

# Food Security Research Underway



U.S. consumers have tended to take food security for granted but in a post-9/11 world and especially in the wake of a positive mad cow disease case in Washington State, new looks are being taken at the farm-to-supermarket chain through a University of Illinois research project.

"When you look at food security, you find that we have a pretty complex food system without a lot of protection," said Geoffrey Dahl, an Extension specialist and associate professor of dairy science in the Department of Animal Sciences. "We have not only the potential for terrorist acts affecting food safety but situations that could inflict severe damage to the whole economy as well."

Dahl is part of a cross-campus project, the Food Security Initiative, that is funded by the chancellor of the Urbana-Champaign campus and Deere & Co. It is focused on creating, maintaining, and tracing product identity through the food chain system. Researchers are aiming for technologies that will allow the meat produced from one cow or the soybeans from a farmer's field to be traced all the way to the grocer's shelves.

The initiative involves the Colleges of Agricultural, Consumer and Environmental Sciences; Veterinary Medicine; Engineering; Liberal Arts and Sciences; and Business and Commerce; and the National Center for Supercomputing Applications.

"We're looking at the whole food supply chain," he explained, "searching for ways to enhance value and track individual units. This also includes new identification technology."

Dahl's particular piece of this research pie is a small, implanted device for livestock that is about the size of a single grain of sand or salt. It has no power source of its own but draws power from the radio waves that poll it for data. About 25,000 of the devices suspended in a small bottle of water are barely visible.

"They are too small to be taken out and switched to another animal," he said. "The electronics involved are such that we may be able to do all sorts of things with the device, such as monitor the animal's temperature or control hormone release."

One part of the Food Security Initiative involves finding ways that the identity preservation techniques can also be used to enhance value.

"Most of our agricultural production in this country is based on a commodity system, but we are moving toward a trait-based system," he said.

Traits could be something like GMO-free soybeans or organically-produced beef, and identification technology would make it possible to guarantee those traits for end-users.

"On the livestock side, we have another motivation as well," Dahl said. "We have laws requiring country-of-origin labeling on food products. But if we can't preserve identification how can we conform to the law? These laws would certainly be easier to implement if we could certify identity."

That ability might also encourage some producers to enter niche markets for their livestock.

"Identity preservation will become more important in the future and should help us better protect our food supply. At the same time, it also protects the greater economy. For instance, if we had a terrorist act that introduced foot-and-mouth disease into the U.S. livestock population, it would be devastating not only to producers but to the larger economy as well," Dahl said.

"If we do have a disease outbreak somewhere, we can use identity preservation to go back through the system and figure out where the problem came from."

