genetic sequences, and comparison with another closely-related species, *C. cryophila*, the scientists determined that equine isolates were indeed a member of genus *Crossiella* and one of the few actinomycetes known to cause animal disease.

One critical piece of intelligence in the fight against nocardioform placentitis will come from studies revealing where and how the bacterium lives in the environment, and at what life stage. Also important is determining how the bacterium finds its way into the mare's uterus and causes infection.

USAHA Committee Calls for Stallion Import Test Changes

The United States Animal Health Association (USAHA) Committee on Infectious Diseases of Horses is calling for changes in international testing requirements for stallions.

The need for change centers around concern that imported stallions might carry Contagious Equine Metritis (CEM), a venereal disease of horses.

A significant number of CEM carrier stallions imported into North America since 1997 were detected only through test breeding, not by bacteriological examination. However, the Office International des Epizooties (OIE), the world animal health organiza-

tion that sets import requirements, only specifies lab testing as the screening method for detection of CEM carrier stallions and mares.

The committee is asking USDA-APHIS to contact OIE and request that it change its requirements to include pre- and post-entry tests as an essential requirement for importation from CEM-affected countries.

It also called for more research and laboratory support for West Nile virus.

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