

# The Fight Against *E. coli*

Beef industry leaders unveil actions to further reduce *E. coli* contamination.

by **Stephanie Veldman**

**T**he beef industry has been struggling to find ways to reduce *E. coli* O157:H7 pathogens in beef for more than 10 years. The battle is far from over, but a report from the Center for Disease Control and Prevention (CDC) shows a 23% reduction in foodborne illnesses caused by the top four pathogens, including *E. coli*.

As part of the industry's effort to continue to reduce *E. coli*, more than 200 members from every link in the food supply chain met in San Antonio, Texas, this past winter to discuss additional measures each segment could take to reduce and eventually eliminate *E. coli*.

"The group represented all sectors of meat production, from ranchers to feedlots, fabrication and meat-processing facilities, retail and foodservice operations," says Terry Stokes, CEO of the National Cattlemen's Beef Association (NCBA).

The checkoff-funded, two-day Beef Industry *E. coli* Summit was the first of its kind. "Our goal was to identify good manufacturing practices, interventions and research needs to reduce the incidences of *E. coli*," Stokes says, adding significant progress was made during the summit.

Five working groups met during the summit. The following is a brief report from each.

## Producer

### A new vaccine?

The main goal of the producer working group was to determine ways to reduce the amount of *E. coli* shedding in market-ready cattle.

"How do you make clean cattle?" asks Mike Engler, chair of the producer working group and president and COO of Cactus Feeders, Amarillo, Texas. "You make clean cattle by providing them with clean water, clean feed and clean pens. We are committed to whatever good production practices accomplish those goals. That is what we can do today."

Looking toward the future, Engler says new research looks promising in providing potential interventions of *E. coli* in the live animal segment.

"We saw a number of methodologies and a number of delivery systems that have been presented," Engler says. "These included preliminary work on different interventions, from vaccines to feed ingredients."

Engler says that one vaccine looks particularly encouraging. It works to block the attachment of *E. coli* to the gut of cattle by immunizing the animal against proteins the bacterium uses for attachment. The vaccine was developed in Canada and is currently being tested at universities there. The University of Nebraska is also running small pen trials.

"The effectiveness was a little hard to pin down because all they have conducted are small pen trials," Engler says. "We don't know what the real-world effect will be. Results were highly encouraging, though, somewhere on the order of two-thirds reduction in shedding."

Engler predicted it would be at least a year before the vaccine would be on the market in the United States.

## Meatpacker

### Finding a common measurement

The meatpacking group was made up of a diverse group of large and small meatpackers across the country. "We have been at this O157:H7 battle for about 10 years. I think that for the first time we've all come together as a group — and I am talking about the packing segment," says Dell Allen, chair of the fabrication working group, and vice president of quality and food safety for Excel Corp.

"We've decided that for us to really continue to make progress, we've got to come together and come to grips with a common measurement system of how we are going to measure ourselves, our own performance," he adds.

Allen says that in order to do that, plants across the nation need to standardize the way they measure microbial counts. "We are going to do it in six different points in the system, starting with the dehiding process, which measures our performance in that area, going on down through the chain, through the chilling process and ending up in final product," he says.

Pathogen testing will continue, and the information collected can be used to compare meatpacking plants against each other.

Allen says that trying to test for *E. coli* is frustrating. He compares searching for *E. coli* O157:H7 to searching for Osama bin Laden or other terrorists. "You don't know where it is at. You can't find it. You can't see it. Yet we still have to find it and get it out of the system," he says. "That is where the difficulty lies. We can test and test and test and do all these things, and at this point in time, we still can't assure safe food."

"I think the steps we have taken here will very definitely allow us to move forward, improve our performance and make the product safer," he adds.

## Processor

### Setting uniform safety rules

Processors of ground beef have been working hard during the past 10 years to develop best practices for producing ground beef, says Tim Biela, chair of the processing working group and vice president of food safety and quality assurance for Texas American Foodservice.

Biela says the processing working group agreed that there needs to be a set of uniform standards and safety rules that everyone follows. "All meat going to the production of ground beef would be sampled, tested and found negative for *E. coli* O157:H7 before it moves any further in the process chain," he says.

He adds that this is a fairly common practice, but it isn't an industry standard. During the summit, the group recognized sampling as a best management practice routine and hopes it will become the standard.

The second thing that was significant in the processing working group's discussions was the idea of the opportunity to share information regarding food safety practices, process controls and technologies. "These include any intervention research that is accomplished so it can be shared and utilized by every individual company that is grinding and producing ground beef for consumers," Biela says.

The third topic the group discussed was setting up a third-party microbial database that would allow companies to measure and track their successes.

"We have had difficulty determining who a good third-party administrator would be. That is part of the task we have outlined," Biela says. "The idea of a third-party database controller is so that individuals actively involved in beef production can utilize the information to assess their successes and to measure themselves against others."

## Retail Consumer expectations

According to Craig Wilson, chair of the retail working group, his sector's main initiative for reducing *E. coli* was to, No. 1, keep food safety non-negotiable at the retail level.

"People who shop for food, which is all of us, have expectations when they go in the grocery stores that they are going to buy food that is safe," says Wilson, who is also vice president of food safety and quality assurance for Costco Wholesale.

Another initiative retailers felt was important was continuous education for consumers. This includes providing point-of-sale materials on cooking temperatures and preparation methods, as well as labeling foods.

"We feel it is very important that we capitalize on the unique role we have as retailers, as an interface with that final consumer to work with the beef industry

and government to share handling information, and be that conduit for consumer education and consumer support," Wilson says.

## Foodservice Implementing a HACCP plan

Members of the foodservice working group, including the quick-service industry, casual dining, full-service restaurants and institutional foodservice providers, arrived at four key initiatives.

First, and foremost, all foodservice operators must have a food system based on the principle of a HACCP (Hazard Analysis and Critical Control Point) plan.

"HACCP is an internationally recognized food safety system that does a risk analysis and science control measures to make sure all threats or risks are properly managed," says Dave Theno, chair of the foodservice working group and senior vice president of quality and logistics for Jack in the Box Inc., San Diego, Calif.

The second initiative requires all beef product suppliers servicing the restaurant industry to have a HACCP-based food safety system designed to reduce microbial loads.

Theno says the third initiative is to integrate food safety systems into all aspects of foodservice operations. "These are not stand-alone programs. These are programs that are the fabric of life in the restaurants,

## Signing the pledge

Terry Stokes, CEO of the National Cattlemen's Beef Association (NCBA), presented a pledge to be signed by all committee chairs at the Beef Industry *E. coli* Summit. The pledge states:

*As leaders in the beef industry representing each link in the beef production chain, we reaffirm our commitment to further reduce the risk associated with E. coli O157:H7, utilizing scientifically proven production practices and technologies. Our united goal is to produce, deliver and serve wholesome and safe beef for each and every family.*

The leaders at the meeting encouraged everyone to follow their pledge and to take an active role in reducing the effects of *E. coli* O157:H7 in their respective segments.

and key operating elements of everyday operations," he adds.

Lastly, the food industry fully supports appropriate food safety training of all employees involved in the supply chain or operation of the foodservice industry. Theno says, "We can't expect employees to maintain high levels of food safety awareness and competence without proper training and reinforcement."



# Irradiation

Knowledge of the process  
heightens consumer acceptance.

by Dave Edmark

The more consumers know about irradiation, the more likely they are to have a positive attitude toward the technology. If the source of their knowledge comes from the government rather than industry, their likelihood of a positive attitude is even greater.

"If we're thinking in terms of public health benefits from irradiation, it's a matter of who should be informing the public about it," said Sean Fox, an associate professor of ag economics at Kansas State University (K-State) who directed a consumer survey for the Food Safety Consortium (FSC). "If U.S. Department of Agriculture (USDA) information has more credibility, maybe there's a more active role for USDA to play in educating the public about the technology."

K-State researchers mailed a survey to residents in Manhattan, Kan., and Topeka, Kan., with questions about beef purchases and their knowledge of food irradiation. One-third of the audience was provided with only a brief statement about irradiation's effect on foodborne pathogens. The other two-thirds received a brochure with answers to frequently asked questions about irradiation.

Of those brochures, half were written to suggest the information was from an industry source; the other half, from USDA and the Food and Drug Administration (FDA).

Everyone who received a survey was asked what they would do if their local store sold hamburger patties "treated by irradiation to

control salmonella, *E. coli* and other foodborne bacteria." The survey asked whether they would buy non-irradiated patties at \$1.69 per pound (lb.) or irradiated patties at various prices ranging from \$1.79 to \$2.09 per lb.

Of the respondents who did not receive an information brochure, 32% reported a positive attitude about irradiation. Of those who received information appearing to come from an industry source, 66% reported a positive attitude, while 76% had a positive attitude with information provided by the government.

Fifty-nine percent of respondents said they would buy the irradiated product at a price of 10¢ per lb. more than non-irradiated patties. However, at a price of 40¢ above the non-irradiated product, only 36% were willing to buy the irradiated patties.

"Some people were asked if they would buy irradiated hamburger at the same price as regular hamburger, and of those 82% said yes," Fox said.

The results showed that of those who received government-produced information about irradiation, more than 70% would buy the product if the price difference was only 10¢ per pound higher. "When that premium goes up to 40¢ a pound more, the percentage of those with government information who are willing to buy it is just a bit over 40%," Fox said.

Fox noted that the data from the survey shows the probable limits for public acceptance of irradiated products and what the public needs to know before purchasing such products. "Overall, it's showing that when people get information about irradiation, the majority are accepting the technology."



**Editor's Note:** The FSC, Fayetteville, Ark., provided this article.