

Sediment Contamination, Legume Viruses

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Getting the Dirt on Sediment Contamination

According to the U.S. Environmental Protection Agency, more than 80 percent of sediments in the Pacific Northwest are contaminated, posing potential health risks to humans and animals.

In order to better understand the effects of contaminated lake and river sediments on human and environmental health, a group of WSU researchers have received a \$350,000 grant from the M.J. Murdock Charitable Trust. Led by Jeffrey L. Ullman, assistant professor in WSU's department of biological systems engineering, the grant establishes the Sediment Analysis Laboratory to carefully identify and measure pollutants, including heavy metals and organic compounds. The researchers will also be looking at microbial-contaminant interactions and pollutant impacts on fish and wildlife.

“With its high levels of contaminants in waterways, this work is particularly relevant to the Pacific Northwest,” said Ullman.

Limited research has been conducted on the potential health risks associated with contaminated sediments. Isolating the individual and cumulative effects of the numerous contaminants found in sediments is difficult, particularly since the contaminants are resting at the bottom of lakes and streams. Consequently, the work is highly interdisciplinary, involving environmental chemistry, ecology, analytical modeling, aquatic toxicology and engineering.

The grant supports the purchase of a suite of state-of-the-art analytical equipment, making WSU one of only five institutions in the country that can effectively identify different forms of metals and organo-metal compounds.

Adapted from a WSU Today article by Tina Hilding. For more information, please visit: <http://tinyurl.com/5eyjec>.



Biosystems engineer Jeffrey Ullman leads an interdisciplinary team researching the effects on contaminated sediments. The researchers will also be looking at microbial-contaminant interactions and pollutant impacts on fish and wildlife.

Protecting Palouse Legumes from Viral Epidemics

WSU researchers are part of a team selected to receive a \$1.3 million competitive grant from USDA to work toward protecting some Palouse-area legume crops from virus epidemics, as well as predicting the virus disease outbreaks.

“Virus epidemics tend to be cyclical, with a severe outbreak in one year followed by a negligible incidence in the following years,” said Hanu Pappu, a member of the interdisciplinary team and President Sam Smith Chair in Plant Virology in WSU’s plant pathology department. “Understanding the nature of the virus reservoirs and the aphid migration patterns in combination with

information on virus incidence could lead to development of forecasting models.”

The project is headed by Sanford Eigenbrode, an entomologist at the University of Idaho. “Insect-transmitted viruses are an important issue for legume growers in both Washington and Idaho and the partnership between WSU and UI brings together experts in plant pathology and entomology,” said Pappu.

Work will include study of the ecology and epidemiology of viruses, aphids that transmit them and developing forecasting models, virus-resistant crop varieties and vector management tactics.

To ensure grower participation and outreach, the project will include an advisory group comprised of growers, workshops with the industry and a Web site with information on aphid populations and virus incidence.



Hanu Pappu is part of a team investigating ways to better protect Palouse legumes from viral epidemics.

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