



The Food Safety Consortium Newsletter

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Turkey Trips Don't Aggravate Contamination

When it's time to load the turkeys on the truck for the trip from the farm to the slaughter, they're not always happy travelers. But unlike hogs and broilers who make similar trips, the turkeys are not more contaminated with *Salmonella* after the journey.

To find out why, a Food Safety Consortium research team of Scott Hurd, Marcos Rostagno, Darrell Trampel and Irene Wesley at Iowa State University and the USDA-ARS National Animal Disease Center followed up on an earlier investigation.

The previous study, also conducted by ISU and NADC by Hurd, Rostagno and James McKean, demonstrated that lairage and transportation increase *Salmonella* prevalence in hogs.

"We started sampling turkeys on the farm before they went to slaughter," explained Wesley. "As birds were loaded they were crated and moved to the slaughterhouse. When the birds were transported and rested, just before they



Irene Wesley

went to slaughter, we tested them again."

The researchers looked at the results before and after transport from six turkey farms. It turns out that upon arrival at the plant, the prevalence of *Salmonella* in the turkeys actually decreased (although not in statistically significant

amounts), the opposite of what usually happens to their counterparts among broilers and hogs.

The researchers believe the difference in the results may be because turkeys remain in their transport crates but hogs are transported, unloaded and moved to holding pens.

"The hogs wait in the holding pen and rest there until it's their turn to go to slaughter," Wesley said. "And the holding pen was probably occupied by hogs shedding *Salmonella*. And those hogs go into the pen that's been contaminated. Therefore, they have a good opportunity to pick up *Salmonella*."

The turkeys don't mingle with each other during their journey. They stay in their crates until unloaded directly to the slaughter line at the processing plant, keeping them healthier. Wesley noted that the results indicate that with transportation and holding not a factor in turkeys' health, samples collected at the farm level will be an accurate mea-

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KSU, EcoQuest Team to Advance Ionization for Food Safety

Ozone was good, but adding ionization appears to be better when it comes to getting rid of foodborne pathogens.

And what is ionization? Jim Marsden of a Food Safety Consortium research team at Kansas State University likens a new process using ionization to a "miniature sun" of ultraviolet energy interacting with oxygen and drawing

particles out of the air, thus producing an antimicrobial effect.

"When Mount St. Helens went off, you had all these particles floating around," Marsden said. "The reason they're not still floating around is that ionization from the sun caused them to fall out of the air."

Marsden's KSU team worked with EcoQuest International, a Greeneville,

Tenn.-based company, to determine the potential use of its ionization generator for food safety in processing plants. The researchers wanted to find out its effectiveness in reducing several pathogens including *E. coli*, *Listeria monocytogenes* and *Staphylococcus aureus*.

With EcoQuest phasing out its straight ozone generation system

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Turkeys...
continued

sure of their overall health with regard to *Salmonella*.

The researchers did find an increase in *Campylobacter* among the turkeys following transport in the birds' crops and gall bladders. But transportation itself isn't necessarily the cause.

"When we went to abattoir I noticed that the gall bladders are going

to rupture," Wesley said. "They're huge because the birds haven't eaten. I attribute the amount of *Campylobacter* in the gall bladder to the simple physical expansion of the gall bladder." As for the *Campylobacter* in the crop, Wesley said sampling of the birds may have inadvertently dislodged more of the bacterium

Turkeys remain in their transport crates, but hogs are moved to holding pens.

that lives close to the crop's tissue.

Any increased levels of *Campylobacter* in the turkeys could most likely be prevented by adding probiotics to

the birds' feed a week before slaughter, Wesley explained. ■

KSU, EcoQuest Team...
continued

and shifting to ionization, it settled on a more advanced system that was originally developed by NASA to decontaminate spacecrafts during long missions, Marsden explained. The new technology for food safety goes beyond being merely ozone based. Its components consist of an antimicrobial part that uses oxidated gases such as peroxide and ozone and the ionized part.

"Here we're talking about oxidated gases that basically fill the room with a somewhat aggressive antimicrobial system — extremely safe and breathable," Marsden said. "The levels of ozone are very low in terms of OSHA and FDA standards."

The researchers used stainless steel surfaces to test the system's effectiveness in removing contaminating bacteria. The ionization system removed more microbial populations than ozone at shorter exposure times.

Ozone already has a good track record as a disinfectant. The FDA in 2001 approved its use as a sanitizer for food contact

surfaces and for direct application to food products. It is also used extensively for purification of bottled and municipal water.

"In the meat and poultry industry there are some applications for ozone where products are being treated with aqueous ozone prior to being sliced," Marsden said. "They're looking at ozone for decontamination of poultry chillers and for direct decontamination of birds as they go down the processing line."

Marsden noted that the five years since government approval of the process is not a long time to determine how well applications are going to work, particularly in the meat and poultry industry.

The ionization system may be suited for related uses pending further research. KSU and EcoQuest personnel will examine its effectiveness in inactivating avian influenza environmentally. They may also investigate how the system could control *Listeria*



Jim Marsden

in ready-to-eat meat processing environments.

The recent research results showed that ionization was effective in reducing levels of *Staphylococcus aureus*, leading researchers to consider the implications for hospitals and nursing homes.

"The ionization effect is that it eliminated odors," Marsden explained. "For odors to be pres-

ent they have to be aeromatic, so if you take it out in particle form and inactivate further with peroxide and ozone, it might have some application as well in hospitals, nursing homes and the food industry." ■

The ionization system removed more microbial populations than ozone at shorter exposure times.

Zooming in on the *Campylobacter* That Would Resist Antibiotics

Scientists who look for ways to eliminate foodborne pathogens are up against another obstacle: those pathogens that resist antibiotics. In particular, they want to single out the resistant bacteria for special attention and get rid of them.

That's the focus occupying Ramakrishna Nannapaneni, a Food Safety Consortium researcher in the University of Arkansas Division of Agriculture food science department working with Michael Johnson. His team is trying to quantify *Campylobacter*, a pathogen that contaminates nearly all retail raw broiler chicken carcasses, and its emerging ability to resist an important fluoroquinolone antibiotic known as ciprofloxacin.

Surveys have shown that broilers frequently carry large numbers of *Campylobacter* in their intestinal contents that spread during further processing onto retail raw products. *Campylobacter* also can occur in raw milk and water and on raw fruits and vegetables. Proper cooking recommended by the U.S. Department of Agriculture will completely kill *Campylobacter* present on raw poultry.

The problem is that persons who handle raw poultry contaminated by *Campylobacter* then handle other foods that receive no cooking before consumption such as fresh salads and lightly cooked vegetables. To aid in such risk assessment, scientists are finding better ways to understand the numbers and virulence properties of *Campylobacter* and those that resist antibiotics.

To better understand ciprofloxacin antibiotic-resistant *Campylobacter*,



Research specialist Keith Wiggins, left, and Dr. Rama Nannapaneni count *Campylobacter* colonies on test plates.

“current methods need to be refined for isolating and quantifying the complete diversity of such strains commonly occurring in raw poultry,” Nannapaneni said.

“One of the highest priority research needs on *Campylobacter* was to develop laboratory methods for quantifying an antibiotic-resistant *Campylobacter* load

persisting on raw poultry products,” Nannapaneni said.

While fluoroquinolone antibiotic-resistant *Campylobacter* was found to be stable and persistent, there

is some good news in the situation. A 30-month study in the Arkansas research showed that chickens often had at least minimally detectable levels of *Campylobacter*, but only a small percentage of carcasses contained high levels of

the pathogen. The good news is that of those chickens with the high levels of *Campylobacter*, the number of them declined over the 30 months.

Up to 60 percent of chicken carcasses sampled during the study contained the *Campylobacter* that resist the ciprofloxacin antibiotic. And among those with the higher levels of the resistant *Campylobacter*, there were reductions each year in the percentage of carcasses carrying such high levels, going from 11 percent down to 0.6 percent.

The Arkansas research is significant for being the first time that trends could be determined by quantifying the total numbers of *Campylobacter* and the antibiotic-resistant *Campylobacter* found on chicken carcasses. A report of this new method was published in the scientific journal *Applied and Environmental Microbiology*.

Among *Campylobacter*, almost all infections that cause illness in humans are carried by one species of the bacterium — *Campylobacter jejuni*. Scientists want to be able to narrow down on *Campylobacter jejuni* from total *Campylobacter*. The current problem is that a methodology for doing so needs more refining.

“We are trying to come up with probes and methods that can separate antibiotic-resistant *Campylobacter jejuni* load versus total *Campylobacter* in raw chicken carcass rinses,” Nannapaneni said. Developing such strategies is on the research agenda for Food Safety Consortium for the coming year.

While it is currently impossible to completely eliminate antibiotic-resistant *Campylobacter* occurrence on raw chicken carcass surfaces or in its juices, the organism can be easily destroyed by proper cooking practices at home. ■

The team is trying to quantify ability to resist an antibiotic known as ciprofloxacin.

Report from the Coordinator



Gregory J. Weidemann

We enjoy passing along word of the notable accomplishments of others, especially those who have some association with the Food Safety Consortium. We were pleased to see that *Food Quality* magazine presented its 2005 Food Quality Award to the Tyson Food Safety and Laboratory Services Network.

It was gratifying for us to learn that the award was accepted by Dr. Neal Apple, Tyson Foods' vice president for food safety. Apple is a former member of the FSC's Steering Committee. He also hosted a session of the FSC annual meeting a few years ago when he guided our approximately 100 people in attendance on a tour of the newly-opened lab at company headquarters in Springdale, Ark.

The Food Quality Award recognized the Tyson Food Safety and Laboratory Services Network as an organization of 18 labs across the U.S. and Canada, with the Springdale headquarters being tripled in size in 2002 to increase capabilities for testing, research and training. The expanded lab network was a result of Tyson's acquisition of IBP Inc. in

2001. Apple and Dr. Rick Roop, Tyson senior vice president of science and regulatory affairs, worked with colleagues to merge the laboratory systems.

Food Quality described it this way: "While some of the systems in the chicken business do not apply to the beef business, the policies, described by Drs. Apple and Roop as merged, modified and hybrid, can be applied generally and serve as the basis for procedures developed specifically for beef, chicken, pork and ready-to-eat products. ...

"Dr. Roop, however, adds that food safety and quality never stops evolving. 'Food safety is number one. It will never stop,' he says. 'It's ongoing, and you have to continually modify it.'"

■ ■ ■

Another note of interest to the food safety community is the Food Safety Education Conference set for Sept. 27-29 in Denver and sponsored by the U.S. Department of Agriculture, the Food and Drug Administration, the centers for Disease Control and Prevention, NSF International and the NSF/WHO Collaborating Center for Food Safety.

"Reaching At-Risk Audiences" is the theme of the event.

The themes of this year's program include foodborne illness surveillance, food safety behavioral and attitudinal research, social marketing, educational interventions, the role of food service and food industries, and new technologies. Food safety researchers and communicators, educators, health professionals, sanitarians, marketers, trade associations and consumer representatives are among those expected to attend. More information is available on the Web site at <http://www.fsis.usda.gov/Denver2006/>.

One other conference still in planning stages is the Food Safety Consortium annual meeting to be held Oct. 1-3 in Fayetteville, Ark., at the Radisson Hotel. Details will be announced later but there should be several items of interest on the program. ■

Single Minimum Internal Temperature Established For Cooked Poultry

The Food Safety and Inspection Service in April advised consumers that cooking raw poultry to a minimum internal temperature of 165 degrees F will eliminate pathogens and viruses.

The single minimum internal temperature requirement of 165 degrees was recommended by the National Advisory Committee on Microbiological Criteria for Foods (NACMCF).

"The committee was asked to determine a single minimum temperature for poultry at which consumers can be confident that pathogens and viruses will be destroyed," said Under Secretary for Food Safety Richard Raymond. "The

recommendation is based on the best scientific data available and will serve as a foundation for our programs designed to reduce foodborne illness and protect public health."

Scientific research indicates that foodborne pathogens and viruses, such as *Salmonella*, *Campylobacter* and the avian influenza virus, are destroyed when poultry is cooked to an internal temperature of 165 degrees. FSIS recommends the use of a food thermometer to monitor internal temperature. In addition, consumers should follow important tips for handling raw poultry. These tips can be summarized in three words — clean, separate and chill. Clean means

to wash hands and surfaces often; separate means to keep raw meat and poultry apart from cooked foods; chill means to refrigerate or freeze foods promptly.

FSIS will use the NACMCF recommendation to further guide consumers in the preparation of poultry products to ensure microbiological safety. While the NACMCF has established 165 degrees as the minimum temperature at which bacteria and viruses will be destroyed, consumers, for reasons of personal preference, may choose to cook poultry to higher temperatures.

Consumers with food safety questions can call the toll-free USDA Meat

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Consumers Know Food Safety Issues Are Serious and Trust the Supply

Most Americans are comfortable with the safety of their food, but they recognize microbiological hazards as serious. Those are the conclusions from Christine Bruhn's analysis of recent surveys of consumers' knowledge of food safety issues.

"People have a long way to go to understand how they can control hazards," said Bruhn, the director of the Center for Consumer Research at the University of California-Davis. She delivered her remarks in July at the Institute of Food Technologists convention in New Orleans.

A 2004 survey by the Food Marketing Institute showed that, when provided a list of choices, about 80 percent of consumers perceived bacteria and pesticides to cause some health risk to food, followed by biotechnology and genetic engineering of food at about 50 percent. Bruhn noted that surveys from 2001-05 by Cogent Research, which asked open-ended questions that called on respondents to volunteer their specific concerns, showed that food handling and preparation was the leading concern for 40 percent. Disease and contamination was the second most cited concern at 25 percent.

"Those translate to bacterial and microbiological issues," Bruhn said. "If

you add them together it shows that consumers are thinking along the same lines as professionals: that microbiological issues are indeed very serious and what we should be focusing on in developing programs."

According to the FMI survey, only 11 percent of consumers had changed their purchasing habits because of food safety concerns. Within that group, 53 percent listed meat as an item of which they were eating less or eating different types.

The survey also found that processors and manufacturers were cited most frequently, by 30 percent, as the primary source of food safety problems, with 18 percent pointing to the home as a source and only 1 percent mentioning the farm.

"Those of us who are involved in the food safety area realize that consumers have a gap of knowledge here because you're talking about microbiological hazards or chemical hazards," Bruhn said. "They can certainly happen on the farm. ... I would stress looking at the farm as the source for where careful behavior must begin and is beginning."

Bruhn said the survey also showed that the results indicated the public must know it has "an important role to play in food safety because the home should be ranked much higher than it is."

In the FMI survey, 4 percent of respondents volunteered that they are eating irradiated meat for health reasons. That would not be considered a large number until one considers that irradiated foods are still not widely available in grocery stores.

"I think this is profound," Bruhn said. "This is volunteered. Some people have gotten the message of safety and are acting on it. That is very encouraging."

That brings up the question of what food safety messages should be delivered to the public for maximum effectiveness. Bruhn suggested that the food safety community must listen to consumers' concerns. "We have to find out where they're coming from and what their base of knowledge is," she said. Consumer research and industry research can provide the means to listen.

Consumers should expect to receive recommendations that are actionable. "Make it so they know [foodborne illness] happens to them and then tell them things they can do," Bruhn explained. "Tell them how to wash their hands. In our studies, many people don't realize soap is an important part of hand washing. They think it's getting their hands wet." ■

Food handling and preparation was the leading concern for 40 percent of respondents.

FSIS Announces Initiative to Reduce *Salmonella* in Meat and Poultry

The U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) in February announced a comprehensive initiative to reduce the presence of *Salmonella* in raw meat and poultry products.

"Our goal is to work proactively to reduce the presence of *Salmonella* on raw products before plants develop a pattern of poor performance," said USDA Under Secretary for Food Safety Richard Raymond. "FSIS will more quickly report testing results and target establishments needing improvement, providing timely information to both consumers and industry."

The initiative will include concentrating resources at establishments with higher levels of *Salmonella* and changes the reporting and utilization of FSIS *Salmonella* verification test results. The effort is patterned after the FSIS initiative to reduce the presence of *E. coli* O157:H7 in ground beef. The FSIS *E. coli* O157:H7 initiative led to a 40 percent reduction in human illnesses associated with the pathogen, according to the Centers for Disease Control and Prevention (CDC). Central to the *E. coli* O157:H7 model's success was a collective acknowledgement by industry that this food safety hazard needed to be addressed in all their food safety systems.

Certain serotypes of *Salmonella*, which are known to cause human illness, are commonly found in raw meat and poultry. Other food sources, such as produce and eggs, are also known to cause salmonellosis.

Where FSIS has performed Food Safety Assessments (FSAs) in establishments that have persistently poor performance records for controlling *Salmonella*, there has been a dramatic reduction in the levels of *Salmonella*. FSIS said these results have demon-

strated that establishments can control the incidence of *Salmonella* in the raw products they produce. FSAs are comprehensive, systematic evaluations of a firm's food safety system performed by enforcement, investigation and analysis officers.

The Pathogen Reduction/Hazard Analysis and Critical Control Point (PR/HACCP) rule, implemented in 1996, established *Salmonella* performance standards for the first time in seven categories of raw meat and poultry products: broilers; market hogs; cows/bulls; steers/heifers; ground beef; ground chicken; and ground turkey. FSIS collects and analyzes *Salmonella* samples as one part of an extensive science-based food safety verification system and publishes the data annually in aggregate form.

Since 2002, FSIS has seen an increase in *Salmonella* positive samples in broilers. Although the overall percentage of positive samples in verification testing of broilers is still below national baseline prevalence figures, the recent upward trend is of concern to the agency.

According to the strategy, which is described in a *Federal Register* notice, FSIS will now provide the results of its *Salmonella* performance standard testing to establishments as soon as they become available on a sample-by-sample basis. This will enable establishments to more readily identify and respond to needed process control in the slaughter-dressing operation. Receiving individual sample results soon after the samples are taken will help establishments in their assessment of whether their slaughter dressing procedures are adequate for pathogen reduction.

Currently, establishments receive results after the sample set is completed (for broilers a sample set consists of 51

consecutive days of sampling). FSIS will also begin quarterly posting on its Web site of the nationwide aggregate results of all sample results to give consumers more complete and timely information about *Salmonella* trends. The postings will provide consumers with meaningful information about overall industry performance in protecting public health.

FSIS will also plan to more quickly have the serotype of *Salmonella* found in positive samples determined in order to notify the establishment and monitor and investigate illness outbreaks in coordination with federal, state and local public health agencies. These results also could provide useful information about trends in the presence of serotypes of *Salmonella* in order to prevent outbreaks.

Comments on the notice must be received on or before May 30, 2006, and must be sent to Docket Clerk, #04-026N, U.S. Department of Agriculture, Food Safety and Inspection Service, 300 12th Street, S.W., Room 102 Cotton Annex, Washington, D.C., 20250. Comments will also be posted on the Agency's Web site at http://www.fsis.usda.gov/regulations_&_policies/2006_notices_index/index.asp.

For further information, contact Daniel Engeljohn, deputy assistant administrator for the Office of Policy, Programs, and Employee Development, Food Safety and Inspection Service, U.S. Department of Agriculture via telephone at (202) 205-0495 or fax at (202) 401-1760. ■

Daniel Y. C. Fung, Kansas State, won the 2006 IFT Carl R. Fellers award for “one who has brought honor and recognition to the profession of food science and technology through a distinguished career in that profession, displaying exemplary leadership, service and communication skills that enhance the effectiveness of all food scientists in serving society.” The award consists of \$3,000 and a plaque.

Fung also delivered two papers recently. One was on “Current Developments, Technology Trends and Global Market Predictions” in March at Food Safety World in Washington. The other was on “Get Up to Speed on Rapid Methods” in March at the Food Safety Summit in Las Vegas.

Curtis Kastner, Kansas State, delivered a presentation on “An Interdisciplinary Model for Food Safety and Security for Educational Programming” in November at the Institute of Food Technologists Food Protection and Defense Research Conference in Atlanta.

Justin Kastner, Abbey Nutsch and Curtis Kastner, Kansas State, received a grant from USDA-CSREES for a project on “Further Defining and Validating an Interdisciplinary Model for University Food Safety and Security Initiatives.”

Fei Liu, Arkansas, won the second prize of the 2006 Student Research Poster Presentation Competition (M.S.) sponsored by the Arkansas Chapter of Gamma Sigma Delta. Her presentation title was “Nanoparticles based QCM Immunosensor for Detection of *E. coli* O157:H7.”

Madhukar Varshney, Arkansas, won the third prize of the 2006 Student Research Poster Presentation Competition (Ph.D.) sponsored by the Arkansas Chapter of Gamma Sigma Delta. His presentation title was “Impedance Biosensing Method Based on Interdigitated Array Microelectrode Coupled with Magnetic Nanoparticles-Antibody Conjugates for Detection of *E. coli* O157:H7 in Ground Beef.”

Yanbin Li, Arkansas, reported the following presentation:

• Su, X., Q. Sun, Z. Ye and Y. Li. 2006. A prototype capillary biosensor for food-borne pathogens detection. Presented at PITTCON 2006 Annual Meeting, March 12-17, 2006, Orlando, Fla.

Li also reported the following publications:

• Mao, X., L. Yang, X. Su, and Y. Li. 2006. Nanoparticles amplification based quartz crystal microbalance DNA sensor for detection of *E. coli* O157:H7. *Biosensors & Bioelectronics*, 21 (7): 1178-1185.

• Yang, L., and Y. Li. 2006. Detection of viable *Salmonella* using microelectrode-based capacitance measurement coupled with immunomagnetic separation. *Journal of Microbiological Methods*, 64 (1): 9-16.

• Yang, L., and Y. Li. 2006. Quantum dot bioconjugates for simultaneous detection of *Escherichia coli* O157:H7 and *Salmonella* Typhimurium. *The Analyst*, 131 (3): 394-401.

D.L. (Hank) Harris, Iowa State, reported the following publications:

• Baum, D.H., S. Ward, C.L. Baum, N. Lee, D.D. Polson, D.L. Harris and B. Nielsen, 2005. Statistical process control methods used to evaluate the serologic responses of pigs infected with three *Salmonella* serovars. *Journal of Swine Health and Production*, 13: 1-10.

• Erdman, M.M., I.T. Harris, M. Torremorell, B. Chriswell and D.L. Harris. 2005. Occurrence of *Salmonella enterica* serovar Typhimurium DT104 on a commercial swine farm before, during, and after depopulation-repopulation. *Journal of American Veterinary Medical Association*, 227: 460-466.

• Loynachan, A.T., and D.L. Harris. 2005. Dose determination for acute *Salmonella* infection in pigs. *Applied and Environmental Microbiology*. 71: 2753-2755.

Dennis Olson, Iowa State, returned to ISU in August 2005 after a five-year absence. In 2000, Olson accepted a position as vice president for food tech-

nology with SureBeam Corp., where he worked to commercialize food irradiation. In his current position, Olson will act as professor in charge of the Linear Accelerator Facility and will be the associate director for the National Center for Electron Beam Food Research, a partnership between ISU and Texas A&M University.

Jim Dickson, Iowa State, joined Charles Hurburgh of ISU in leading a panel discussion in February at the university of “Are We Doing Enough? Food Safety and Biosecurity Issues.” The discussion was part of ISU’s National Affairs Series on “Defining Values in American Politics.” ■

Single Minimum Internal Temperature... continued

and Poultry Hotline at (888) 674-6854. The hotline is available in English and Spanish and can be reached from 10 a.m. to 4 p.m. (Eastern Time) Monday through Friday. Recorded food safety messages are available 24 hours a day. “Ask Karen” is the FSIS virtual representative available 24 hours a day to answer questions at http://www.fsis.usda.gov/Food_Safety_Education/Ask_Karen/index.asp#Question.

The NACMCF was established in 1988 to provide advice and recommendations to the Secretary of Agriculture and the Secretary of the Department of Health and Human Services on public health issues relative to the safety and wholesomeness of the U.S. food supply. The committee is comprised of 30 voting members with scientific expertise in the fields of epidemiology, food technology, microbiology, risk assessment, infectious disease, biostatistics and other related sciences. ■

Food Safety Digest

by Dave Edmark

Federal regulators have lately been giving the green light to processors who want to package meat in a low-oxygen atmosphere with carbon monoxide. The *Lincoln (Neb.) Journal Star* reported in March that the government is satisfied that carbon monoxide is safe to use in packaging to prevent meat from turning brown.

In 2002, the U.S. Department of Agriculture and the Food and Drug Administration approved the practice to be generally regarded as safe.

“Essentially, under the law, they do not require formal approval,” George Pauli, an FDA associate director for science and policy, told the *Journal Star*. “On three occasions, we looked for assurances of safety, and we didn’t object.”

Pactiv Corp. was one of the companies that informed FDA of its intentions. It is offering a double-layered packaging with the carbon monoxide contained in the modified atmosphere between the inner and outer layers. Pauli said the outer layer is removed when the meat arrives at the supermarket, causing the modified atmosphere to go away before the consumer buys it.

■ ■ ■

A survey of people in all 25 European Union member states shows general confidence in EU authorities’ handling of food safety matters. The survey, which was conducted in October 2005, indicated that 58 percent are confident that public authorities use the more recent scientific studies in deciding matters involving food risk. Sixty-two percent agreed that food safety laws in the EU are strict, but 46 percent believe that enforcement is properly done. About half agreed that public officials are doing enough about food safety risks and one-third want them to do more.

Consumer groups, physicians and scientists are the most trusted sources of information about food risks, followed by public authorities. The lowest levels of trust were placed in media, manufacturers, farmers and retailers.

The report said that although “Europeans indicate they are worried about health-related risks, those concerning food appear to be less salient. Overall, food has positive connotations of taste and pleasure; concerns regarding health and food safety are not top-of-mind.”

■ ■ ■

Another European survey — this one limited to the United Kingdom — revealed in March that 12 percent of the nation’s consumers are less confident about food safety than they were at the time of a Worcester sauce recall last year. At the time of the February 2005 recall,

27 percent of respondents were less confident of food safety.

The survey was conducted by Razor, a European food industry crisis management consulting firm. A spokesman for Razor said that the increased confidence was due to work by manufacturers, retailers, legislators and trade organizations to rebuild the industry’s reputation. But the spokesman, Chris Woodcock, added that “food companies and retailers should take consumer distrust seriously.”

The survey also found that about 25 percent bought fewer ready-to-eat meals and pre-packaged foods during the past year. The same number said they bought more fresh, non-processed foods.

“The public are bombarded with information related to food, which makes it vital that the food industry takes an increasingly responsible lead with proactive communication to demonstrate ultra-transparency and to help consumers make informed choices.” ■

The Food Safety Consortium Newsletter

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