

THE FOOD SAFETY CONSORTIUM NEWSLETTER

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Irradiation Cited as 'Barrier' to Contamination

Irradiation of meat products has one primary goal, says health official Richard Hunter: "The goal is to knock the pathogen level down to non-detectable levels. By doing that, you add another barrier to disease transmission."

Irradiation is also "the only technology we have today that can reduce microbes significantly and that is feasible today at the commercial level," says food safety researcher Christine Bruhn.

Hunter, the deputy director of the Florida Department of Health, and Bruhn, a consumer marketing specialist at the University of

California, Davis, brought their messages about irradiation to students in May at the University of Arkansas. Their visit to the campus was hosted by the Food Safety Consortium.



Richard Hunter discusses irradiation issues.

Irradiation produces high-energy gamma rays that break down the DNA in microbiological organisms on food. The irradiation process, Hunter explained, is not used to sterilize food. Dosages are kept lower than a level required for sterilization.

"In retail settings you want to add just enough irradiation to eliminate the pathogens on the food without changing its taste, odor

or physical structure," Hunter said. Too high a dosage of irradiation can cause such alterations.

Hunter recalled the outbreak of *E. coli* O157:H7 bacteria in 1993 in the Pacific Northwest after hamburgers were contaminated at a Jack in the Box restaurant. About 500 people became ill and four children died. The ground beef became contaminated at the processing plant because barriers against unsanitary conditions failed. Another precaution against contamination — cooking burgers thoroughly at internal temperatures of 160 degrees Fahrenheit — also was not followed in the restaurant. The result of these breakdowns was that consumers contracted foodborne illness.

Hunter emphasized that irradiation is not an excuse for plants to become

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KSU Cites Variety of Thermometers

Dangers from potentially harmful microorganisms — *Salmonella* or *E. coli* O157:H7, for example — that may be present on some meats and poultry are eliminated only when foods are cooked completely. But, when it comes to cooking, some of the rules have changed. Food Safety Consortium researchers at Kansas State University have determined that some ground beef may brown prematurely. That means that ground beef can be cooked to the safe-to-eat temperature of 160 degrees Fahrenheit, yet may — or may not — be browned.

The only way to be sure that meats and poultry are cooked is to use a meat thermometer. A meat thermometer is not the same as a candy or medical thermometer. A meat thermometer can cost less than \$10, but may save thousands of dollars in medical bills. It can even save a life, said Karen Penner, a KSU food safety specialist.

Meat thermometers are available at hardware and discount department stores, kitchenware shops and in some supermarkets. Choose one or more that is designed for food use and will fit your cooking style:

■ An **oven-safe bimetal thermometer** can be inserted before the meat or poultry is placed in the oven and allowed to remain during cooking time. Oven-safe thermometers have a probe that usually is two or more inches long that should be inserted into the thickest part of meats or poultry. The probe should not touch the bone. To check internal temperature in another part of the meat or poultry, gently remove the thermometer and re-insert it elsewhere. Use heat-resistant oven mitts or a potholder

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Irradiation Cited as 'Barrier' to Contamination *continued...*

lax on sanitation or for consumers to fail to cook their foods thoroughly. "It's a way of adding a third barrier to the other two important areas — sanitation and proper cooking," he said.

Opponents of irradiation sometimes contend that a concerted effort to keep processing plants clean would eliminate any need for irradiation.

Hunter noted that the development of Hazard Analysis and Critical Control Point systems in

plants has improved sanitation and has contributed to the reduction of contamination of carcasses. But even if hospital-type sanitation levels were achieved in processing plants, there would still be no guarantee of absolute safety.

"Last year in the U.S. there were 2

million hospital-acquired infections among patients, and 90,000 people died from hospital-acquired infections," Hunter said. "The point is

no matter how good a job you do in sanitation in a packaging plant, no matter how many inspectors you have looking over those people, somebody somewhere is going to make

a mistake in the plant or in the restaurant. Irradiation will give us a barrier we need to prevent additional foodborne illnesses."

Hunter also emphasized the federal Food and Drug Administration's finding that irradiation is safe. FDA regulates irradiation as a food additive

and cannot approve a food additive unless it has evaluated scientific evidence to determine its safety, he said.

The FDA's review of irradiation covered chemical tests, toxicity, microbial contamination and nutrition, Bruhn said. "They had studies that addressed just about every scenario that people could think of to try to generate harm from irradiated products. And they found there's no evidence of harm."

The FDA's tests also showed that there was no significant change in the nutritional value of irradiated food, Bruhn said. Its studies also determined that the process was effective in eliminating *Salmonella*, *E. coli* O157:H7 and *Listeria*.

Hunter said he agreed with the call by opponents of irradiation for irradiated products to be labeled. "I think that if we give consumers a choice that they'll serve the safer food," he said. "This is a public health issue." ■

"Somebody somewhere is going to make a mistake in the plant or in the restaurant. Irradiation will give us a barrier we need to prevent additional foodborne illnesses."
— Richard Hunter

KSU Cites Variety of Thermometers *continued...*

and allow one to two minutes for an accurate reading. Because an oven-safe bimetal thermometer is dependent on a probe, it may not be the best choice for thin foods like burgers or chops.

■ An **instant-read bimetal thermometer** can be used to check temperatures at the end of cooking time. Choose it for soups, stews, casseroles or a roast. Insert the probe from 2 to 2.5 inches and wait 15 to 20 seconds for an accurate reading. An instant-read bimetal thermometer cannot be used in the oven during cooking time. It also is less desirable for thin foods, such as burgers and chops, because it will need to be inserted sideways.

■ A **liquid-filled thermometer** can be used to check the temperature of casseroles, roasts or soups at the end of cooking time. Insert the probe at least two inches in the deepest part of the

casserole dish, roast or soup pot and wait one to two minutes. A liquid-filled thermometer can be placed in food while it is cooking. The probe does, however, make it less desirable for thin foods such as burgers or chops because it will need to be inserted sideways.

■ A **digital thermometer** can be used to record temperatures in most foods, but cannot be used in the oven while food is cooking. Digital thermometers can provide an accurate temperature reading in about 10 seconds; digital thermometers also can read temperatures when inserted only 1/2-inch deep, which makes them a good choice for burgers and chops. A digital thermometer is likely to be more expensive but the cost is offset by convenience.

■ A **digital thermocouple thermometer** uses a needle-like probe designed to read food temperature in a

matter of seconds in foods that may be as little as one-fourth of an inch thick. The high-tech thermometers may be more difficult for consumers to find — look for them at kitchen specialty shops or restaurant suppliers. They also are more expensive.

■ An inexpensive **disposable thermometer** can be used for grilling hamburgers at picnics and tailgate parties. They often are sold near the ground meat case in supermarkets. A disposable thermometer also is available for chicken. Disposable thermometers can be used only once.

Pop-up timers, which are included in some meat and poultry products as a courtesy to consumers, are not as accurate as traditional meat thermometers, Penner said. ■

USDA Promotes Thermometers for Cooking

The U.S. Department of Agriculture has launched a new food safety education campaign to promote the use of food thermometers. The campaign theme is: "It's Safe to Bite When the Temperature is Right!"

"This national food safety education campaign is designed to encourage consumers to use a food thermometer when cooking meat, poultry and egg products," said Under Secretary for Food Safety Catherine Woteki.

"Using a food thermometer is the only way to tell that food has reached a high enough temperature to destroy harmful pathogens that may be in the raw food. Color is misleading and should not be relied on to indicate a safely cooked product. Meat or poultry color can fool even the most experienced cook. USDA research shows that one out of every four hamburgers turns brown in the middle before it is safely cooked," Woteki said.

USDA introduced its new messenger, "Thermy," to promote the use of food thermometers in the home. "Consumers will soon see 'Thermy'

at many retail stores and in broadcast messages as a reminder to purchase and use a food thermometer when cooking," Woteki said.

A number of grocery chains around the country also launched "Thermy" thermometer campaigns in cooperation with USDA.

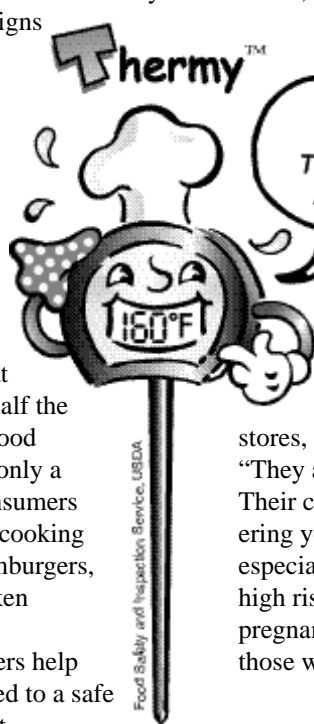
"We are pleased to see this industry cooperation," said Tom Billy, Administrator of the USDA's Food Safety and Inspection Service. "I am concerned that currently less than half the population owns a food thermometer. Also, only a small percent of consumers use one often when cooking small foods like hamburgers, pork chops, or chicken breasts."

Food thermometers help ensure food is cooked to a safe temperature, prevent

overcooking and take the guesswork out of preparing a safe meal. "Food thermometers are not just for checking the safety of a Thanksgiving turkey," Billy said. "They should be used year-round, every time you prepare ham-

burgers, poultry, roasts, chops, egg casseroles, meat loaves and combination dishes."

Billy said that there are a wide variety of reliable food thermometers available in grocery and kitchen supply stores, and that many are inexpensive. "They are high-tech and easy to use. Their cost is minimal when considering your family's safety. This is especially true for people who are at high risk, including young children, pregnant women, people over 65 and those with chronic illnesses." ■



FSC, Georgetown Host Conferences

■ Food Safety Consortium

The University of Arkansas will host this year's annual meeting of the Food Safety Consortium. The meeting is scheduled for Sept. 17-19 at the Clarion Inn in Fayetteville, Ark. The site represents a departure from a years-long tradition of meeting in Kansas City. Last year, the FSC Steering Committee decided to begin rotating the annual meeting among the three campuses, beginning this year with Arkansas. A detailed schedule of events will be provided to FSC researchers.

Researchers from the FSC will present progress reports on their projects. The keynote speaker will

be Lester Crawford, director of the Center for Food and Nutrition Policy at Georgetown University.

■ Ceres Hemispheric Forum: Food Safety Through Dynamic Leadership

The Georgetown University Center for Food and Nutrition Policy will sponsor this conference Sept. 20-22 at Gaston Hall on its campus in Washington. The conference will assemble leaders from public and private institutions in Latin America and the Caribbean to focus on developing partnerships to ensure food safety. For more information, contact Jose Gonzalez at 202-964-6400 or at ceres@erols.com.

■ Food Safety Objectives: Public Health, HACCP and Science

The journal *Food Control* and the Georgetown University Center for Food and Nutrition Policy will sponsor this conference Dec. 4-5 at the campus in Washington. The conference will be organized around the topics of testing and detection, microbiology, food processing technology, and public health and consumer behavior. Researchers may submit abstracts for poster presentations by Sept. 1. For information about participating or attending the conference, view the web site at <http://www.elsevier.com/locate/fso2000>. ■

Report From the Coordinator

The food safety research community knows that it does not work in a vacuum. Those who are associated with the Food Safety Consortium and similar endeavors at other universities are not isolated in an ivory tower but are in the thick of today's major health issues and discussions.

We are reminded of that reality when we view the federal government's Healthy People 2010 initiative, a program aimed at health promotion and disease prevention. One of its objectives is improving food safety. Finding ways to reduce foodborne illnesses is the key to accomplishing that objective.

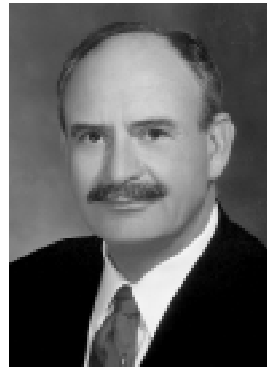
The two agencies coordinating the food safety portion of Healthy People 2010 — the Food and Drug Administration and the U.S. Department of Agriculture Food Safety and Inspection Service — have identified several areas of concern that could hinder food safety in the next decade. Those are emerging pathogens; improper food preparation, storage and distribution practices; insufficient training of retail

employees; an increasingly global food supply, and an increase in the number of people at risk because of aging and compromised capacity to fight diseases.

Those potential problems also represent areas of research addressed by investigators such as ours in the Food Safety Consortium.

This level of research focuses on the same goals that Healthy People 2010 promotes: reducing risk and intervening at various steps from production through consumption.

The program has some ambitious objectives to accomplish by 2010. It calls for achieving a 50 percent reduction in infections caused by microorganisms. It also seeks to reduce by 50 percent the number of outbreaks of infections caused by foodborne bacteria. Another objective aims to prevent any increase in *Salmonella*



Charles J. Scifres

species that are resistant to antimicrobial drugs. Consumer education is the focus of another objective that seeks to raise from 72 percent to 79 percent the level of consumers who follow key food safety practices.

Healthy People 2010 is a "big picture" program that looks at the overall health and well-being of the nation's population. It calls for partnerships

among communities to achieve its goals, and it summons scientists to pursue new research. Those are worthy endeavors, and they are nothing new to the Food Safety Consortium. Partnerships with academic, commercial and consumer organizations are part of our mandate. Pursuit of new research is the keystone of our efforts. It is appropriate that the FSC's second decade coincides with the start of a new decade of the Healthy People program. They offer examples of another good fit. ■

Tyson, UA Form Food Safety Partnership

The University of Arkansas and Tyson Foods have created a unique partnership in the Food Safety and Training and Education Initiative (FSTEI). The program will integrate coursework from academic institutions in the field of food safety and will allow students to access classes via streaming video Internet technology from their own desktops, at their own convenience. The program will be the first of its kind to offer distance learning to food safety professionals.

The partnership, which was announced in May, will include two tiers of study, the first offering

certification in either HACCP system management or food safety systems management. The second tier offers graduate level, university-delivered classes for certificate, undergraduate or graduate credits with completed degrees conferred by the University of Arkansas.

Other participating academic institutions include North Carolina State University, The Ohio State University, Purdue University, Kansas State University, New Mexico State University, and California State University.

Dr. Charles Scifres, dean of the UA Dale Bumpers College of Agricultural,

Food and Life Sciences, chairs the university-industry Operations Board that sets the direction and format for the program. "The partnership with Tyson Foods is one more, highly significant step in the University of Arkansas' efforts to spur economic development in Arkansas through education and in concert with industry," said Scifres, who is also coordinator of the Food Safety Consortium. "We believe the partnership — the harnessing of the rich intellectual capacities of both the University and the industry and focusing it on solving real-world needs

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An Invisible 'Antimicrobial Wrapper' Protects Poultry

The food processing industry is always looking for new ways to protect its products from dangerous bacteria. Researchers at the University of Arkansas have found some protective coatings that are good enough to eat themselves.

The coatings are edible films that can be used on refrigerated and pre-cooked ready-to-eat chicken products to protect against pathogenic *Listeria monocytogenes* bacteria. One such film is zein, a commercially available coating used to coat candies, that Arkansas researchers found to be effective against the bacteria on ready-to-eat chicken when they added bacteriocins. Bacteriocins are small digestible proteins produced by safe bacteria, which grow and survive in part by producing these bacteriocins which can inhibit the growth of other harmful bacteria.

Nisin is a bacteriocin protein that has inherent antimicrobial qualities. Arkansas researchers added nisin to the zein edible film to enhance its effectiveness. Nisin has already been used to coat candy, dried fruits and nuts.

"You have chicken with a transparent colorless film, but the film is carrying a bacteriocin," said Michael Johnson, a Food Safety Consortium principal investigator and food science professor, in explaining the use of zein. "The model would be for preventing post-processing recontamination of cooked foods."

Johnson used a chicken breast with *Listeria monocytogenes* on it as an example. Processors put the zein film containing nisin on the breast. "The nisin molecule is within the film just



Not visible to the eye: Poultry coated with protective bacteriocins.

like a plastic packaging that allows it to come in contact with the chicken surface. It kills the *Listeria*."

Marlene Janes, an Arkansas Food Safety Consortium researcher, said the tests she conducted showed that chicken cubes inoculated with *Listeria* experienced significant reductions of the bacteria upon the application of nisin, with no detectable levels by the end of a 28-day trial. The zein film

prevented the *Listeria* from growing back.

By putting the food additive calcium propionate with the nisin, Janes found the levels of bacteria were reduced to non-

detectable levels sooner. "I found the calcium propionate enhanced the activities of nisin," she said.

Johnson compares the effort to hurdles on a track. "Some people are good runners but they can't clear the hurdles," he said. "This is the same concept with bacteria. We're trying to set up a preservative system. Many bacteria that are pathogens don't grow well in refrigerators. But *Listeria* does. Refrigeration in itself is not an

adequate hurdle. So what else can you put in there as a hurdle?" The answer is nisin.

Zein film can prevent recontamination of ready-to-eat meat between the in-plant cooking and the packaging, a potentially vulnerable point in processing. Chicken patties, for example, are cooked and then frozen or packaged. But before freezing, Janes explained, the patties are dipped in the film solution.

"They have an antimicrobial wrapper on them, so to speak," Johnson said.

The importance of such protection is underscored by the federal government's regulatory stance on *Listeria monocytogenes*: zero tolerance. If any of this pathogen are found on a 25-to-50-gram sample of a cooked meat or poultry item for sale, the product has to be recalled.

"That's why there's so much attention to this organism," Johnson said. "It kills more people, although *Salmonella* and *Campylobacter* cause more cases of foodborne illness. Once it infects someone who is susceptible, there's a greater chance of death."

Industry has shown interest in the process being investigated by the Arkansas lab. Janes said one company has expressed interest in the process for application to cubed chicken. But additional regulatory approval is necessary before the process can be used. Zein film and calcium propionate may be applied to ready-to-eat meats, but the addition of nisin would have to be specifically approved by the government. Nisin is currently approved in the U.S. by the Food and Drug Administration only for use on soft cheese to control *Clostridium botulinum*. ■

*Refrigeration in itself
is not an adequate hurdle.
So what else can you put
in there as a hurdle?*

NAFS Grants Announced

Nine research projects have been selected for funding by the National Alliance for Food Safety in partnership with the USDA Agricultural Research Service. They are the first projects to be funded by NAFS. The projects are supported by a \$1 million appropriation that Congress approved for ARS last fall.

Each project is required to be a two-year collaboration among personnel from NAFS institutions and an ARS unit. Applicants were instructed to focus their projects on *E. coli* O157:H7 or *Listeria monocytogenes*.

“The approval of these research projects means NAFS is getting down to business on food safety issues,” said Dr. Lonnie King, NAFS operations committee chair. “We have been laying the groundwork in preparation for this day and we are eager to see our scientists take advantage of this new resource for food safety research.”

Here is the list of the approved research projects, funding and collaborators on each proposal.

■ **Project:** Factors Contributing to the Presence of *Escherichia coli* in Feedlots and Feedlot Cattle. **Funding:** \$115,000. **NAFS University Collaborators:** Elsa Murano and Gary Acuff, Texas A&M University, College Station; James Dickson, Iowa State University; Merle Pierson, Virginia Tech University; Wayne Green and John Sweeten, Texas A&M University Center at Amarillo. **ARS Collaborators:** Nolan Clark and C. William Purdy, USDA-ARS laboratory at Bushland, Texas; Irene Wesley, USDA-ARS National Animal Disease Center, Ames, Iowa.

■ **Project:** Decontamination of Alfalfa Seeds and Sprouts by Ozone. **Funding:** \$100,000. **NAFS University Collaborators:** Ali Demirci, Pennsylvania State University; Larry

R. Beuchat, University of Georgia-Griffin. **ARS Collaborator:** William F. Fett, USDA-ARS ERRC, Wyndmoor, Pa.

■ **Project:** Effect of Dietary Vitamin E on the Colonization of *Listeria monocytogenes*. **Funding:** \$118,780. **NAFS University Collaborators:** Aubrey F. Mendonca and Dong U. Ahn, Iowa State University; Michael G. Johnson and Rama Nannapaneni, University of Arkansas. **ARS Collaborator:** Irene V. Wesley, USDA-ARS National Animal Disease Center, Ames, Iowa.

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■ **Project:** The Impact of Commercial Pre-Slaughter Processes on the Prevalence of *Listeria monocytogenes* in Ground Pork From Cull Sows. **Funding:** \$90,000. **NAFS University Collaborators:** James McKean and Ron Griffith, Iowa State University; Michael G. Johnson, University of Arkansas. **ARS Collaborators:** H. Scott Hurd and Irene V. Wesley, USDA-ARS National Animal Disease Center, Ames, Iowa.

■ **Project:** Application of Dielectric Heating to Kill Human Pathogenic Bacteria on Seeds Intended for Sprouts. **Funding:** \$65,000. **NAFS University Collaborator:** Larry R. Beuchat, University of Georgia-Griffin. **ARS Collaborator:** Stuart O. Nelson, USDA-ARS Richard B. Russell Agricultural Research Center, Athens, Ga.

■ **Project:** Prevalence and Antibiotic Resistance of *Escherichia coli* O157:H7 in Downer Dairy Cattle From the Upper Midwest. **Funding:**

\$90,000. **NAFS University Collaborators:** Charles W. Kaspar and Dennis Buege, University of Wisconsin; Andrew K. Benson, University of Nebraska. **ARS Collaborator:** John B. Luchansky, USDA-ARS Eastern Regional Research Center, Wyndmoor, Pa.

■ **Project:** Molecular Epidemiological Investigation of Feed-Borne Dissemination of *Escherichia coli*. **Funding:** \$90,000. **NAFS University Collaborators:** Dale Hancock, John Gay, Clive Gay and Tom Besser, Washington State University; Carolyn Hovde Bohach, University of Idaho. **ARS Collaborator:** Don Knowles, USDA-ARS Animal Disease Research Unit, Pullman, Wash.

■ **Project:** Epidemiological Associations of *E. coli* O157:H7 From Produce, Environmental Samples and Animals. **Funding:** \$90,000. **NAFS University Collaborators:** Ann Draughon, David Golden, Alan Mathew and Steven Oliver, University of Tennessee; Dale Hancock, Washington State University. **ARS Collaborator:** Robert E. Mandrell, USDA-ARS Pacific West Area, Albany, Calif.

■ **Project:** Role of Long Polar Fimbriae in Intestinal Colonization by *E. coli*. **Funding:** \$90,000. **NAFS University Collaborators:** Nancy A. Cornick and Harley W. Moon, Iowa State University; James B. Kaper, University of Maryland School of Medicine. **ARS Collaborators:** Thomas A. Casey and Evelyn A. Nystrom, USDA-ARS National Animal Disease Center, Ames, Iowa. ■

Papers & Presentations

Mike Johnson, Arkansas, will serve as chair for 2000-2001 for the renewed USDA-CSREES regional food safety research project, S-295. Thirteen states are cooperating on the five year project, "Enhancing Food Safety Through Control of Foodborne Disease Agents."

James Denton, Arkansas, attended the Hazard Analysis and Critical Control Point Program in June at Shenyang Agricultural University in Shenyang, China. Denton was also interviewed for an article in the June-July 2000 edition of *Food Testing and Analysis* magazine entitled "Getting to the Meat of the Matter," a roundtable discussion on the latest advances in meat and poultry science and technology. Denton was also interviewed about irradiation for a report on KHOG-TV in Fayetteville, Ark., and for an article in the *Northwest Arkansas Times* in Fayetteville.

Two papers were presented by Arkansas researchers at the American Society for Microbiology General Meeting in May in Los Angeles. **Ramakrishna Nannapaneni, Robert Story, Curtis Bekkum** and **Michael Johnson** presented "Concurrent detection and enumeration of multiple target pathogens from raw poultry carcass rinses by microcolony immunoblotting." Abstract P-15, page 515. **Nannapaneni, Story** and **Johnson** presented "Prevalence of highly cytotoxic *Campylobacter jejuni* isolates in raw poultry products." Abstract P-65, page 526.

Arkansas researchers presented a paper at the Institute for Food Technologists Meeting in June 10-14 in Dallas. **Marlene Janes, Michael Slavik** and **Michael Johnson** presented "Cetylpyridinium chloride

for destruction of *Listeria monocytogenes* on surfaces of chopped iceberg lettuce," Abstract 78F-7, pages 192-193.

Rong Murphy as principal investigator with **Michael Johnson** as co-investigator, both of Arkansas, received a \$12,600 research grant from the U.S. Poultry and Egg Association for the project "Parameters for destruction of *Salmonella* and *Listeria* in poultry products processed in commercial pilot scale air convection cooking systems."

Harley W. Moon, Iowa State, was appointed chair of the National Research Council Board on Agriculture for the 2000-2002 term. Moon also collaborated with **Nancy A. Cornick** in a USDA-NRI grant on "Persistent Colonization by *E. coli* O157:H7 in Ruminants." from 2000 to 2003.

Nancy A. Cornick, Ilze Matise, J.E. Samuel, Brad T. Bosworth and **Harley W. Moon**, Iowa State, co-authored "Shiga Toxin-Producing *Escherichia coli* Infection: Temporal and Quantitative Relationships Among Colonization, Toxin Production and Systemic Disease" in the *Journal of Infectious Disease*, 181: 242-251.

Evelyn A. Dean-Nystrom, J.F.L. Pohlenz, Harley W. Moon and **A.D. O'Brien**, Iowa State, co-authored "*Escherichia coli* O1257:H7 Causes More Severe Systemic Disease in Suckling Piglets Than in Colostrum-Deprived Neonatal Piglets" in *Infection and Immunity*, 68 (4): 2356-2358.

Ilze Matise, T. Sirinarumitr, Brad T. Bosworth and **Harley W. Moon**, Iowa State, co-authored "Vascular Ultrastructure and DNA Fragmentation in Swine Infected with Shiga Toxin-

Producing *Escherichia coli*" in *Veterinary Pathology*, 37: 317-327.

Irene Wesley, National Animal Disease Center, delivered presentations on "*Campylobacter*: An Overview" in April to SIM Foodborne Pathogens in Arlington, Va., and on "*Campylobacter* and *Yersinia* as Pork Safety Issues" in July to the National Pork Producers Council Pork Quality and Safety Summit in Des Moines, Iowa. Wesley also published two submissions in the *Encyclopedia of Food Microbiology*, (Academic Press, 2000) —

"*Arcobacter*," pages 50-54, and "*Heliobacter*," pages 1047-1052.

Wesley also co-authored with **S.J. Wells, K.M. Harmon, A. Green, L. Schroeder-Tucker, M. Glover** and **I. Siddique** "Fecal Shedding of *Campylobacter* and *Arcobacter* in Dairy Cattle" in *Applied and Environmental Technology*, 66:1994-2000.

Curtis Kastner, Kansas State, received the Advanced Degree Graduate of Distinction Award from the Department of Animal Science at Oklahoma State University. Kastner is the FSC program director at Kansas State.

Kastner, James Marsden and **Donald Kropf**, Kansas State, were quoted in articles in *The Kansas City Star*, the *Topeka (Kan.) Capital Journal* and the *Olathe (Kan.) Daily News* about Kansas State's "Ready ... Set ... Grill!" news conference in May in Overland Park, Kan. The presentation covered information about irradiated ground beef and meat thermometers. ■

Food Safety Digest

By Dave Edmark

The Upper Midwest is the nation's first region to see irradiated hamburgers in its grocery stores. In May, Huisken Meats of Chandler, Minn., began shipping irradiated beef patties to grocery stores in several states. The first burgers were available in about 80 Minneapolis-St. Paul area stores. Within days, the market was expanded to more than 150 stores.

Cliff Albertson, sales manager for Huisken, said the hamburgers would be marketed in 2-pound boxes with eight 4-ounce patties in each box. The markings signify that the burgers are irradiated. The burgers are packaged at Huisken's plants and shipped to a SureBeam Corp. plant in Sioux City, Iowa, to be irradiated. SureBeam is a subsidiary of Titan Corp. and has entered into arrangements with other food processing companies to electronically pasteurize their products.

"My biggest problems will be meeting demand and getting additional product ready for market," Albertson told *Feedstuffs* agribusiness journal.

Michael Osterholm, chief executive officer of ican, Inc., and former Minnesota state epidemiologist, told *USA Today* that irradiation is often misunderstood. The process involves

any high-energy source. "What this process does is go into the product, cut up the DNA of the organisms that are there, so they die. This is not any different from what heating does."

■ ■ ■

That brings up the matter of where to go for information about how irradiation works. A web site with several questions and answers on the subject is available from the federal Centers for Disease Control. The site answers questions such as what is food irradiation, which foodborne diseases could be prevented with irradiation, what is the actual process of

irradiation, which foods have been approved for irradiation in the United States, and many others.

The site explains, for example, that there are three types of irradiation technologies: gamma rays, electron beams and X-ray.

To view the information, go to the CDC web page at <http://www.cdc.gov/ncidod/dbmd/diseaseinfo/foodirradiation.htm>. The page also provides a link to information provided by the Foundation for Food Irradiation Education at <http://www.Food-Irradiation.com>. ■

Tyson, UA Form Food Safety Partnership continued...

— will serve as a powerful model for other ventures which focus on education of the state's workforce using the most modern distance technologies," Scifres said.

UA Chancellor John A. White said the program is another vital link in the university's mission. "We're very pleased to be an integral part of a program and partnership that will ultimately mean so much to the public," said White. "The research taking place at the University of Arkansas and the partnering institutions in the area of food safety is without a doubt of great benefit to the industry and overall Arkansas economy. Through this program, the University of Arkansas has taken one more step toward its goal of becoming

a nationally competitive, student-centered research university, serving Arkansas and the world."

"Consumers around the world have come to depend on the Tyson brand for trusted quality chicken," said John Tyson, chairman of Tyson Foods. "In sustaining our reputation, we're continuously looking for better ways enhance our abilities to meet Tyson standards. Today, through our Food Wise program, we're emphasizing a totally integrated food safety program from farm to table. While we've always had what we consider to be the best food safety training in the industry, this partnership with the University of Arkansas has the potential to take it to a new and uncharted level." ■

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.

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