



AGRI-FACTS

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West Nile Virus

The West Nile Virus (WNV) is a mosquito-borne virus that can cause swelling and inflammation of the brain and spinal cord in horses, birds and humans. The virus is named after the West Nile region of Uganda, where the virus first appeared in 1937. Since the discovery of WNV, it has become widespread in Africa and Eurasia. WNV was identified in the New York area in 1999, and has since become established across the North American continent. It was first detected in Alberta in July 2003, in a wild bird. WNV is related to the viruses that cause St. Louis encephalitis and Japanese encephalitis.

Mosquitoes spread the virus after feeding on infected birds

Only specific species of mosquitoes spread WNV. In Alberta, the species of mosquito of concern is *Culex tarsalis*, which becomes infected when feeding on infected wild birds. Wild birds are the primary reservoir of WNV. Most wild birds are not affected by the virus, but rather just carry the virus for a variable period of time. However, members of the *Corvidae* family, including crows, blue jays, magpies and ravens, are very susceptible to the effects of WNV. So too are some species of raptors. Often, dead crows are indicators of the arrival of WNV in a geographic area. There is no evidence that WNV can be spread from birds to humans or animals, or from horse to horse or humans.

Birds and animals infected with WNV

Over 140 species of wild and domestic birds can be infected with WNV. As well, a wide range of wild and domestic animals can also be infected with WNV, including bears, mountain sheep and goats, horses, mules, donkeys, cattle, alpaca, dogs and cats. However, it is important to understand that disease is rare in the majority of these species. Only domestic geese, horses, mules and donkeys appear to be severely affected by WNV, and may develop clinical disease.

West Nile Virus in Canada

WNV was first confirmed in Canada in August 2001 in a wild bird in Ontario. Exposure of horses to WNV was confirmed in 2002 in Manitoba, Saskatchewan, Ontario and Quebec. In 2002, Quebec and Ontario reported the first human cases in Canada. In 2003, WNV reached as far west as Alberta where cases in mosquito pools, birds, horses and humans were reported. British Columbia is the only province in Canada to have never detected WNV.

West Nile Virus in Alberta

The first confirmed cases of the virus in humans in Alberta occurred in 2002. However, it is believed they contracted the virus while travelling outside of the province.

The following table summarizes WNV in Alberta in 2003 and 2004.

Table. Alberta WNV summary				
Year	Humans	Horses	Birds	Mosquito Pools
2003	272	170	439	31
2004	0	4	9	1

Experts suggest that the wet, cool summer Alberta experienced in 2004 was responsible for the lack of WNV in the environment. Because biological systems are unpredictable and WNV is still relatively new to Alberta, a consistent pattern used to predict the future is difficult to identify.

Alberta Health and Wellness is the lead agency for monitoring and advising the public about WNV. Because dead wild corvids are often the first indicator of the presence of WNV in a geographic area, Alberta Sustainable Resource Development monitors dead birds for the presence of WNV. Alberta Agriculture, Food and Rural Development monitors for the presence

of WNV in horses. Statistics and summary reports of WNV in Alberta horses can be found at: <http://www.agric.gov.ab.ca/chiefvet>

Symptoms in horses

Most horses bitten by a mosquito infected with WNV will **not** develop clinical disease. They develop an asymptomatic infection, eliminate the virus and are none the worse for it. Symptoms in those horses that do become sick can include listlessness, a change in demeanor, drooping lips, muscle twitching, a lack of co-ordination, weakness in the limbs, partial paralysis or an inability to get up. A fever is not always present. A veterinarian should examine infected horses because these clinical signs are similar to those caused by Western Equine Encephalitis, Eastern Equine Encephalitis and Rabies.

To prevent handlers from being hurt, caution must be exercised when handling horses affected by nervous disorders, such as WNV.

There is no specific treatment for horses affected with WNV. Up to 35 per cent of horses showing clinical disease may die or have to be euthanized because of complications of the disease. Some recovered horses may exhibit permanent neurological deficits.

WNV - a reportable disease

WNV infection in horses is a Reportable Disease under Alberta's *Livestock Diseases Act*. This legislation requires anyone suspecting or knowing of a horse infected with WNV to report that fact to the Chief Provincial Veterinarian's office at (780) 427-3448. The federal government has made WNV in any species of animal or bird an Immediately Notifiable Disease under Canada's *Health of Animals Act*. This requires diagnostic laboratories to report the diagnosis of WNV to the Canadian Food Inspection Agency within 48 hours.

Testing horses

Horses are incidental hosts and the level of virus in their blood is very low for a short period of time. Mosquitoes feeding on infected horses are not likely to become infected. There is no scientific evidence to indicate that WNV can be transmitted directly from horses to other species, including humans. Therefore, quarantine of

affected horses is not necessary. Detection of exposure to WNV in most horses is restricted to a blood test that identifies antibodies to WNV. Routine testing of horses is not recommended, even if the virus has been confirmed in the area. Specialized laboratory tests can confirm the presence of WNV in the brain or spinal cord of horses dying or being euthanized and are available to your veterinarian.

Treatment for horses

There is no specific therapy for WNV infection. Veterinarians use supportive therapy such as intravenous fluids and good nursing care to prevent secondary infections.

Protecting horses from infection with WNV

Although the risk of disease in any individual horse is very low, the consequences for some affected horses can be severe. Preventive measures should be discussed with your local veterinarian. These measures include minimizing exposure to *Culex tarsalis* mosquitoes. This species of mosquito breeds in small, warm, still puddles of water. These puddles of water include those found in poorly drained eavestroughs, bird baths, discarded rubber tires and even hoof prints formed in mud. Consideration must be given to providing screened housing and avoiding outdoor activities during peak times of mosquito feeding, such as dawn and dusk. Using topical insect repellents and/or smudges may also be useful. Reduce potential mosquito breeding sites by eliminating standing water, cleaning water troughs weekly and keeping grass levels short around buildings.

Vaccines against WNV are licensed in Canada for use in horses and are available from veterinarians. Horse owners should contact their veterinarian for information about the vaccines available and recommendations about their use as part of a comprehensive disease prevention program. Vaccinated horses intended for export to the European Union or Japan will require certification of vaccination. Consult with the nearest district office of the Canadian Food Inspection Agency for up-to-date export requirements.

For more information

Visit Alberta Agriculture, Food and Rural Development's *Ropin' the Web* website: <http://www.agric.gov.ab.ca>

See the WNV fact sheet and update on the Chief Provincial Veterinarian's website: <http://www.agric.gov.ab.ca/chiefvet>

Contact Alberta Agriculture, Food and Rural Development's Ag-Info Centre (toll free) at 1-866-882-7677.

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