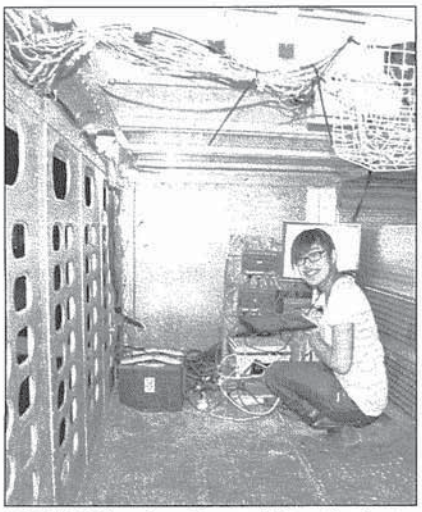
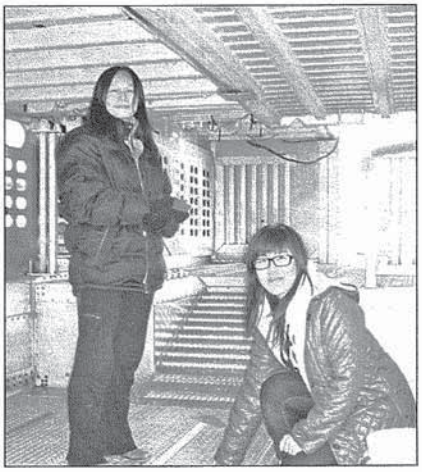
Reich trailer study could improve hogs to market



YIJIE XIONG works at the central data collection station in the trailer. The equipment takes up the space two pigs would during transport. From this point, wires traverse to various parts of the trailer to read the sensors for temperature and humidity, as well as video and sound.



JINGWEI SU, research engineer, and Yijie Xiong (right), masters student, place temperature sensors on the floor of the trailer. The sensors are in a protective rubber case to protect them from the pigs' feet and mouths. The two planes of the lower level are visible with the team members on the lower plane and the ramp behind them going to the upper plane.

PHOTOS BY DAN LONG

RICK REICH, owner Reich Trucking, and Dr. Angela Green, University of Illinois assistant professor of Agricultural and Biological Engineering, show how wind boards can be removed and adjusted on a trailer.

By Dan Long

The goal is simple: get hogs to market so they can be sold.

How to do that is being studied by the University of Illinois Animal Welfare and Environmental Systems Laboratory, with cooperation from a Brown County trucking company.

The lab, nicknamed "Lab Awesome," is outfitting a Rick Reich trailer with equipment to monitor the internal environment in the trailer.

The lab wants to measure conditions over a year's worth of weather, from the hottest, which it got this summer, to the coldest, which it's hoping to get this winter. It's taken a year to get readings for every season.

Temperature and humidity are being measured to assist with hogs' comfort on the way to market.

"We want to reduce the problems for pigs in transport," Dr. Angela Green, University of Illinois assistant professor of Agricultural and Biological Engineering, said. "If it's too cold, what can we do to make a more comfortable ride? The same for if it's too hot."

The short-term goal is to identify areas within the trailer with the most extreme environment and to make recommendations to improve the environment for the pigs, according to Green.

Long-term goal is to create a model of transport for pigs, and use that data to create a better trailer to transport the pigs.

"After we identify the problem, the study then becomes solution-driven," Green said.

Why is the time spent on the trailer important?

"From a moral standpoint, we care about animal welfare and the quality of life as long as the animal is aware of its surroundings," Green said. "With respect to the environment in the trailer, we want the animal to arrive at the plant healthy and not heat or cold stressed."

Animals with issues, whether injured, dead or otherwise, may be unsafe. That could either be due to the stress of transport or it could be from disease. The symptoms exhibited might look the same.

"Plants don't accept hogs with issues as a safety precaution," Green said. "We almost always find the welfare issue also affects the economics."

"It's timely with what's happening in the animal rights movement and public perception," Reich said. "When you get to the plant, the plant checks the standards against how the pigs were brought in. You can be reprimanded and excluded. That's how concerned the industry is with animal welfare."

Pigs can't wait a few days until the weather changes, a practice farmers may have done years ago.

"You have to haul when the pigs are ready to haul," Reich said.

That's why this study is being done, to see what can be done to care for the hogs while in transport, especially when the weather is extreme.

Sensors are set up inside a trailer. The sensors read three temperature levels: above, at and below the pigs.

Equipment includes cameras and infrared thermal monitors.

"The cameras give us a visual," Green said. "The infrared gives us the surface temperature of the pigs."

Current recommendations by the National Pork Checkoff Transport Quality Assurance Program, also called TQA, are if the temperatures are 20-40 degrees Fahrenhiet, trailers should have 50% of the wind boards in place. Wind boards are panels on the side of a trailer that can be removed, or placed in different configurations.

Data collected is hoped to identify current management to improve upon hog transport, and to identify TQA recommendations that don't create an optimal environment.

Data collected will be provided to National Pork Board and the TQA Review Committee, that will revise their recommendations later this year.

"This research has the potential to impact our transport management practices in the US and internationally," Green said.

While the U of I is conducting this "micro-environment testing," a sister study is being done in Texas.

"There's a sister study in Texas, a "macro-study," monitoring thousands of trips of pigs to track the prevalence of problems and correlate with the weather," Green said. "We're looking at the details of the trailer environment to identify where in the trailer the problem is occurring.

"They're collecting data on pigs coming off trailers. They are looking at issues resulting from transport."

This is all part of a two-year project, started in May 2011, which is expected to lead into a four-year project.

"This is the preliminary data we used to apply for another grant," Green said. "We applied for a 4-year, $500,000 USDA grant."

The U of I team working on this research consists of Green, masters student Yijie Xiong, research engineer Jingwei Su, and several other student assistants from the AWES Lab

Team members either ride in the cab of the semi, or after the trailer in another vehicle, monitoring the equipment and collecting data.

The university found Reich Trucking through one of its customers, with help from the National Pork Board.

"They contacted one of my customers, and the customer recommended us. Then the university contacted us," Reich said. "We're one of the largest livestock haulers in Illinois."

"Reich Trucking has been valuable in figuring out how to do the work we're doing," Green said. "We appreciate the collaboration between U of I and Reich Trucking."

Reich Trucking receives no compensation for its part in the research, according to Reich.

"It seemed like a fun project to do, and hopefully we'll glean some information beneficial to livestock transportation," he said.

Reich Trucking custom orders each of its trailers from Wilson Trailer, which makes most of the trailers for hauling pigs in the United States, according to Reich.

"The trailers are made to my specs," Reich said. The trailers are currently optimized for safe handling for both the animals and the human while moving pigs on and off the trailer, as well as during transport. With success, the results of this project will ultimately offer insight in selecting the specs for improving the thermal environment.