

Session: Disease Detectives: A Problem-Based Learning Activity

First Strand

Description:

Chickens at a farm in a coastal county in NC are coming down with something. Similar symptoms have also popped up on a farm in a county in the mountains. Are these related? Is a disease spreading? How can you identify the source, and stop other chickens from getting sick?

Students will be given background information about the USDA/APHIS/VS, NCDA Emergency Programs and basic epidemiological principles. Then the students will be posed with the problem – animals were found with tell-tale signs of a disease in NC. Armed with the basic epidemiological principles, the students will develop scenarios of how to investigate the disease using GIS as we guide them to a solution. We have the potential to throw in more animals being discovered as we try to solve the problem, to simulate the ever changing nature of a disease outbreak, and how epidemiologists use spatial data to investigate and halt the spread of disease.

Speakers:

[Allyson Jason](#), GIS Coordinator

[Dr. Barbara Porter-Spalding](#), DVM, Regional Epidemiologist, [USDA Veterinary Services](#)

David Wray, Director IT/GIS Section, [NCDA & CS Emergency Programs Division](#)

Preparing for this Session:

K -- First Question: What is epidemiology? What does an epidemiologist do, and how do they use GIS to solve the mystery of disease transmission?

Find your answers at [EXCITE \(Excellence in Curriculum Integration through Teaching Epidemiology\)](#) ---- EXCITE is a collection of teaching materials developed by the Centers for Disease Control and Prevention (CDC) to introduce students to public health and epidemiology, the science used by "Disease Detectives" everywhere. Students will learn about the scientific method of inquiry, basic biostatistics, and outbreak investigation.

Second Question: For this session, you will become a Disease Detective and try to solve the case of how Exotic Newcastle Disease (END) is killing our feathered friends. Read more below and then research these sites to learn of the history of this serious viral disease and what epidemiologists are doing to prevent it.

Exotic Newcastle disease (END) is a contagious and fatal viral disease affecting all species of birds, END is probably one of the most infectious diseases of poultry in the world. END is so virulent that many birds die without showing any clinical signs. A death rate of almost 100 percent can occur in unvaccinated poultry flocks. Exotic Newcastle can infect and cause death even in vaccinated poultry.

Find your answers at these informative sites:

http://www.aphis.usda.gov/lpa/pubs/fsheet_faq_notice/fs_ahend.html

http://www.aphis.usda.gov/oa/pubs/ada_ahend.html

http://www.aphis.usda.gov/oa/pubs/pub_ahend.html

<http://www.aphis.usda.gov/lpa/issues/enc/exoticnc.html>

http://www.cdfa.ca.gov/ahfss/ah/newcastle_info.htm

L -- What have you learned about epidemiology and GIS?

Q -- What questions do you have for the USDA-APHIS Team about their work and GIS's role? Be ready to participate in this interactive session and ask lots of good questions.