

## **The Facts on West Nile Virus**

### **Where did West Nile Originate?**

Although West Nile virus was first discovered in a Ugandan woman in 1937, it was not characterized by Egyptian virologists until the '50s. It is now commonplace in Africa, West Asia, Eastern Europe and the Middle East. This particular strain is in the family that includes the Japanese B and St. Louis, both of which have been known in the United States for some time. The West Nile virus didn't appear in the United States until the summer of 1999.<sup>1</sup> Since then, the disease has spread through the United States, leaving behind a path of infected or dead birds, horses, dogs, cats and humans.

### **What is the Risk to Humans?**

Once it enters a human's bloodstream, West Nile virus can cause fever, headache, a trunk and body rash, swollen glands and muscular pain. It also can lead to a far-worse condition: West Nile encephalitis, a brain inflammation that can result in personality changes, confusion and even death.<sup>2</sup>

Since 1999, thousands of Americans have been infected with West Nile virus, and hundreds have lost their lives.<sup>3</sup> These numbers will continue to rise as the virus spreads.

### **How is West Nile Virus Spread?**

Birds such as crows and songbirds are primary carriers of West Nile virus, but mosquitoes spread the virus. They feed on infected birds' blood and pass the virus on to humans and animals.<sup>4</sup> As the summer of 1999 ended with 62 cases of severe disease and seven deaths, scientists hoped the cold winter months would kill the virus in hibernating mosquitoes. Due to a mild winter in the East, both the virus and the mosquitoes survived.<sup>5</sup> With the seasonal migration of virus-carrying birds, the disease now has been reported from coast to coast.<sup>6</sup> This accelerated epidemic of the virus demonstrates that it has permanently established itself in the United States.<sup>7</sup>

### **What Can We Do?**

Prevention and control are key. People should:

- Wear long-sleeved shirts and long pants when going outside.
- Apply insect repellent to exposed skin. Products that contain DEET protect against mosquito bites the longest based on the concentration of DEET in the preparation.
- Repair or install window and door screens to prevent mosquitoes from getting indoors.
- Remove standing water from flowerpots, pet bowls, swimming pool covers and discarded tires to help prevent mosquitoes from reproducing.<sup>8</sup>

More broadly, government officials must attack the mosquito population from the ground up. Using integrated pest management strategies, officials need to consider all possible solutions - which include biological, cultural, physical and chemical tools - when dealing with infestations:

- Eliminate unnecessary sources of standing water
- Use larvicide to eliminate mosquitoes before they hatch
- Test adult mosquitoes and birds for the virus, to help pinpoint infected areas
- Apply or spray products to suppress adult mosquitoes if the virus is found<sup>9</sup>

West Nile virus is a serious health threat, and pesticides can reduce or eliminate mosquitoes that transmit the disease while safeguarding our health. All insecticides in the United States for public health use have been registered by the Environmental Protection Agency following the review of many scientific studies. The EPA has assessed those chemicals and found that, when used according to label directions, they do not pose unreasonable risk to public health and the environment.<sup>10</sup> West Nile virus has caused human deaths, but no one has been harmed from legal application of pesticides.<sup>11</sup> Pesticides are an integral tool in integrated pest management programs, and only a balanced approach that includes pesticides applied and possibly reapplied in the correct concentration to maintain protection will help keep Americans healthy and safe from virus-carrying mosquitoes.

### Reference Notes

1. "West Nile Virus Background, The Virus' History, Distribution and Characterization," Centers for Disease Control Division of Vector-Borne Infectious Diseases, [www.cdc.gov/ncidod/dvbid/westnileibackground.htm](http://www.cdc.gov/ncidod/dvbid/westnileibackground.htm).
2. "Mosquito-Borne Viruses, West Nile Encephalitis," Harvard School of Public Health, [www.hsph.harvard.edu/mosquito/westnile.html](http://www.hsph.harvard.edu/mosquito/westnile.html).
3. "West Nile Virus Update Current Case Count," CDC Office of Communication, [www.cdc.gov](http://www.cdc.gov).
4. "West Nile Virus Questions and Answers," CDC Division of Vector-Borne Infectious Diseases, [www.cdc.gov/ncidod/dvbid/westnile/q&a.htm](http://www.cdc.gov/ncidod/dvbid/westnile/q&a.htm).
5. "West Nile Virus Questions and Answers," CDC Division of Vector-Borne Infectious Diseases, [wwwcdc.gov/ncidod/dvbid/westnile/q&a.htm](http://wwwcdc.gov/ncidod/dvbid/westnile/q&a.htm).
6. "West Nile Virus Background, The Virus' History, Distribution and Characterization," CDC Division of Vector-Borne Infectious Diseases, [wwwcdc.gov/ncidod/dvbid/westnileibackground.htm](http://wwwcdc.gov/ncidod/dvbid/westnileibackground.htm).
7. "West Nile Virus Questions and Answers," CDC Division of Vector-Borne Infectious Diseases, [www.cdc.gov/ncidod/dvbid/westnile/q&a.htm](http://www.cdc.gov/ncidod/dvbid/westnile/q&a.htm).
8. "Mosquito-Borne Viruses, What You Can Do," Harvard School of Public Health, [www.hsph.harvard.edu/mosquito/what/html](http://www.hsph.harvard.edu/mosquito/what/html).
9. "Pesticides and Mosquito Control" U.S. Environmental Protection Agency Office of Pesticide Programs, [www.epa.gov/pesticides/citizens/pesticides4mosquitos.htm](http://www.epa.gov/pesticides/citizens/pesticides4mosquitos.htm).
10. "Joint Statement on Mosquito Control in the United States from the EPA and the CDC," EPA Office of Pesticide Programs, [www.epa.gov/pesticides/citizens/mosquitojoint.htm](http://www.epa.gov/pesticides/citizens/mosquitojoint.htm).
11. Robert J. Scheuplein, "Pesticides and Infant Risk, Is There a Need for an Additional Safety Factor?" *Regulatory Toxicology and Pharmacology*, 31:275, 2000.