Foreign Animal Disease Surveillance Newsletter

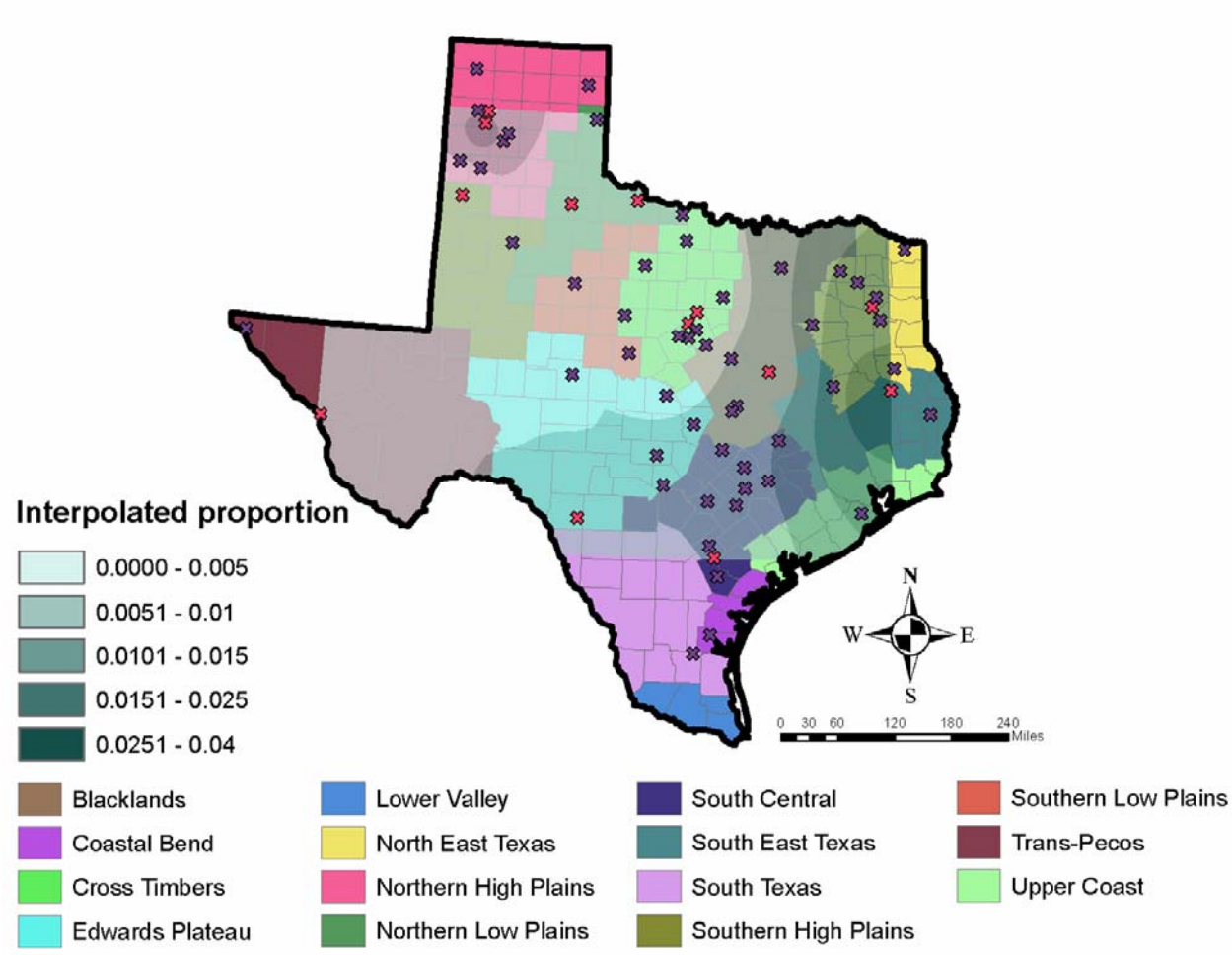

Figure. Distribution of participating veterinary clinics (purple ***X***s) and the 13 herd sampling locations (red ***X***s) in 10 of the 15 ecological zones of Texas. Interpolated proportion is the proportion of non-specific FMD PCR reactions expected across the different regions of Texas.

Texas is free of FMD

Research Update

Welcome to the fourth installment of the Foreign Animal Disease Surveillance Newsletter. We are continuing to collect samples from market cattle and individual sick cattle. We appreciate your help with this study and keep those sick cattle submissions coming. Also, please remember to send an invoice with the serum sample from these animals otherwise we will not be able to process the $20 payment.

The map on the front page of the newsletter shows results from another aspect of our research program being performed in conjunction with Dr. Garry Adams (TAMU CVM Department of Pathobiology) and scientists at the Foreign Animal Disease Diagnostic Laboratory (FADDL) located on Plum Island, NY. The 1088 cattle sampled from 13 locations in Texas were tested for Foot-and-Mouth Disease Virus (FMDV) using a real-time reverse-transcriptase PCR developed at FADDL. Texas does not have FMD and these cattle were tested to estimate how many false-positive test results would be expected from different locations. The shading on the graph demonstrates the expected proportion of non-specific PCR reactions based on a statistical model and preliminary results. Data are still being analyzed here at TAMU and at FADDL, however, results to date indicate that suspect reactions are more likely in east Texas and the north panhandle region. We hypothesize that there are organisms in the environment of cattle that cause these reactions and their distribution will be helpful for the design of future surveillance programs.

The herd sampling and FMD testing was performed based on the 15 ecological zones according to the Texas Agriculture Statistical Districts. The number of cattle within each zone was obtained from 2002 Texas county-level estimates. The sample size per ecological zone was selected proportional to the total number of cattle in the zone. Texas Agricultural Experiment Research & Extension Centers (TAEREC) were identified in each ecological zone and cattle at these locations were selected for sampling. Private herds were enrolled for regions in which a TAEREC was not present.

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Contagious Equine Metritis

Etiology

Contagious equine metritis (CEM) is a venereal disease of horses caused by the microaerophilic gram-negative cocobacillus bacterium, *Taylorella equigenitalis*. Two strains of the bacterium can be recognized one being resistant and the other susceptible to streptomycin. Infection with *Taylorella equigenitalis* can cause metritis leading to infertility and in rare instances, abortion. CEM is highly contagious and is considered a foreign animal disease in the U.S. It is known to be present in many European countries and Japan. CEM was first identified in England in 1977, but was most likely already endemic in other countries at the time of first recognition. The first case in the U.S. was diagnosed in 1978 on a Thoroughbred farm in Kentucky. The source of the outbreak was traced to the importation of 2 stallions from France in late 1977. Missouri had a subsequent outbreak in 1979. The disease was eliminated from both states and was not recognized again in the U.S. until a brief episode of cases in California, Maryland, and Kentucky appeared in 1998. Recently, on October 4th 2006, CEM was confirmed in two Lipizzaner stallions. They were imported from Eastern Europe and maintained in Dane county Wisconsin at an equine breeding and research facility. The stallions underwent a breeding soundness exam and were found to be positive for CEM by laboratory diagnostics (pathogen isolation on cell culture) performed at the National Veterinary Services Laboratories.

Transmission

T. equigenitalis is most frequently transmitted during mating. It can also be spread indirectly through artificial insemination and the use of contaminated instruments and equipment. Undetected carrier mares and stallions are a source of infection to other horses.

Hosts

Equine species are the only known hosts for *T. equigenitalis*. Donkeys can be affected under experimental conditions but naturally acquired infection has not been documented.

Clinical Signs

Twenty-four hours after exposure to and

colonization by *T. equigenitalis* inflammation develops and peaks after 10 days to 2 weeks. Clinical signs in mares become apparent 10 to 14 days after being exposed through natural cover or artificial insemination. Stallions are not affected clinically and *T. equigenitalis* can persist on their external genitalia for years. Infection of mares might be clinically unapparent or they might show varying severity of signs that include metritis, mucopurulent vaginal discharge, shortened estrous cycles, and infertility. Infected mares might conceive and either abort the fetus or give birth to an infected carrier foal. Infection in mares can result in acute or chronic disease or development of a silent carrier state. Acute disease results from an active inflammation of the uterus 10 to 14 days post mating. Profound inflammation of the uterus results in a thick mucopurulent vulvar discharge. Chronic disease presents as milder uterine inflammation and less discharge. In the carrier state, bacteria can persist in the reproductive tract from months to years.

Diagnosis

Mares exhibiting signs of purulent metritis and considered at risk for CEM should be tested to rule out infection because it is often difficult to distinguish this disease from other etiologies. In particular, infections with *Klebsiella* and *Pseudomonas* spp. of the reproductive tract can present with similar clinical signs. Proper authorities should be contacted before submitting samples when CEM or any foreign animal disease is suspected. A sample should be sent in an approved secure container and the authorized laboratory notified of its shipment. The USDA Area Veterinarian in Charge for Texas should be contacted at (512) 383-2400 or the Texas Animal Health Commission at (512) 719-0700 to report the possibility of a foreign animal disease. The samples should be submitted to the National Veterinary Services Laboratories (NVSL) in Ames, IA (803-788-1919) or to a laboratory approved by the Animal and Plant Health Inspection Service (APHIS). In mares, biopsy of the endometrium and swabs of the vaginal discharge, clitoral fossa, and clitoral sinus should be sent for diagnostic testing. In the stallion, the urethra, urethral fossa and penile sheath should be swabbed and a sample of pre-ejaculatory fluid collected for testing. Samples should be submitted to the

laboratory in a transport medium that contains activated charcoal such as Amies medium, which supports growth of *T. equigenitalis*. The samples should be sent chilled but not frozen within 48 hours of collection. Serological testing can be used in mares suspected of being infected, but bacterial culture is necessary for confirmation. Serologic testing is not helpful in stallions because they do not produce detectable antibodies against *T. equigenitalis*.

Treatment and Vaccination

Contagious equine metritis can be treated with oral antibiotics in combination with external cleanings and topical antibiotic therapy. Antibiotic selection should be based on *in vitro* sensitivity testing against the isolated strain of *T. equigenitalis.* Cefotaxime, penicillin, ampicillin, neomycin, and tetracycline have proven effectiveness for the treatment of *T. equigenitalis* infetions. The external genitalia of the mare and stallion should be washed with 2% chlorohexidine in a mild detergent and rinsed thoroughly. A topical antibiotic such as a nitrofurazone ointment can be applied externally. Treatment can require several months before the animal has cleared the bacteria from internal and external locations. Chronic disease often does not respond to therapy.

Prevention and Control

Equine entering the U.S. from endemic countries are required to be quarantined for a minimum of 3 days at a USDA-operated quarantine facility and tested for CEM along with other important foreign animal diseases. The USDA-operated quarantine facilities are located in New York, Los Angeles, and Miami. Additional health requirements may need to be met in accordance with specific state regulations. Since 2003 Texas no longer accepts horses from regions affected with CEM. Animals that test positive should remain quarantined and treated until the infection is resolved and no evidence of chronic infection exists. Mares that are bred to a stallion from another country should

also be tested for CEM after breeding or artificial insemination. Horses that have tested positive for CEM should not be bred until they are proven to be free of *T. equigenitalis* infection. Instruments and equipment should be properly cleaned and disinfected before and after use. Personnel should maintain appropriate hygiene when handling horses for breeding. This includes changing gloves between horses and thoroughly cleaning their instruments and themselves.

Public Health Significance

Contagious equine metritis is not known to affect humans and therefore does not pose a public health risk.

References

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