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# Acreage Living

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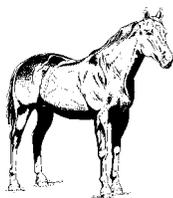
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## Prevention and Control of West Nile Virus Infection in Equine and Other Livestock or Poultry

USDA Animal and Plant Health Inspection Service (APHIS)

West Nile virus (WNV) is a vector-borne virus that was recognized in the Western Hemisphere for the first time in 1999. Invertebrate vectors, such as mosquitoes, circulate the virus among wild birds. Occasionally the virus is introduced into other vertebrate populations, such as humans or horses, that serve as incidental hosts. Incidental hosts are infected animals that do not pass the virus on to vectors or other animals.

The only vectors found to be associated with outbreaks of WNV in the United States since 1999 are mosquitoes. At least 30 species of mosquitoes have been found positive for WNV, although several of those species are likely not involved in active transmission of the virus from bird-to-bird or from bird-to-mammal.

Horses are affected by WNV much more often than any other domestic animals. Many horses infected with WNV do not develop any illness, but of horses that become ill about one-third (33 percent) die or need to be euthanized. Other livestock and poultry do not commonly show any illness if infected with WNV.

Given that mosquitoes are associated with WNV transmission, one key to preventing or controlling future outbreaks of WNV among horses is to control mosquito populations and to prevent horses from being exposed to any adult mosquitoes that may be present. Similar recommendations would apply for other livestock or poultry should illness due to WNV in those types of animals ever come to be recognized.

In addition to the mosquito-related prevention measures discussed below, there is now an additional action that can be taken to help prevent illness in horses caused by WNV infection: vaccination. On August 1, 2001, a conditional license was issued by the USDA-APHIS' Center for Veterinary Biologics for an equine WNV vaccine. The vaccine is a killed virus product. Conditional licensing means the product has been shown to be safe, pure, and have a reasonable expectation of efficacy in preventing illness caused by WNV. Each state veterinary authority must also approve the use of the product in their state. Because use of this vaccine is restricted to veterinarians, you need to contact your veterinarian to find out more about its use in your area. The

manufacturer of the vaccine recommends giving two intramuscular doses of one milliliter each, three to six weeks apart, followed by an annual booster. The booster should be given just prior to the start of the mosquito season in your area.

### Reduction of Mosquito Breeding Sites

Reducing the population of mosquitoes, especially species apparently involved with bird-to-bird transmission of WNV, such as some *Culex* species, can help reduce or eliminate the presence of virus in a given geographical area. The most important step any property owner can take to control such mosquito populations is to remove all man-made potential sources of stagnant water in which mosquitoes might breed. Dispose of any water-holding containers, including discarded tires. Drill holes in the bottom of containers that are left outdoors. Clean clogged roof gutters annually. Turn over plastic wading pools or wheelbarrows when not in use and do not allow water to stagnate in bird baths. Clean and chlorinate swimming pools that are not in use and be aware that mosquitoes can breed in the water that collects on swimming pool covers. Aerate ornamental pools and use landscaping to eliminate standing water that collects on your property; mosquitoes can potentially breed in any stagnant puddle that lasts more than four days. Thoroughly clean livestock watering troughs monthly. Local mosquito control authorities may be able to help in assessing the mosquito breeding risks associated with a specific property.

### Decreasing Exposure to Adult Mosquitoes

It is also important to prevent horses from being exposed to adult mosquitoes. Several actions may help in that effort.

- Screened housing

Housing animals in structures with well-maintained insect screening can be useful to reduce exposure to adult mosquitoes. Use of such mosquito-resistant structures may actually lead to mosquito exposure unless precautions are first taken to eliminate mosquitoes from inside the structure. This may be accomplished through a number of means including the use of mosquito adulticides. In addition, use of fans may reduce the potential ability of mosquitoes

to feed on horses.

- Insect repellents

Use of insect repellents may be of some value in decreasing exposure of horses to adult mosquitoes. Due to practical limitations in the coverage area that may be achieved on any given horse with a particular product formulation, and due to limited duration of effectiveness of some formulations under certain conditions (e.g., perspiration), repellents should not be solely relied upon to prevent mosquito exposure. Repellents should be used according to their label instructions regarding appropriate species, method of application, and other precautions. Topical application of a product containing a synthetic pyrethroid compound (e.g., permethrin) as the active ingredient may offer the best combination of safety and efficacy.

- Outdoor exposure

Although some species of mosquitoes feed at dusk or dawn, others are daytime feeders or feed at any time of the day or night. As it is not yet clear which mosquitoes are responsible for the transmission of WNV to horses and other mammalian species, making recommendations as to when certain animals should avoid outdoor exposure may not be particularly useful at this time. However, a recently completed epidemiologic study of WNV suggests that keeping horses in stalls at night may be helpful in reducing their risk of infection.

## **West Nile Virus Fact Sheet**

Iowa Department of Public Health

### **What is West Nile virus?**

West Nile virus is an arbovirus (a virus carried by mosquitoes). The virus was first identified in Uganda, Africa in 1937, and was recently identified in New York in 1999, when at least 62 cases and 7 deaths from West Nile virus infection were reported in the New York City area. The virus mainly infects mosquitoes and birds. Mosquitoes in turn can

spread the infection to people and other animals.



### **How is West Nile virus spread?**

Mosquitoes can get the West Nile virus when feeding on infected birds. The mosquitoes in turn can spread the virus to people through a bite.

West Nile virus cannot be spread from person to person. West Nile virus cannot be spread by coming in contact with birds, although barrier precautions (gloves) should be used when handling dead birds.

### **Should the West Nile virus be a concern for people in Iowa?**

Yes. Since 1999, when the virus was only identified in New York, West Nile virus has been identified in several states east of the Mississippi. In addition, the virus was identified in Iowa for the first time in September 2001, isolated from a dead crow found in the eastern part of the state. Most experts believe the virus will continue to spread west. In addition, experts believe more birds and mosquitoes will be identified with West Nile virus in Iowa. This increases the chance that people can become infected.

### **Is a person bitten by a mosquito in an area known to have West Nile virus likely to get infected?**

No. The chance of getting infected with the virus is low.

### **What are the symptoms of West Nile virus?**

Most people who get bit by an infected mosquito never develop any symptoms. For those that do have symptoms, these are usually mild, and may include fever, headache, and body aches; occasionally a skin rash and swollen lymph glands may occur. Headache, high fever, neck stiffness, a decreased level of consciousness, confusion, tremors, muscle weakness, and paralysis may indicate a more severe infection. In rare cases, an infection can be fatal. Severe infections and death are more likely to occur in the elderly and those with weakened immune systems.

### **How is an infection with West Nile virus diagnosed and treated?**

A physician can diagnose West Nile virus through special tests. There is no specific treatment, though a physician may prescribe medications to reduce symptoms. In severe cases, hospitalization may be required.

### **How can an infection with West Nile virus be prevented?**

Mosquito control is the most critical step. Mosquitoes breed in standing water. Cleaning rain gutters, emptying unused buckets, covering stored tires, and weekly cleaning of bird feeders are all effective ways to reduce mosquito breeding grounds. Mosquito bites can be avoided by wearing long sleeved shirts and long pants and applying an insect repellent containing permethrin or 35% DEET to clothing.

*Revised 6/12/02*

## **One Last Shot at the Thistles**

by Clarke McGrath, ISU Extension Field Specialist/ Crops  
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There is still time to control musk thistles in grass pastures. Musk thistles are relatively cold tolerant and continue to actively grow into November. Studies done by Iowa State University in the fall of 1992 and 1993 showed that 2,3-D applied after several nights of below 32F degree temperatures still gave good control of musk thistles. The trend-line for this two-year test indicated musk thistle control

began to decline rapidly in November after more than 11 days of below freezing temperatures. Since we have had a decent fall so far, the thistles will still be very susceptible to the chemicals.

Increase the rate from one quart to 2 quarts of 2,4-D per acre did not significantly improve musk thistle control. In most situations it would be advantageous

to combine lower rates of 2,4-D in combination with Tordon 22K, Ally, or Banvel for more consistent

results or a broader spectrum of weed control. Details of this research can be obtained by calling your local county ISU Extension office.

## Crickets

by Donald Lewis, ISU Extension Entomology Department

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The field cricket is one of the most common household accidental invader insect pests. There are several species of field crickets ranging in size from 1/4 to 3/4 inch, but the best known is the black field cricket, a large, shiny black insect. Like other accidental invaders, field crickets spend most of their life outdoors where they feed, grow, develop, and reproduce. Only during a limited portion of their life cycle do they wander indoors by mistake and create an annoyance.

Field crickets spend the winter as eggs laid in the soil. These eggs hatch in late spring or early summer, and tiny immature crickets called nymphs begin to feed on a variety of succulent grasses and weeds. The nymphs look like the adults except for their smaller size and the absence of wings. Nymphs develop into adults within approximately 90 days. The adults mate and lay eggs in late summer before succumbing to old age or freezing temperatures in the fall.

Chirping, one of the hallmarks of crickets, is done only by the males as a way to attract the females of their own species. Chirping is produced by rubbing the wings together.

There is no single, perfect solution for the control of crickets that are invading the house. Often, some combination of the following suggestions will work. Ultimately, cricket problems end in the fall when the adults are killed by heavy frost or freeze.

- Seal cracks, gaps, and holes in foundation, siding, windows, doors, screens, and other possible entry points. Remove vegetation and debris from next to the house that serves as a hiding place or breeding site.
- Reduce the number of pests at the source if possible. Sprays generally used in lawns, fencerows, and other cricket habitats include Sevin, malathion, Orthene, and diazinon. Spraying in mid summer when crickets are small is more effective than late summer applications.
- Use barrier perimeter sprays on and along the foundation to stop migrating invaders. In years of abundance, the barrier should extend all the way to the source if possible; that is, all the way to the fencerow, ditch bank, or other identifiable habitat for crickets. Use Dursban, diazinon, malathion, or Sevin according to label directions, and repeat as needed.
- For invaders already inside the house, vacuum or sweep them up and discard.

Indoor residual treatments with “cockroach” sprays have little if any benefit. Do not use lawn and garden insecticide concentrates indoors. Direct application or fogging with pyrethrin aerosols is one way besides the fly swatter or rolled up magazine to eliminate crickets that are inside.



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