The U.S. Prepares for Rift Valley Fever

Health officials try to head off this mosquito-borne disease.

by ***Boyd Kidwell***

Rift Valley fever (RVF) is a mosquito-borne viral disease that's found mainly in sub-Saharan Africa. At this point, there's no reason to think RVF poses an immediate danger to livestock or humans in the United States. However, RVF is one of eight highly infectious diseases researched at the disease facility on Plum Island, N.Y., and RVF will be one of the eight diseases studied at the new $500 million National Bio- and Agro-Defense Facility (NBADF).

Cattle, sheep and goats are particularly susceptible to RVF, and the disease also affects humans. Since RVF is primarily found in Africa, you may wonder why U.S. scientists are concerned about the disease. RVF, like West Nile Virus (WNV), can be spread by mosquitoes. WNV came to the U.S. in 1999. By 2007, the Centers for Disease Control and Prevention (CDC) reported 3,830 cases of WNV and 117 deaths in this country.

The disease has become a serious concern in the U.S. With thousands of soldiers and tons of military equipment returning to the U.S. from areas where RVF is a problem, health officials want to be prepared for even the remote possibility of a new disease reaching the U.S.

RVF could be carried to the U.S. by a person bitten by an infected mosquito in another country or through infected mosquitoes in aircraft or shipping containers. RVF outbreaks have occurred in Egypt, Saudi Arabia and Yemen. Recent outbreaks (2006-2008) have occurred in Kenya, Tanzania, Sudan, South Africa and Madagascar. RVF causes relatively few human deaths, but up to 100% abortions in infected livestock.

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To get ahead of any potential outbreak, the U.S. Department of Agriculture-Agricultural Research Service (USDA-ARS) and Animal and Plant Health Inspection Service (APHIS) have formed the Rift Valley Fever Interagency Working Group, with 30 participants from the CDC, universities and U.S. government agencies.

"We formed a working group based upon what we've learned from our experience with West Nile Virus entering the U.S. and spreading across the country in only a few years. We wanted to think proactively about vector-borne diseases and get out in front of them if possible," says Kenneth Linthicum, director of the USDA-ARS Center for Medical, Agricultural and Veterinary Entomology at Gainesville, Fla.

In addition to health problems caused by RVF, Linthicum points out that many countries will not accept exports of meat and animal products from countries that have RVF. If the disease reached U.S. livestock or native mosquito populations, it would be very difficult to eradicate, Linthicum says. AJ

Basic questions and answers about Rift Valley fever

What is Rift Valley fever (RVF)?

Rift Valley fever (RVF) is an acute, fever-causing viral disease that affects cattle, other domestic animals and humans. RVF is associated with mosquito-borne epidemics, especially during years of heavy rainfall.

Where is the disease found?

RVF is primarily found through most of Africa, specifically Madagascar. RVF outbreaks have also been reported in Saudi Arabia, Egypt and Yemen.

How does RVF spread?

In years of heavy rainfall, more mosquitoes lay eggs that are naturally infected with the RVF virus and the resulting mosquitoes transfer the virus to livestock and humans. In addition to mosquitoes, it's possible that other biting insects also spread the disease.

How do humans get RVF?

Humans get RVF through bites from infected mosquitoes and possibly other biting insects. Humans can also get RVF virus if exposed to blood, body fluids and tissues of infected animals. Direct exposure to infected animals can occur during harvest or veterinary procedures.

What are the symptoms?

People with RVF typically have mild illnesses associated with a fever. In some patients, the illness progresses to shock or hemorrhage, encephalitis and eye diseases. Up to 10% of patients have some permanent vision loss, and approximately 1% of humans infected with RVF die. In livestock, RVF results in abortion of virtually 100% of fetuses.