

## **Model Helps VS Estimate Value of Surveillance**

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In a collaborative research project, Veterinary Services (VS) and university agricultural economists are employing an existing model to estimate the economic value of animal health surveillance in the United States. The model results will aid VS in surveillance design, planning, budgeting, and evaluation.

The focus of this modeling effort is to determine the benefits of surveillance, which are defined as the costs avoided through prevention or early detection of the disease under surveillance.

Use of the model will provide information to support planning objectives and policy decisions regarding animal health surveillance. Estimating the value of surveillance for both endemic and foreign animal diseases is a new use of the model, which has been used in the past to estimate the impact of foreign animal disease outbreaks. Analysts will use the model to investigate potential disease impacts on the U.S. livestock and poultry industries, such as reduced or lost trade markets, consumer reaction, and production impacts.

This model was originally developed at Purdue University and has been extensively redesigned from an annual model to a quarterly model. A grant from the USDA Economic Research Service (ERS) Program of Research on the Economics of Invasive Species funded the movement to a quarterly model. In its first quarterly application, the model measured the impact of a simulated foot-and-mouth disease (FMD) scenario in the United States. An ERS report is forthcoming.

### **Production-level impact**

Economists at the Centers for Epidemiology and Animal Health (CEAH), Purdue, and Colorado State University are continuing to increase the model's capability to estimate the production-level impacts of diseases currently known to occur in U.S. livestock. The model will be used to estimate impacts for multiple diseases across the stages of production for a single species, for a single

disease that affects multiple species, or for multiple diseases affecting multiple species.

This project represents the first time this type of rigorous analysis has been conducted on the value of surveillance across multiple species, diseases and production stages to inform surveillance policy decisions. For instance, the economic impact of a disease that significantly affects the reproductive stage of a species, but makes a relatively small impact at other production stages, can be traced through the entire production cycle of a species over multiple quarters.

In addition, the impacts of multiple diseases on a single species can be evaluated simultaneously to assess potential benefits of surveillance in curtailing diseases based on an accurate picture of the current state of animal health. The results will help inform policy decisions about the benefits of animal health surveillance.