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## Beefing Up the Beef Transport System

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# Beefing up the beef transport system

Electrical and computer engineering, psychological sciences, agricultural economics and veterinary epidemiology. These may not be the first disciplines you think of when it comes to solving issues in the beef industry, but a team of Kansas State University researchers believes the complex beef transportation system can be improved by using tools from their fields.

“The beef cattle industry and the transportation system are interdependent infrastructures,” said Faryad Darabi Sahneh, research assistant professor of electrical and computer engineering. “When you add in the element of human behavior and decision-making, predicting what can happen becomes a very complex issue. This is why it’s important to have a multidisciplinary approach to help cover all the angles.

Sahneh, along with Caterina Scoglio, professor of electrical and computer engineering; Gary Brase, professor of psychological sciences; Ted Schroeder, distinguished professor of agricultural economics; and Mike Sanderson, professor of diagnostic medicine and pathobiology, have been awarded a \$60,000 Global Food Systems Innovation Grant to develop computational models to help mitigate potential threats to the beef transport system.



The researchers are collecting data on the movement of cattle and trucks and plan to use this information to create models that will predict potential vulnerabilities and ways to protect against them. One of the threats that will be evaluated is the possibility of an epidemic.

“An infected animal being transported to another area can spread the disease to other cattle without the producers knowing. And there are other ways of spreading disease, too,” Scoglio said. “If a truck is going to pick up feed and the truck driver gets some mud containing a pathogen on his or her boots, clothing or truck wheels, the driver can unknowingly transport the pathogens to other locations and spread the disease.”

The transportation of cattle from ranchers to feedlots to slaughterhouses has made the industry more efficient, but also has left the industry vulnerable. The researchers hope to find ways to reduce the infrastructures’ susceptibilities, especially because of the effects it could have on the state.

“Agriculture and the cattle industry are a huge part of the Kansas economy, so if something negative happens to it, that’s going to be bad for the entire state,” Brase said. “It will hurt more than just the producers; it will raise the prices of beef at the grocery store and have an overall effect on the state economy.”

It also will take more than just a model, Scoglio said. It will involve understanding the industry and the attitudes of producers and empowering them to make informed decisions. It’s a job that will take more than just one expert.

“Kansas State University is a unique place for this kind of research,” Brase said. “As a land-grant university, there’s a lot of emphasis on actually getting your hands on real-world problems. We are always looking for ways to translate research into practical issues.”

*By Lindsey Elliott, Communications and Marketing*

