Foot-and-mouth disease could cost Kansas nearly a billion dollars

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As much as $945 million. That's what agricultural economists at Kansas State University say could be the impact on Kansas' economy were there a large-scale foot-and-mouth outbreak in a region thick with livestock operations.

"If such an outbreak were to occur, livestock and meat commerce, trade, and movement would be halted," said Ted Schroeder, a K-State professor of agricultural economics. "That represents a very, very expensive endeavor."

Schroeder is co-author of a paper that predicts a devastating economic impact should foot-and-mouth disease come to Kansas.

The paper, based on the dissertation of K-State agricultural economics doctoral graduate Dustin Pendell, now on the faculty at Colorado State University, was also co-authored by John Leatherman, professor of agricultural economics at K-State. The group's paper was recently published in a special October edition of the *Journal of Agricultural and Applied Economics*.

Foot-and-mouth disease is a highly contagious viral disease that does not affect humans, but can have devastating effects on cloven-hoofed animals such as cattle, swine, sheep, goats and deer. The United States has not had case of foot-and-mouth disease since 1929.

The team of K-State researchers analyzed a 14-county region in

southwest Kansas that has a high concentration of large cattle feeding operations, as well as other livestock enterprises and beef processing plants. They considered three scenarios: one where the disease was introduced at a single cow-calf operation; one where a medium-sized feedlot, 10,000 to 20,000 head of cattle, was initially infected; and one where five large feedlots, each with more than 40,000 head of cattle, were simultaneously exposed. Schroeder said the first two scenarios were used to predict what could happen if the disease were introduced accidentally, while the larger scenario shows what could happen were there an intentional release.

Generally, researchers found that the greater the number of animals infected in an operation, the longer an outbreak would last and the more it would likely spread -- all directly correlating to the level of economic ruin.

Under the small cow-calf scenario, researchers predicted that 126,000 head of livestock would have to be destroyed and that a foot-and-mouth disease outbreak would last 29 days. In the medium-sized operation, those numbers went up to 407,000 animals and 39 days. In the scenario where five large feedlots were exposed at the same time, researchers predicted that 1.7 million head of livestock would have to be destroyed and that an outbreak would last nearly three months.

From smallest to largest operation, that translated into regional economic losses of $23 million, $140 million and $685 million, respectively. For the state of Kansas as a whole, those numbers climb to $36 million, $199 million and $945 million.

"Contagious foreign animal diseases like foot-and-mouth are of considerable alarm," Schroeder said, citing the impact of globalization, extensive international travel, outbreaks in other countries and heightened concerns about bioterrorism.

"Kansas produces about 1.5 million calves, markets 5.5 million head of fed cattle, and slaughters 7.5 million head of cattle annually. The large commercial cattle feedlot and beef packing industries together bring more than 100,000 head of cattle per week on average into the state for feeding or processing," Schroeder said. "Such large volumes of livestock movement provide avenues for contagious animal disease to spread."

Leatherman estimated the statewide impacts of foot-and-mouth for this study and said the effects of an outbreak would go way beyond producers.

"This study tells us what the overall stake of the region and state has in preventing such an occurrence," he said. "It isn't just farmers, ranchers, feed lots and packers who would suffer -- it's all of us, in some measure."

Fred Cholick, dean of K-State's College of Agriculture, said that this research illustrates exactly why the National Bio and Agro-defense Facility, also known as NBAF, is needed in Kansas.

"The impact of agriculture in Kansas is huge," Cholick said. "Kansas and Manhattan are literally at the heart of the industry the National Bio and Agro-defense Facility is charged with protecting. Surveillance and the development of knowledge are key today because food safety is a global issue. Disease knows no borders. This reality is why NBAF is so important."

Manhattan is one of five potential locations for the $451 million federal animal health lab, where researchers will study animal disease and develop countermeasures, such as vaccines.

To look at minimizing the impact of foot-and mouth, Schroeder and a team of experts also began collaborating this fall with the U.S.

Department of Agriculture to determine the economic benefits and costs associated with animal identification.

Source: Kansas State University