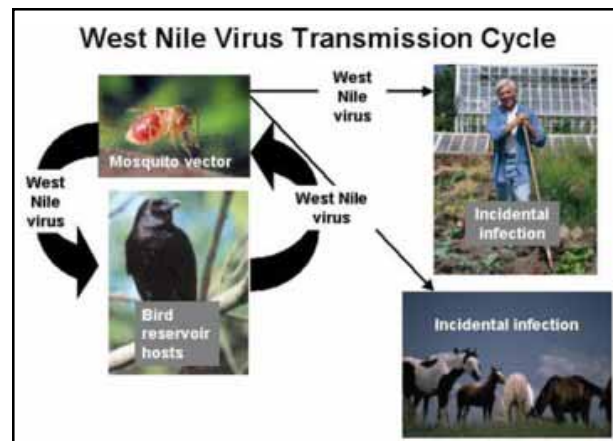


## WEST NILE VIRUS IN HORSES

West Nile virus (WNV) is a mosquito-borne virus that can cause an inflammation of the brain and spinal cord in horses, birds and humans. "The disease was first identified in the West Nile region of Uganda in 1937. Since that time, the virus has become widespread in Africa and Eurasia," says Dr. Gerald Ollis, chief provincial veterinarian, Alberta Agriculture, Food and Rural Development, Edmonton. "Since being identified in the New York area in 1999, WNV has become established in the eastern United States. By the end of 2002, it had nearly spread across the North American continent. WNV is related to the viruses that cause St. Louis encephalitis and Japanese encephalitis."

WNV was detected in Canada in 2001 in wild birds and mosquitoes in Ontario. In 2002, the virus was found in birds in Quebec, Manitoba, Saskatchewan and Nova Scotia, in horses in Manitoba, Saskatchewan and Ontario and in humans in Ontario, Quebec and Alberta. The two Alberta patients were believed to have picked up the virus when traveling outside the province. Although WNV infections originating in Alberta have yet to be seen, the virus is expected to reach Alberta in 2003.

Ollis says that wild birds are the primary reservoir for WNV and that mosquitoes become infected when taking a blood meal from an infected bird. "Horses and people are incidental hosts, only being exposed to WNV when bitten by infected mosquitoes. The amount of virus is very low in the blood of an infected horse and mosquitoes are unlikely to become infected when feeding on an infected horse. There is no evidence to suggest WNV is transmitted from animal-to-animal or animal-to-human. As such, quarantine of infected horses is not necessary."



A large number of wild and domestic birds and animals can be infected with WNV, including bears, cattle, alpaca, dogs, cats, mountain goats and sheep. However, the infection is asymptomatic in most of these species with disease being rare. Horses, mules and donkeys can be infected when bitten by infected mosquitoes, but disease occurs in only a small proportion of these animals. Birds of the Corvidae family, including crows, ravens, bluejays and magpies, are very susceptible to the virus and many die after a short illness. Dead crows are often the first indication of the presence of WNV in a geographical location. "Although horses bitten by infected mosquitoes can become infected with WNV, only a very small proportion of these infected horses will ever become sick," says Ollis. "Symptoms seen in these animals will vary from loss of appetite, depression or change in demeanor and impaired vision to variable degrees of muscle twitching, inability to swallow, head pressing, lack of coordination, weakness or paralysis of the hind limbs, an inability to get up or convulsions."



Ollis says there is currently no specific treatment for horses with WNV. "However, a veterinarian may recommend supportive care, such as intravenous fluids and good nursing care. Most horses recover from the illness but unfortunately, up to 35 per cent of affected horses in other parts of North America have reportedly died or been euthanized because of complications from the illness. Some recovered animals may have permanent

neurological defects.”

A killed vaccine is licensed in Canada for use in horses. Independent efficacy studies on the vaccine have not been completed. The manufacturer recommends two intramuscular injections given three to six weeks apart and an annual booster. Ollis says horse owners should consult with their veterinarian regarding the use of this vaccine as part of a comprehensive health management program.

Precautions should be considered by horse owners to minimize exposure of their horses to mosquitoes. “*Culex tarsalis* is the species of mosquito regarded to be the most important in spreading WNV from birds to horses in Alberta,” says Ollis. “Larvae of these mosquitoes require warm, shallow and still water for development. Mosquitoes tend to be most active at dawn and dusk and are attracted by movement, carbon dioxide and light.”

The following recommendations may help horse owners in reducing the risk to their animals:

- remove standing water from and around areas where horses are housed (pails, puddles, old tires, etc.) to eliminate breeding sites of *Culex tarsalis*
- change the water in water troughs, bird baths or wading pools at least weekly throughout the summer
- apply an insect repellent to horses during peak mosquito times. If possible avoid working the horse just before dusk as the heavy breathing will attract the mosquitoes and sweat tends to make the repellent less effective
- cover horses with fly sheets or bring them into the barn at night if possible avoid leaving lights on around the horses during the night
- use a fan in the stable to deter the mosquitoes

Ollis adds that WNV is now a reportable disease in Alberta under the Livestock Diseases Act. “This legislation requires anyone suspecting or knowing of an outbreak of WNV in a horse to notify the chief provincial veterinarian’s office. An epidemiological investigation on affected horses will be conducted in 2003.”

Further information is available from:

- Local veterinarians
- [Dr. Gerald Ollis](mailto:gerald.ollis@gov.ab.ca). Phone: 780-427-1437 - E-Mail: [gerald.ollis@gov.ab.ca](mailto:gerald.ollis@gov.ab.ca)
- [Ropin’ the Web](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex5455) - [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex5455](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex5455)
- [Centre for Disease Control and Prevention](http://www.cdc.gov/ncidod/dvbid/westnile/index.htm) - <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>
- Ag-Info Centre at 1-866-882-7677