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## **K-State researchers findings on E. coli**

### ***Feeding cattle byproduct of ethanol production causes E. coli 0157 to spike***

MANHATTAN, KAN. -- Ethanol plants and livestock producers have created a symbiotic relationship. Cattle producers feed their livestock distiller's grains, a byproduct of the ethanol distilling process, giving ethanol producers have an added source of income.

But recent research at Kansas State University has found that cattle fed distiller's grain have an increased prevalence of E. coli 0157 in their hindgut. This particular type of E. coli is present in healthy cattle but poses a health risk to humans, who can acquire it through undercooked meat, raw dairy products and produce contaminated with cattle manure.

"Distiller's grain is a good animal feed. That's why ethanol plants are often built next to feedlots," said T.G. Nagaraja, a professor of diagnostic medicine and pathobiology at K-State's College of Veterinary Medicine.

The growth in ethanol plants means more cattle are likely to be fed distiller's grain, therefore harboring 0157 and potentially a source of health risks to humans, Nagaraja said. That's why he and Jim Drouillard, K-State professor of animal sciences, have been collaborating on testing distiller's grain-fed cattle for 0157. Nagaraja and Drouillard, who studied the carcass quality of cattle fed distiller's grain, are joined by Megan Jacob, a K-State doctoral student in pathobiology. Through three rounds of testing, Nagaraja said the prevalence of 0157 was about twice as high in cattle fed distiller's grain compared with those cattle that were on a diet lacking the ethanol byproduct.

"This is a very interesting observation and is likely to have profound implications in food safety," Nagaraja said.

Food safety and animal health are research priorities at K-State, which since 1999 has dedicated more than \$70 million on research related to animal health and food safety. More than 150 K-Staters are actively involved in these areas.

Nagaraja said research in the next few years will focus on finding out why 0157 is more prevalent in cattle fed a distiller's grain diet. He said it could be something that changes in the animals' hindgut as a result of feeding distiller's grains, or maybe the byproduct provides a nutrient for the bacteria.

"Feeding cattle distiller's grain is a big economic advantage for ethanol plants," Nagaraja said. "We realize we can't tell cattle producers, 'Don't feed distiller's grain.' What we want to do is not only understand the reasons why 0157 increases, but also find a way to prevent that from happening."

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