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The Food Safety Consortium Newsletter is a production of the three member schools of the consortium: University of Arkansas, Iowa State University and Kansas State University. Your comments are welcome.

David Edmark, Editor
110 Agriculture Building
University of Arkansas
Fayetteville, AR 72701-1201
Voice: 479-575-5647
FAX: 479-575-7531

E-mail: fsc@cavern.uark.edu
<http://fsconsortium.net>

FSC Newsletter Converts to All Digital

This edition of *The Food Safety Consortium Newsletter* is a first in one respect: it's the first time it hasn't been printed. The newsletter is now available only as HTML and PDF editions through our newly redesigned Web site at <http://fsconsortium.net>.

The newsletter began as a print publication in 1991 and expanded to an online edition when the FSC Web site was established in 1995. The print edition has been distributed to an extensive postal mailing list that was recently converted to an e-mail list.

The newsletter is published and posted online in

February, May, August and November. You may check the Web site anytime for the latest edition. If you wish to be on the e-mail list so you'll be notified when the newest edition is online and where to download it, send a request to fsc@cavern.uark.edu.



The cessation of printing has one particular advantage. The PDF version of the newsletter now has color photos that would have been too costly to use for a print publication. Readers who still prefer to hold the newsletter in their hands should just print the PDF from their computer, staple the pages together and create your instant print product.

Organic Acids, Plant Extracts and Irradiation Combine to Beat the Bacteria

A mixture of some organic acids and some extracts from plants turns out to be enough to greatly reduce pathogenic bacteria on chicken breast meat. Add some irradiation to the mix and it makes a lethal combination against the bacteria.

Food Safety Consortium researchers at the University of Arkansas System's Division of Agriculture found that they could greatly reduce *E. coli* O157:H7, *Listeria monocytogenes* and *Salmonella* Typhimurium in the chicken breast meat by infusing combinations of organic acids — acetic, citric, lactic, malic and tartaric — into the meat. The experiments were also performed with extracts from green tea and grape seeds in combination with the acids.

Three of the organic acids — malic, citric and tartaric — were most effective against *S. Typhimurium* and *E. coli* O157:H7, more than against *L. monocytogenes*. With irradiation fac-



Navam Hettiarachchy

tored in, the results were significant against all the pathogens.

"We want to determine the least amount of plant extracts that we can use and the least amount of irradiation dosage to get the best inhibitory effect," said Navam Hettiarachchy, a UA food science professor who supervised the project.

Previous research by Hettiarachchy's research team showed that extracts from grape seed and green tea reduced *L. monocytogenes* to undetectable levels when applied in combination with nisin, a bacteriocin recognized as a safe food preservative.

The researchers are also using the plant extracts to serve as antioxidants, which minimizes lipid oxidation. Lipid oxidation is a process that causes meat quality to deteriorate by adversely affecting characteristics such as flavor, color and texture.

Hettiarachchy said the research team has

(Continued on page 2)

Organic Acids...*(Continued from page 1)*

“We want to determine the least amount of plant extracts that we can use and the least amount of irradiation dosage to get the best inhibitory effect.”

examined the effects of irradiation on the chicken’s color and texture and found no significant change.

The research is continuing, but Hettiarachchy said a poultry company has already expressed interest in the project’s findings. Irradiation, however, has not yet been applied widely in the United States as many companies have worried about potential resistance among consumers.

Hettiarachchy suggested that labels on irradiated products could have a brief explanation of irradiation to educate consumers.

“I am hopeful that with time the public will become aware of irradiation processing so that they accept irradiation in processing poultry and meat products for safety against pathogens,” Hettiarachchy said. “A new education component is very important and may be the key for acceptance for irradiated food products by the consumer.” ■

UA Extension Food Scientist Receives National Award

John Marcy, professor and poultry processing specialist for the Center of Excellence for Poultry Science, which is part of the University of Arkansas System’s Division of Agriculture, was recently named a 2009 IFT Fellow by the Institute of Food Technologists.

Marcy was honored for his leadership in extension education for poultry processors and in retail food safety.

“I am honored to be recognized by a jury of IFT Fellows for my career accomplishments in industry and at Virginia Tech and the University of Arkansas,” said Marcy.

At the Center of Excellence for Poultry Science, Marcy coordinates educational opportunities in the poultry industry for microbial improvement and safety in poultry products and processing and conducts research in poultry processing and meat science. He develops educational workshops for the poultry and meat processing industries, including a program to certify food scientists at Tyson Foods as Certified Culinary Scientists through the Research Chefs Association.

The poultry science department and the Center of Excellence for Poultry Science include a complex of teaching, research and extension facilities at the Arkansas Agricultural Research and Extension Center and the John W. Tyson Poultry Science Building on the University of Arkansas campus. The department provides the curriculum for B.S., M.S. and Ph.D. degree programs.



John Marcy

Rapid Methods Workshop Set for June 19-26

Kansas State University will present the 29th Annual International Workshop and Symposium in Rapid Methods and Automation in Microbiology on June 19-26. The sessions will be held at the Clarion Hotel, 530 Richards Drive, in Manhattan, Kan., and at Call Hall and Trotter Hall on the KSU campus. Daniel Fung, KSU food science professor, is the director of the event that has attracted thousands of participants during its long run.

The workshop will focus on the practical application of conventional and new commercial systems of rapid identification of microorganisms from medical specimens, foods, water and the environment. Workshop participants will receive eight days of intensive theoretical and hands-

on training in microbiological automation.

The fee for the eight-day workshop is \$2,355, covering program sessions and laboratories, handouts, two banquets, two lunches, one picnic, refreshments, breaks and receptions. For those who prefer to register only for shorter programs, there is a two-day mini-symposium June 19-20 for \$700 and a one-day molecular detection symposium June 24 for \$250. Food Safety Consortium personnel at KSU, the University of Arkansas and Iowa State University may register for the workshop events at half price.

Registration and additional information about the workshop are available online at <http://www.dce.k-state.edu/conf/rapidmethods/>.

A Year at USDA Brings View of the Inside for ISU Researcher

In February 2008, H. Scott Hurd put on hold his projects as an epidemiologist at Iowa State University and went to Washington to serve as the nation's deputy undersecretary for food safety. A year later, he was back at his office at ISU picking up where he left off.

The experience was more than just participating in the management of a large agency, the U.S. Department of Agriculture's Food Safety and Inspection Service. "I was frequently using my science and research background in addressing day-to-day issues," Hurd said. "It was a lot of fun, more than I thought it would be, never a dull moment."

Back at the Ames campus, Hurd supervises research projects in the College of Veterinary Medicine, some for the Food Safety Consortium. He brought that experience with him to Washington to serve in a political appointment in the final year of the Bush administration. He knew from the start that he would be back at Iowa State at the end of the term.

"My job description was essentially to provide technical input on any and all of the various issues that come up over the course of the year," Hurd said.

Hurd spent a large portion of his time on import issues, which have taken on a new prominence as food safety issues in trading partner nations have emerged.

"Before a country can send meat or poultry to the United States, it has to prove that it has an equivalent inspection system to ours and that it has people in those plants every day conducting inspections," Hurd said.

He explained that FSIS officials visit other nations to perform food safety audits on products bound for the United States. If the auditors find problems, they can ask the exporting nation to delay shipping a particular product. That can lead to the



H. Scott Hurd of Iowa State University poses with a couple of USDA's Fight BAC puppets.

exporting nation reciprocating and starting a trade war with the United States.

Hurd visited China shortly after revelations that milk products imported from China contained the chemical melamine to artificially increase the protein test. He and Michael Leavitt, then the U.S. health and human services secretary, had "some very interesting and frank discussions" with Chinese officials. Hurd said the Chinese government shared its knowledge about the melamine situation, apparently because of their concern that they might lose export markets.

Once imported meat and poultry products arrive in the United States, it's up to federal officials to inspect them again here. Hurd participated in the process.

"We walk around and look at all the pallets," he said. "We randomly pick specific boxes, open those boxes, make sure they have in the box what they say on the

outside of the box and then randomly take samples. We test those samples for the same pathogens we do in the United States — *Salmonella*, *E. coli* O157:H7, *Listeria*."

Back in Washington, Hurd noticed that his USDA colleagues frequently turned to him as a key science advisor when considering policy questions. If a

potentially unpopular decision had to be made, the secretary of agriculture told the staff to do the right thing, Hurd said. "Part of the answer as to what was the right thing was based on science. I found that very positive and encouraging."

Researchers often wonder if their findings have any impact on government policy. Hurd, having been in both research and government policymaking positions, sympathizes and now has some insight to offer fellow researchers. His advice is that researchers ask themselves where their data might fit into a risk assessment, or where the data might fit into a monitoring and surveillance tool.

"You ask yourself how much change in risk can we affect by doing such and such. So whenever you're collecting prevalence data, ask yourself how might these data fit into a risk assessment. If you do these two things, then I think your publication might be useful to FSIS."

Hurd also cautioned that research results don't generally turn out to be the definitive answer to questions the government seeks to answer. Scientists should also enter the federal rulemaking process in which any citizen can contribute.

"The great thing is the government is required to read all those comments and reply," Hurd said. "I know they listen because I've gotten reports from people who read the comments and say they are concerned about a particular issue or issues. It's important for the public to know that their feedback doesn't go into an empty hole."

Hurd also encouraged researchers to contribute feedback to FSIS advisory committees, which conduct public meetings. Individual opinions do make a difference, he said.

"If someone is unhappy about something and calls the agency, word goes up the line, and the secretary hears about it. The secretary asks questions before making a decision. The secretary will say, 'What are people saying about this particular decision? What is the science saying?'" ■

"My job description was essentially to provide technical input on any and all of the various issues that come up over the course of the year."

Try Thai or Rosemary When Spicing the Meat to Curb Carcinogens

Warm weather brings on the seasonal meat favorites that are barbecued, grilled, broiled or fried. That also means more potential exposure to carcinogenic compounds known as heterocyclic amines (HCAs). There's a way to reduce the risk significantly by just adding some spices — rosemary extracts or Thai spices.

"Just one of the spices would work," said J. Scott Smith, a Kansas State University food chemistry professor who researched the issue for the Food Safety Consortium. "Rosemary would be fine or one of the Thai spices would be fine."

The numbers from Smith's research tell the story. Some commercial rosemary extracts can inhibit the formation of HCAs in cooked beef patties by 61 to 79 percent. Thai spices can inhibit the formation by about 40 to 43 percent. The key is the level of antioxidants present in each, and Thai spices have lower levels than rosemary.

"What it boils down to in a lot of the cases is preference as far as the flavor."

A discerning consumer wondering which to use need rely only on personal taste.

"What it boils down to in a lot of the cases is preference as far as the flavor," Smith said. "For example, cinnamon is also very good but some people don't like it. Some people don't like rosemary. Some of these Thai spices are unique and there would be ones in colors that people would want to use more than a rosemary or cinnamon or other products."

Inhibiting HCAs in cooked meat products is an important step in food safety. Smith's additional research has found that HCA levels increase as charring increases on meat skin and the moisture content decreases. The numbers vary on different meats after cooking. Bacon and rotisserie chicken had the highest HCA levels with deli meats and hot dogs showing the lowest. Chicken skin and breast meat had all five of the HCA types.

The skin of rotisserie chicken that is sold in grocery stores as precooked roasted products often has some burnt, crusty areas on it with high HCA levels. Fortunately, Smith noted, most people don't eat those parts.

"We're trying to evaluate these levels based on the way the consumer would eat the product," Smith said. "We just looked at different products that consumers are consuming. We really didn't have good data on it, so we took a look at it to see what the actual risk would be."

Few consumers are aware that rosemary and Thai spices provide reliable ways to reduce risk from HCAs in cooked meat. Smith believes the industry should market the products to increase awareness. For now, the word is mostly on the Internet. The herbs and spices industry haven't put the word out significantly.

Although the situation isn't related to HCAs, Smith recalled when cocoa was found to contain beneficial antioxidants, just as rosemary and Thai spices do. The chocolate industry began promoting that aspect. "It took awhile to catch on," Smith said about the availability of dark chocolate. "For awhile you really couldn't buy much of it. It just wasn't available here in the United States. You had to go to get it in Europe. Now you can get dark chocolate all over the place." ■



KSU food science professor J. Scott Smith and postdoctoral student Prini Gadgil cook a steak to research the impact of HCAs.

Improving Food Safety Depends on Culture Change, Speakers Tell OFPA

Instilling a culture of food safety and educating people — not merely training them — are the keys to improving the nation's food safety, according to two professionals who delivered their ideas to the Ozark Food Processors Association in April in Springdale, Ark. The OFPA gathered for its 103rd Convention and Exposition.

Asserting that food safety equals behavior, Frank Yiannas, Wal-Mart Stores vice president for food safety, told the OFPA, "If you want to improve the food safety performance of your company, you have to change behavior."

Yiannas urged businesses to move away from traditional food safety management that simply trains employees in the specific technical steps for practicing food safety. He advocated a behavior-based food safety management that focuses on food science plus behavioral science.

"Behavior science is complex," Yiannas said. "You're not going to train someone to change their behavior."

Yiannas defined a culture as a shared pattern of thoughts and behavior. Applied to food safety, that would include a culture of washing hands consistently, a practice encouraged through socialization processes.

A food safety culture is created through a series of strategic concepts, he said. The first is to maintain an expectation of food safety within the work place.

Yiannas explained that at Wal-Mart, food safety is an expectation rather than simply a priority because priorities change over time. The company's culture of beliefs includes caring about the customers' safety.

Companies should have food safety communication plans to inform their employees what their work is about. "Your employees will know what you think is important by what you're talking about," Yiannas said.

Goals and measurements are often part of any plan, but Yiannas said it was important to realize that the measurements aren't equal to behavior change. "You should be measuring to catch people doing things right and not just doing things wrong," he said.

Yiannas emphasized that employees must be educated and trained, but training isn't the same as education. He noted that training tells only how to do a task but education explores what the task is about.

Similarly, Doug Powell of Kansas State University told the OFPA that marketing food safety should be based on educating people rather than looking for ways to compel them to practice food safety. Powell, an associate professor of diagnostic medicine and pathobiology, explained how he gets the word out through Web sites such as his Barfblog.com.

Powell started the blog because "using stories and narratives is better than statistics alone." It frequently includes reports of

food safety incidents as provocative as the blog's title, so named because "food safety is food that doesn't make you barf." The aim, he said, is to get people talking about food safety. "We take a current event and wrap some practical advice around it such as on hand washing."

The day of his presentation at OFPA, Powell posted on the blog this summary of his remarks to the convention: "The third-party food safety audit scheme that processors and retailers insisted upon is no better than a financial Ponzi scheme. The vast number of facilities and suppliers means audits are required, but people have been replaced by paper. Audits, inspections, training and systems are no substitute for developing a strong food safety culture, farm-to-fork. Marketing food safety directly to consumers, rather than the local/natural/organic hucksterism, is a way to further reinforce the food safety culture."

Also speaking, after an opening welcome from Milo Shult, University of Arkansas System vice president for agriculture, were OFPA President Earl Wells, vice president of science and technology at Allens, Inc., on the 200-year history of canning, and Jerry Johnson, Ball Corp. director of technical services of food and household products and one of the foremost authorities on canning, on the use of Bisphenol A as an interior coating for cans. ■

A Miniature Fung Graces the Office

Daniel Fung, the longtime Kansas State University food scientist who directs an annual international workshop on rapid methods in microbiology at KSU, has compiled an impressive set of awards and honors over the decades. One of his latest awards is a mini-Fung.

It's an 18-inch tall statue of Fung that was presented to him by Josep Yuste, a former post-doctoral assistant for Fung who now directs a similar rapid methods workshop in his home city of Barcelona, Spain.

Fung began delivering presentations at the Barcelona workshop each year at Yuste's invitation upon its inception in 2002.

At one recent workshop, Fung was awarded a distinguished professor's title by the dean of the veterinary college at Universitat Autònoma de Barcelona. It was at a subsequent workshop that Yuste presented Fung with the statue created by a Spanish artist.

Fung has proudly placed the statue in a hexagonal glass case on his desk at



Daniel Fung and his smaller likeness

his KSU office, where it has started many conversations with first-time visitors.

■ UA Center for Food Safety ■

Ricke Edits, UA Staff Contributes to *Anaerobe* Issue

Steven Ricke, director of the University of Arkansas Division of Agriculture Center for Food Safety, is the guest editor of a special edition of the journal *Anaerobe*.

The theme of the February-April 2009 edition is "Foodborne and Gastrointestinal Pathogen Ecology and Control in the Intestinal Tract."

Ricke and other current and former UA Center for Food Safety personnel contributed articles to the issues as co-authors. They are Michael Johnson, a UA professor of food science; Young Min Kwon, a UA assistant professor of poultry science; Vesela Chalova, a UA Center for Food Safety postdoctoral associate; Paul Herrera, currently a supervisory public health inspector for the federal Food Safety and Inspection Service in Waco, Texas; and Bwalya Lungu, currently a postdoctoral associate at the University of Georgia. Herrera and Lungu are former postdoctoral associates at the UA Center for Food Safety.

Anaerobe is the official journal of the Anaerobe Society of the Americas and the Japanese Association for Anaerobic Infection Research.

Doctoral Students Earn Travel Grants to Present Research at ASM

Sujata A. Sirsat and Alya Limayem, both doctoral students at the University of Arkansas, have been awarded travel grants to present papers at the American Society for Microbiology general meeting in May in Philadelphia. Sirsat, a poultry science student, and Limayem, a food science student, conduct research in the UA Division of Agriculture Center for Food Safety under the supervision of center director Steven Ricke.

Sirsat will deliver a paper on "*Salmonella* Typhimurium viability and gene expression during exposure to citrus-based compounds." Limayem will deliver a paper on "Evaluation of biological antimicrobial compounds to limit microbial contamination in yeast fermentation system."

Ricke Co-Chairs Dairy Science Conference

Steven C. Ricke, director of the University of Arkansas Division of Agriculture Center for Food Safety, was the co-chair of the 16th Discover Conference in April in Nashville, Ind., presented by the American Dairy Science Association. The theme of the conference was "Direct Fed Microbials/Prebiotics for Animals: Science and Mechanisms of Action." The conference addressed issues affecting dairy cattle, beef cattle, swine, poultry, aquaculture and pets.

Ricke co-chaired the conference with Stanley Gilliland of Oklahoma State University. Ricke also holds the Donald "Buddy" Wray Chair in Food Safety in the poultry science and food science departments.

Undergraduate Pursues Research Grant to Explore *Staphylococcus aureus*

Colby Baker, a University of Arkansas student, is working with the UA Division of Agriculture Center for Food Safety on a research project funded by the university's Honors College Undergraduate Research Grant. Baker, a junior biology major from Malvern, Ark., received the \$2,500 research grant to pursue the project "Use of Orange Essential Oils as an Antimicrobial Agent Against *Staphylococcus aureus*."

Steven Ricke, director of the Center for Food Safety and holder of the Donald "Buddy" Wray Food Safety Endowed Chair, is project mentor. Arun Muthaiyan, a postdoctoral associate in food science, is helping supervise the project.

"It is necessary to find alternative, natural antimicrobial defense against the staphylococcal infections," Baker said in her project summary. "This proposed research will pave the way for identification of new natural antimicrobials against *S. aureus*."

■ UA Center for Food Safety ■

Organic Poultry Farmers Learn Tips at Arkansas Event

Organic and pasture flock poultry is becoming more popular as a choice for consumers and more attractive as an endeavor for small-operation growers, but the growers need to be aware of many of the same obligations that the major companies face as well as their own unique issues.

The University of Arkansas System's Division of Agriculture sponsored an all-day Small Farms Poultry Workshop in March at the Carroll County Fairgrounds in Berryville. The idea to hold the event was largely the brainchild of Leon Duncan, Carroll County staff chair for the Cooperative Extension Service, and Richard Ims, sales and production manager of Little Portion Monastery Farm, a small poultry processing operation near Berryville that specializes in pasture-raised chickens marketed in Northwest Arkansas.

Following the workshop presentations, the farmers began discussing details of organizing an area poultry growers association that would meet occasionally to review common problems and issues.

The faculty members provided expertise for the session through a grant recently awarded by the U.S. Department of Agriculture to the U of A as the lead institution for a three-year \$600,000 project by 13 scientists from five universities to conduct food safety research in pasture-raised and organic poultry. Steven C. Ricke, director of the UA Center for Food Safety; Phil Crandall, UA Department of Food Science; and Frank Jones, a UA Center of Excellence for Poultry Science Extension specialist, are the lead project directors of this grant.

Small processors are exempt from USDA Food Safety and Inspection Service regulations that require the larger processors to be subject to daily inspections from in-house federal inspectors. Steve Seideman, UA Extension food processing



Jon Moyle (left), a University of Arkansas doctoral candidate in poultry science, explains a point to growers attending the Small Farms Poultry Workshop at the Carroll County Fairgrounds. Frank Jones, a UA Extension poultry specialist, stands at right.

specialist, warned the growers that they are still subject to FSIS rules that can result in recall of products that are found to have problems.

The small growers as well as the larger processors are also covered by the same rules that regulate what can be said on a product label. "Use only labeling claims that you can substantiate and that can actually grow your business," Seideman advised.

Crandall, a professor of food science, told the growers although organic poultry is more expensive than conventionally processed poultry, it can offer the growers a unique niche and less competition.

"Organic products demand a premium price, so the consumer must be convinced of extra value," Crandall said.

Organic poultry is considered to be a "gateway" food to other organic products. Crandall cited statistics showing that the organic foods market in the United States grew by 132 percent from 2002 to 2007. The rate is expected to go down in coming years but should still maintain about a 7 percent annual rate of increase through 2012, he said.

Dustan Clark, a Division of Agriculture Extension poultry veterinarian, offered advice on how to protect poultry on small farms from disease through control of exposure and raising their resistance levels. Jon Moyle, a doctoral candidate in the UA poultry science department, discussed poultry breeding techniques for small flocks. ■

Food Tube: Going to Video to Promote Food Safety

YouTube — the Web site where anyone can post a video of up to 10 minutes — is especially a hit among young people. For anyone interested in food safety, that's an opportune situation because one-third of the food service industry's employees are between ages 15 and 17. They need to know more about food safety, and they watch YouTube.

Two agricultural communications researchers noticed the coincidence and examined what food safety education is available on YouTube. Jason Ellis, an assistant professor at the University of Nebraska, and Emily Rhoades, an assistant professor at Ohio State University, discussed their findings in a research journal article.

"Investigation into communication media most used by youth to acquire information, whether for educational or entertainment purposes, may provide evidence into how these channels are being used or could be used to communicate with and inform target audiences," Ellis and Rhoades wrote in "Food Tube: Coverage of Food Safety Issues Through Video," accepted for publication in the *Journal of Food Safety*.

The authors said campaigns intended to reach the predominantly young viewers of YouTube should include strategic tactics that use such sites. But, they warned, "these videos posted must be artfully developed to attract YouTube viewers while conveying a credible and educational message."

Ellis and Rhoades found 76 food safety videos on YouTube in mid-summer 2007 and analyzed their content. All of them had been uploaded no earlier than 2006. Thirty-two videos contained some form of food safety education in topics such as hand washing, cleaning, cooking, grilling and new technology.

The videos were posted by a variety of sources. Most videos were posted by news media outlets, government agencies, private industry, advocacy organizations

and universities. To evaluate the videos' credibility, the researchers looked for those that cited or showed sources of their information and found that 28 videos identified sources. The most commonly cited sources were university researchers and government agencies.

A little more than half of the videos had a proactive message for food safety while the remainder blamed someone for poor food safety. The research team classified 43 percent as educational videos, 27 percent as entertainment videos, 21 percent as news videos and the rest divided among advertisements, blogging and commentary.

The statistics prompted the authors to recommend a combination of better journalistic and entertainment values for future food safety video productions.

"First, evidence of content credibility is increased by utilizing information from third-party informants such as interviews or citing of non-biased sources," Ellis and Rhoades said. "This use of additional resources and quotations, just as in jour-

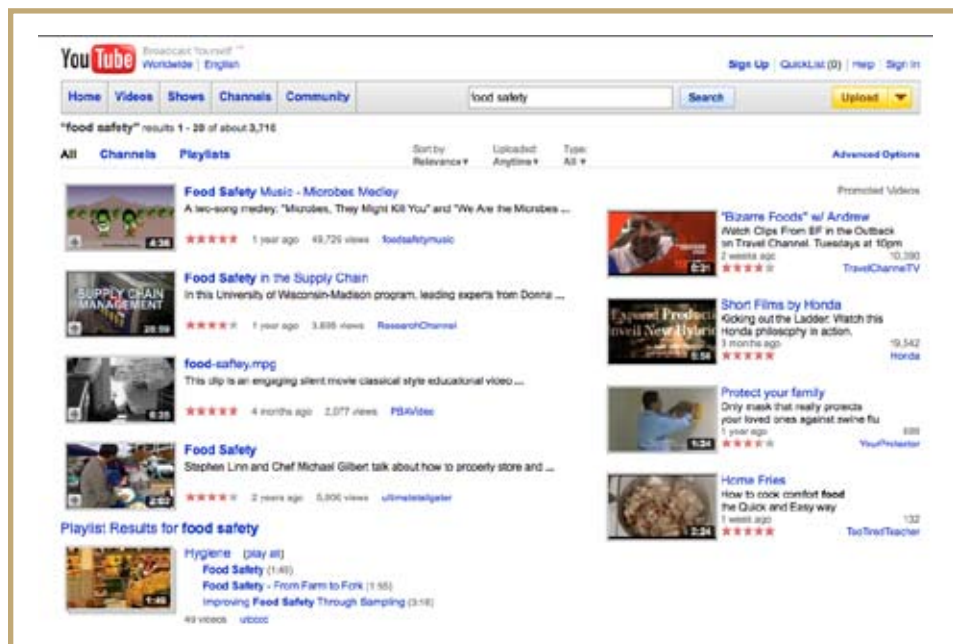
nalistic reporting, increases credibility by demonstrating that the authors are supported in their statements."

Also, they continued, "videos including a form of entertainment to develop and maintain viewer interest as well as perpetuate video popularity and sharing have increased reach. The nature of YouTube is for visitors to share videos that are useful or liked with other viewers."

Ellis and Rhoades acknowledged that the presence of entertainment could diminish a video's content credibility no matter how sound the information is.

"Communicators intending to use socially networked video systems as a channel to disseminate information must be considerate of the balance necessary to provide credible information and maximize video visibility," they said.

For future research, Ellis and Rhoades recommended studying the effectiveness of campaign strategies implemented by companies that integrate YouTube-type media into their marketing efforts. ■



Food Safety Digest

by Dave Edmark

The nation's food traceback system isn't working and would hinder efforts to find the source of a disease outbreak or bioterrorism attack. The federal Health and Human Services Department released a report in March that documented an attempt to trace 40 foods through the supply chain. Only five foods could be pursued all the way.

The Associated Press reported that the traceback attempt included bottled water, eggs, oatmeal, tomatoes, fruit juice and yogurt. HHS officials were able to trace 31 of the 40 items back to the facilities that most likely handled the products. Then they found that 70 of 118 food facilities didn't meet Food and Drug Administration recordkeeping requirements for information about suppliers, shippers and customers.

Rep. Rosa DeLauro, D-Conn., who requested the investigation, said, "Traceback will be a critical part of food safety reform in this Congress."

DeLauro is chair of a House subcommittee that oversees FDA. Earlier in March, she spoke at a Food and Agriculture Summit sponsored by the Reuters news service. She said tougher food safety regulations could pass Congress this year. She has introduced a bill that would create a Food Safety Administration, give the government mandatory recall authority, implement traceability and increase penalties for companies knowingly selling a tainted product, Reuters reported.

■ ■ ■

The head of the Kellogg Co. would like to see some changes made in the food safety regulatory system. The *Los Angeles Times* reported in March that David Mackay, Kellogg chief executive officer, proposed to Congress that food safety be placed under a new leader in HHS. He

said food companies should be required to have written safety plans. Mackay also said facilities that make high-risk foods should be inspected annually by the federal government.

"We believe the key is to focus on prevention, so that potential sources of contamination are identified and properly addressed before they become actual food safety problems," Mackay said.

The *Times* noted that Kellogg lost \$70 million after a recent *Salmonella* outbreak that prompted the company to recall 7 million cases of peanut butter crackers and cookies.

■ ■ ■

Repercussions are still being felt four years after an outbreak of *E. coli* O157:H7 in Wales caused the death of a 5-year-old boy and sickened 150 people. The Welsh government commissioned an inquiry that resulted in a report released earlier this year. The BBC reported that Hugh Pennington, the inquiry chair, called on food producers to "get to grips" with safety management.

William Tudor, a butcher, was jailed for 12 weeks after admitting he supplied contaminated meat to schools in south Wales. Most of the people who became ill were children at 44 schools.

Sharon Mills, whose son Mason Jones died from the contaminated food, said public authorities need to do more.

"My son would be alive today if proper systems had been put in place in 2005 to avoid cross-contamination in food processing, and the systems need to be put in place as soon as possible so no one has to go through such a tragedy again."

The outbreak was the second largest recorded in the United Kingdom and the sixth largest worldwide. ■

Papers & Presentations

Justin Kastner, Kansas State, was interviewed by the Institute of Industrial Engineers publications editor about his research on international efforts to ensure food safety within specific regions of other nations.

Curtis Kastner and **Abbey Nutsch**, Kansas State, participated on a panel with Richard Linton, Purdue, on "Using Stakeholder Input to Develop Multi-Institutional Graduate Education Programs" at the Third Annual DHS University Network Summit in March in Washington. Kastner moderated the panel. They discussed their universities' collaborative efforts to develop a comprehensive educational program in food safety and food defense.

Young Min Kwon and **Pallavi Singh**, Arkansas, are scheduled to present a poster on "Genetic diversity of *Campylobacter* populations in chicken ceca" at the Poultry Science Association meeting in July in Raleigh. ■