

Why Vaccinate For VEE

With no confirmed cases of Venezuelan equine encephalitis (VEE) in this country since 1971 and none in Mexico since 1972, horse owners may ask, why does the U. S. Department of Agriculture (USDA) continue recommending vaccination of horses for this disease?

Officials of USDA's Animal and Plant Health Inspection Service (APHIS) point out that VEE—a mosquito-borne virus disease that is usually fatal to horses and causes flu-like symptoms in humans—can strike suddenly, moving with giant strides when weather and other conditions are ripe. Migration of the virus occurs through travel of infected animals or the virus-carrying mosquito.

VEE was little known outside of northern South America until 1969. In that year, an epidemic leapfrogged over Panama into Guatemala; and from there it spread rapidly through Central America and Mexico. By late June 1971, it was in southern Texas—having migrated over 2,500 miles in two years.

VEE in Texas was quickly controlled and confined to 26 southern Texas counties, but not before hundreds of horses died and a number of people became ill. Emergency measures, coordinated by USDA, included mass vaccination of horses, aerial spraying to kill adult mosquitoes, and quarantines to limit horse movements.

By the end of 1971, over 2.8 million horses had been vaccinated in 19 states—from California to the Carolinas, and up the eastern seaboard to New Jersey.

APHIS officials pointed out that 1972 was a year of intensive surveillance for VEE. With other agencies, colleges and universities assisting, APHIS collected over one million mosquitoes and over 15,000 blood serum samples from animals—for laboratory analysis to detect VEE virus.

Although the U.S. had no VEE in 1972, horses in California and Arizona were threatened last summer when a rash of outbreaks occurred in nearby areas of western Mexico. Mexico carried out a vigorous vaccination program to eliminate the outbreaks.

According to recent statements by Mexican authorities, the last

confirmed VEE case in Mexico occurred Sept. 19, 1972. The last confirmed case in this country occurred Nov. 11, 1971 in Starr County, Texas, near the U.S. - Mexico border.

Also last year, over 1,000 cases of suspected encephalitis in horses were investigated throughout the United States. All findings were negative for VEE, but 452 cases of western equine encephalitis (WEE) and 32 cases of eastern equine encephalitis (EEE) were confirmed by the APHIS diagnostic laboratory at Ames, Iowa.

The eastern and western types of equine encephalitis have been known in this country for many years. As recently as the 1930's, epidemics of these diseases caused severe losses of horses, mules and other equine animals in midwestern states, California, and along the eastern seaboard. Development of effective vaccines for these diseases has greatly reduced the severity of EEE and WEE outbreaks.

So far this year, EEE cases have been confirmed in many of the eastern and southeastern states, and WEE cases have been confirmed in several western states. But no VEE.

To detect any VEE virus movement from previously infected areas in Mexico, mosquito traps are being monitored along the entire U. S.-Mexico border. The area from Brownsville to Laredo, Texas is being monitored by the Entomology Department of Texas A & M University. USDA is handling the rest.

Mosquitoes are frozen and sent to the Ames laboratory or to the Texas A & M laboratory where they are checked for all three types of equine encephalitis, plus other arbovirus diseases (those transmitted by mosquitoes or other blood-sucking insects). So far, WEE virus has been detected in trapped mosquitoes, but no VEE virus has been found.

Dr. E.E. Saulmon, Deputy APHIS Administrator for Veterinary Services, believes that checking mosquitoes is a good detection method. "This can provide an early warning of virus activity," he said, "and it's less expensive than sampling blood serum from horses and other animals as was done so extensively last year."

But APHIS officials say,

having a surveillance or warning system doesn't mean horse owners can forget about vaccination. USDA strongly recommends vaccination to protect horses from VEE. VEE vaccine provides protection for at least 18 months and possibly longer.

APHIS officials also recommend that horse owners have their animals vaccinated for EEE and WEE, remembering they need annual booster shots. It's important to note, however, that vaccines for EEE and WEE do not protect against VEE; and likewise, VEE vaccine does not protect against the other two.

Dr. Saulmon credits the vaccination efforts of the Mexican government in helping to protect U.S. horses against VEE. Mexican authorities conducted vigorous vaccination campaigns in 1970, 1971 and 1972. In the first half of this year, their vaccination teams inoculated more than two million horses, mules and burros. The VEE vaccine used was produced in Mexico from seed virus furnished by the United States.

Clinical signs of the three types of equine encephalitis—fever and incoordination—are indistinguishable in horses. This

means that an accurate diagnosis depends upon laboratory tests, say APHIS officials. Also, all three types affect humans as well as horses. But there are some significant differences between VEE and the other types.

For instance, VEE virus multiplies so rapidly in horses that mosquitoes biting infected horses at certain disease stages are likely to pick up the virus and pass it to susceptible (non-vaccinated) horses, or to humans.

So horses play an important role in the spread of VEE, but they do not play a similar role in the spread of EEE and WEE. These diseases are usually maintained by birds that carry the viruses. Mosquitoes transmit eastern or western viruses from birds to horses or humans.

It's a fact that EEE or WEE may strike only one or two horses in a large susceptible herd, while VEE would be likely to sweep through the entire herd. It's also a fact that vaccinating a horse for VEE not only protects that horse but eliminates a potential source of disease spread.

Another thing that sets VEE apart from the other types of encephalitis in horses is the variety and prevalence of mosquitoes capable of spreading VEE. Over 30 species have this capability, and they are found in all regions of the country.

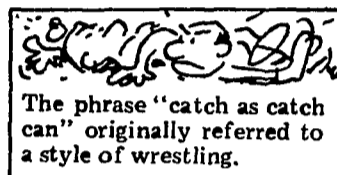
Significantly fewer species of

mosquitoes figure in the spread of EEE and WEE.

The mosquito's role in spreading VEE and the other types of encephalitis is not merely mechanical. The mosquito is a biological vector, meaning the virus actually multiplies in the mosquito's system—in the salivary glands.

A few days after ingesting the virus, the mosquito develops its ability to transmit virus to the animals on which it feeds. It can transmit the virus with great efficiency for the rest of its life—a matter of weeks for some species and months for others.

"Considering that less than half of the nation's horses—estimated at six to six and a half million—are not yet vaccinated for VEE, and knowing the ability of VEE virus to migrate long distances quickly," Dr. Saulmon said, "I strongly recommend that all horses be vaccinated for VEE as well as for the eastern and western types of equine encephalitis."



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