



The Food Safety Consortium Newsletter

University of Arkansas, Iowa State University and Kansas State University • Vol. 15, No. 3 • Summer 2005

ISU Seeks to Head Off *Salmonella's* Multiple Resistance

If it wasn't already enough that pork producers must contend with *Salmonella* contamination, it turns out that the problem is a bit deeper. Antibiotics can be useful in fighting the prevalence of *Salmonella* in swine, but the microorganism can find ways to resist.

That's the situation when *Salmonella* congregate in clusters known as genomic islands that become resistant to multiple drugs. Food Safety Consortium researchers at Iowa State University are exploring ways to detect the problem so it can be removed.

"If resistance is tied to this genomic island in an organism, there's a greater chance it will be passed to other organisms," said D.L. (Hank) Harris, an ISU animal science professor. "Detecting it in pigs has been a concern in various countries."

Harris and assistant scientist Stephen Gaul are zeroing in on DT-104, a serotype of *Salmonella* known to have a particular



D.L. (Hank) Harris, left, and Stephen Gaul of Iowa State University are examining *Salmonella's* ability to resist multiple drugs.

genomic island that contains the gene clusters that are resistant to antibiotics. Harris and Gaul want to know if other *Salmonella* serotypes — groups of closely related microorganisms — have that same genomic island.

"Thus far, we're finding that they don't," Harris said. "So it all goes back to the issue of drugs in animal feeds. The growing dogma is that by using drugs in animal feeds, we're going to increase the chances of having DT-104-type organisms with this genomic island. That's one theory, but there hasn't been much substantiation of that."

Gaul has gene probes set up to investigate whether the troublesome genomic island is present in *Salmonella* isolates that are resistant to multiple drugs. One angle to beware, Harris

Continued on page 2

Kansas State Helps Thailand Find a Better Way

Worldwide traveler and food scientist Daniel Fung has seen plenty across the globe. One thing he's heard about but hasn't seen is a particular practice among consumers in Thailand. It involves Nham, a traditional Thai fermented pork sausage that's popular there.

"They put raw pork, wrap it up, ferment it and eat it raw," explained Fung, a Food Safety Consortium research professor at Kansas State University. "People in Thailand are consuming this all the time. I'm scared just to think about it."

There are safer ways to make Nham, a product also available in U.S. oriental food stores. Chaowaree Ruengwilysup,

a Thai national and Fung's doctoral student in food science, worked with Fung on the problem during her time at KSU and will take the knowledge with her upon her return home.

Ruengwilysup is currently pursuing additional training in microbiology in Australia, Fung said, and has good connections with the food industry in her native land. "When she goes back she will be a very important scientist in Thailand," he said.

The key to the project was to use

lactic acid bacteria starter culture to treat Nham during its fermentation process. Such starter cultures are used to produce a tangy flavor in fermented sausages.

More importantly, starter cultures produce acid in the batter and prevent the fermentation temperatures from creating a safety risk. "Without lactic starter added, the four pathogens — *Salmonella*

Typhimurium, *E. coli* O157:H7, *Yersinia enterocolitica* and *Listeria monocytogenes* — had a high potential to multiply dur-

Continued on page 2

Fung predicted a bright future for his student in the Thai food industry.

ISU Seeks to Head Off...
continued

noted, is that there are other microorganisms that appear to match DT-104's level of resistance to antibiotics, "but we just don't know if they have this nasty genomic island in them or not."

DT-104 is a problem in its own right. The Centers for Disease Control said it has emerged during the

DT-104 is a serotype of Salmonella known to have a genomic island containing gene clusters resistant to antibiotics.

last decade as a global health problem because of its association with animal and human disease. Multidrug-resistant strains of DT-104 were first identified in exotic birds and have since spread to poultry, pigs and sheep.

If the genomic island is found in other serotypes during ISU's research, testing will need to determine if its spread to more serotypes would be likely. In that event, Gaul said, careful eradication of

Salmonella and removal of pressure from antibiotics for awhile should remove the

multidrug-resistant bacteria.

A longer-term phase of the research would compare the swine herds that use antibiotics in their animal feed against those not using the antibiotics and test them to see if any genomic islands are present among *Salmonella*. Studies would also aim to determine what limits there should be on using antibiotics in animal feed as a growth promoter.

"As an example, if the cost of using antibiotics in feed is more than the additional price of the weight gain from the antibiotics, antibiotics should not be used — sort of an economic threshold," Gaul said. ■

Kansas State Helps Thailand...
continued

ing the fermentation process," Fung said.

The researchers tested to see how well the starter culture would work in combination with garlic, sodium diacetate and fresh plum juice. The ingredients were already known to work as food preservatives and to inhibit microorganisms in other foods. The results showed that the starter culture and the ingredients brought about a significant drop in contamination.

Used in combination with only dried plum mixtures, the starter culture displayed similar results for three of the four pathogens but not as successfully for control of *Listeria monocytogenes*. The treatment still reduced *Listeria monocytogenes* more than would have occurred without the starter culture.

Adoption of these procedures would be a big step forward for Thailand, where industrial-scale production of Nham "is still based on the function of indigenous microorganisms in raw materials, which results in high variations of quality and safety," Fung said.

"We've been using this starter for



Kansas State's Daniel Fung helped his student pursue a better way to produce Nham.

sausage in the U.S. for a long time," he continued. "In Thailand, no one even knew about it or its potential to keep the food safe."

Ruengwilsup studied Nham's usage in different regions of Thailand and found *E. coli* O157:H7 and *Clostridium perfringens* in some samples with no

starter culture. By adding the starter culture, she was able to control the pathogens.

Fung predicted a bright future for his student in the Thai food industry because of her practical discovery. "She will be very influential." ■

Green Tea, Grape Seed Extracts Restore Chicken's Qualities

Anyone who ever left cooked chicken in the refrigerator a little too long has noticed what happens. The color doesn't look quite right. A thorough cooking will make sure it's safe, but it has a flavor that doesn't seem on target.

Too bad about that. Some green tea and grape seed extracts could have helped.

Chicken meat going through the process of lipid oxidation can lead to the deterioration of certain organic compounds. Chicken meat lipids can be oxidized during processing, and cooking can cause rancidity. But irradiation, which can keep the chicken safe from pathogens, especially accelerates lipid oxidation.

Laboratory experiments show that infusing extracts of grape seed and green tea into the chicken before cooking or irradiation can slow down the lipid oxidation process, making the product more palatable.

"It's very effective whether you irradiate it or not," said Navam Hettiarachchy, a food science professor at the University

of Arkansas Division of Agriculture, where she is looking into the project for the Food Safety Consortium. "It's effective when you infuse the grape seed extract into the chicken breast before irradiation. You can minimize the lipid oxidation and extend the shelf life."

Processors can also infuse the synthetic antioxidant TBHQ into chicken as a way of minimizing oxidation. Although it is a pure compound and is considered the best of its kind, there is still some hesitancy among processors to use it mainly because it is synthetic.

"Processors prefer not to use TBHQ because it is a synthetic antioxidant and they have concerns about the toxicological effects," Hettiarachchy said. "That's why plant extracts are preferred. On the other hand, plant extracts have a lot of polyphenolics (antioxidant compounds)."

Cooking the chicken has other side effects. It increases the volatiles in irradiated

and non-irradiated poultry, particularly volatiles that give an off-flavor. The lipid oxidation that results from cooking is less than the level that occurs from irradiation, but in either case grape seed extract can minimize the problem.

Other recent studies at Arkansas show that grape seed extract increased the lightness and decreased the redness and hardness of the skinless, boneless chicken breast meat. The green tea infusions were found to prevent and minimize major sensory changes during irradiation. Panels of sensory testers have found no significant difference in taste between irradiated and non-irradiated chicken breast infused with grape seed and green tea extract.

While researchers are looking for ways to make the sensory aspects



Navam Hettiarachchy

of irradiated poultry acceptable to consumers, they are well aware that public acceptance of irradiated products themselves still remains a challenge for marketers. The use of extracts from grape seed and green tea can at least keep poultry in a sensory state already familiar to consumers.

"Infusing the extract into the chicken meat would be helpful in minimizing lipid oxidation,

and you don't have to be concerned about discoloration of chicken meat," Hettiarachchy said. "The concentrations we are using do not impart any color or undesirable flavor."

The research team wants to determine if the extracts can further enhance minimizing lipid oxidation and also enhance consumer acceptance. "We are shooting to see if we can come very close to the quality of synthetic antioxidant TBHQ," Hettiarachchy said. ■

Extracts can at least keep poultry in a sensory state already familiar to consumers.

Report from the Coordinator



Gregory J. Weidemann

The research community in the U.S. has long encouraged public-private partnerships. The Food Safety Consortium, which is supported mainly from an annual special grant approved by Congress and implemented through the U.S. Department of Agriculture, also works in collaboration with private industry on a range of projects. Individual researchers at our three universities often work with private industry on projects of mutual interest.

This is becoming more of a standard operating procedure in the U.S., and we're not alone. Readers may be interested to know about some similar mechanisms at work overseas that aid scientists in food safety as well as other disciplines.

In the United Kingdom, the government has begun a five-year effort to fund its new Food Quality and Innovation Program. Meatnews.com reported that industry and academic experts would work on projects to improve food quality from the farm to the store. At least 5 million pounds (more than \$9 million in U.S. funds) is being devoted to the project.

"This money will help improve the quality of our food," said Lord Willy Bach, U.K. food and farming minister. "At the same time it will fund research projects which deliver environmental and social benefits and improve efficiency. Good science which takes these into account will help us meet the targets in our Food Industry Sustainability Strategy, which include a better national diet coupled with a thriving food industry that uses less power and water and produces less waste."

The U.K. government grants are available to academic researchers if they have funding matched by industry.

Across the broader continent, the European Union is making research funds available to food safety and numerous other scientific areas. A Paris company, Welcome Europe, trains researchers who need help with the application process, according to a report by Germany's Deutsche Welle.

"The European Commission likes public-private partnerships," said Mireille van der Graaf, Welcome Europe's editorial manager. Antonia Mochan, the commission's spokesperson

for science and research, said the program emphasizes research in genomics, biotechnology and food safety, among other disciplines. The European Union's overall research funding program, called Framework, is allocating 17.5 billion euros (\$21.5 billion) from 2001 to 2006 to universities, research centers, businesses and individuals.

The EU requires that research groups applying for funds consist of at least three different institutions from three different member states. That happens to be a format similar to the Food Safety Consortium's model: three universities from three states collaborating on a coordinated set of projects. What is working well in the U.S. appears to have found some appreciation overseas. ■

Listeria Regulation Received Well by Industry

The new federal regulation governing controls on *Listeria monocytogenes* "has been extremely effective and well received by the industry," a U.S. Department of Agriculture official said at an Institute of Food Technologists meeting last year. Daniel Englejohn, deputy assistant administrator at the USDA Food Safety and Inspection Service, told the IFT that "the industry has stepped up to the plate and responded in a meaningful way."

Speaking at the 2004 annual convention in Las Vegas, Englejohn recalled that the regulation became effective in October 2003.

"We recognize that not all products and processes present the same potential for the presence, survival and growth of *Listeria*," Englejohn said. "This is a regulation in which we purposely did not put in prescriptive controls other than to identify that establishments had to address how they were going to effect reductions of *Listeria*. We did that based on a risk assessment that looked at negation factors and identified that there really are differences in how the organism acts on products as well as in particular processes."

The regulation requires all establishments that produce ready-to-eat meat

and poultry products that are exposed to the environment after cooking to develop written programs to control *Listeria monocytogenes* and to verify their effectiveness through testing. Establishments must share testing data and plant-generated information relevant to their controls with FSIS.

Englejohn directed FSIS personnel to explore several areas to determine how effective the regulation had been so far in addressing *Listeria*.

The agency found that an increased amount of educational material about *Listeria* has been made available to

Continued on page 5

USDA Announces BSE Test Results, New Protocol

Agriculture Secretary Mike Johanns announced on June 24 that the U.S. Department of Agriculture received final test results from The Veterinary Laboratories Agency in England, confirming that a sample from an animal that was blocked from the food supply in November 2004 tested positive for bovine spongiform encephalopathy (BSE). Johanns also directed USDA scientists to work with international experts to thoughtfully develop a new protocol that includes performing dual confirmatory tests in the event of another “inconclusive” BSE screening test.

“We are currently testing nearly 1,000 animals per day as part of our BSE enhanced surveillance program, more than 388,000 total tests, and this is the first confirmed case resulting from our surveillance,” Johanns said. “I am encouraged that our interlocking safeguards are working exactly as intended. This animal was blocked from entering the food supply because of the firewalls we have in place. Americans have every

reason to continue to be confident in the safety of our beef.”

Effective immediately, if another BSE rapid screening test results in inconclusive findings, USDA will run both an IHC and Western blot confirmatory test. If results from either confirmatory test are positive, the sample will be considered positive for BSE.

“I want to make sure we continue to give consumers every reason to be confident in the health of our cattle herd,” Johanns said. “By adding the second confirmatory test, we boost that confidence and bring our testing in line with the evolving worldwide trend to use both IHC and Western blot together as confirmatory tests for BSE.”

USDA has initiated an epidemiological investigation to determine the animal’s herd of origin. The animal was born before the United States instituted a ruminant-to-ruminant feed ban in August 1997, which prevents the use of most mammalian protein in cattle feed. According to internationally accepted research, feed containing meat-and-bone

meal is the primary way BSE is transferred to the cattle population.

The animal was selected for testing because, as a non-ambulatory animal, it was considered to be at higher risk for BSE. An initial screening test on the animal in November 2004 was inconclusive, triggering USDA to conduct the internationally accepted confirmatory IHC tests. Those test results were negative. Earlier in June, USDA’s Office of the Inspector General recommended further testing of the seven-month-old sample using another internationally recognized confirmatory test, the Western blot. Unlike the IHC, the Western blot was reactive, prompting USDA to send samples from the animal to the Weybridge laboratory for further analysis.

As a non-ambulatory, or “downer” animal, the cow was prohibited from entering the human food supply, under an interim final rule in effect since January 2004. Research has shown that BSE is most likely to be found in older non-ambulatory cattle, animals showing signs of central nervous system disorders, injured or emaciated animals, and cattle that have died for unexplained reasons. USDA’s testing program targets these groups of animals for testing.

The system of human health protections includes the USDA ban on specified risk materials, or SRM’s, from the food supply. SRM’s are most likely to contain the BSE agent if it is present in an animal. Additional measures, such as a longstanding ban on importing cattle and beef products from high-risk countries, a ruminant-to-ruminant feed ban, U.S. slaughter practices, and aggressive surveillance provide a series of interlocking safeguards to protect U.S. consumers and animal health.

USDA said it remained committed to protecting both U.S. consumers and U.S. livestock from BSE, and to that end would continue efforts to detect the disease through its enhanced BSE surveillance program. ■

Listeria Regulation ... *continued*

consumers, but consumers need a better understanding of intervention on products and how those efforts can reduce contamination.

The retail aspects of controlling *Listeria* were identified as slicing and packaging luncheon meats at retail deli counters, Englejohn said. More than 79 percent of deli operations had some violations of the retail aspects of food codes, according to state and federal data. “Because it’s meat or poultry products labeled with federal inspection labels, FSIS does have jurisdiction there, and the agency is looking at how to best apply action to correct this situation at retail,” Englejohn said.

The government wanted to assist

small processing plants in complying with the regulation. Englejohn said FSIS hosted workshops focusing on the new rules.

“We found it to be highly effective, and we followed it up with the same type of process for BSE and *E. coli* O157:H7,” he said. “We found that the greatest need for guidance from the industry as well as our own employees was being able to understand what’s a ready-to-eat product versus what’s not.”

Future goals include implementation of a risk-based verification testing program that provides industry incentive to use “more rigorous control measures so that the agency will focus on these processes and products that present greater risk that have less controls by the establishments,” Englejohn said. ■

Pierson Cites USDA's Food Safety Policies and Challenges

Excerpts from remarks prepared for delivery by Acting Under Secretary for Food Safety Dr. Merle Pierson, at the Food Safety Conference: From the Surface Up Conference hosted by Clemson University on Feb. 24, 2005, at Myrtle Beach, S.C.

■ ■ ■

I believe, and I'm sure all of you would agree, that here in the United States we do have the safest food supply possible. It is essential that we strive for the safest food supply in the world and the broader assurance of food safety throughout the world. Having the safest food supply is something that millions of consumers take for granted every day. Many consumers do not realize the variety and number steps or contact surfaces their food has passed through in order to reach their tables. Even the most basic raw food locally raised and marketed involves multiple points of contact and handling.

■ ■ ■

For this evening's discussion, I'll focus on some of our food safety advances, challenges, and initiatives for assuring that food coming from slaughter and processing establishments is safe. These advances in protecting public health came about through careful prioritization of issues and planning.

Let me start with accomplishments. The crux of our public health challenge centers on combating biological, chemical and physical hazards that range from the easily understood hazards to those that evolve and present new and complex challenges. Thus, we must not only rely on existing knowledge and strategies for food safety, but also continue to introduce and evaluate new approaches.

■ ■ ■

One indication of our progress is that we have seen a break in the annual

cycle of multi-million pound recalls. Through the use of risk assessments, working with our partners along the farm-to-table continuum, training our workforce and basing our policies on sound science, we have been able to break this vicious cycle. Let me explain by discussing our *E. coli* O157:H7, *Listeria monocytogenes* and *Salmonella* policies.

After a comprehensive risk assessment on *E. coli* O157:H7 was completed, we developed additional strategies to eliminate this pathogen in beef production establishments. We required all beef slaughter and processing establishments to reassess their HACCP plans relative to the potential presence and control of *E. coli* O157:H7 in raw beef. Nearly 2,100 plants reassessed their plans. Then our scientifically trained personnel conducted the first-ever comprehensive reviews of the reassessed HACCP plans. Sixty percent of those plants made major improvements based on their own reassessments. Our policies also resulted in the widespread introduction of validation interventions early in the slaughter process as well as enhanced verification testing throughout the beef industry.

I believe this type of forward thinking will continue to contribute to the dramatic improvements we have been seeing. For instance, let's take a look at results from our regulatory compliance testing program for *E. coli* O157:H7 from 2001 through 2004.

In CY 2001, our testing program yielded 59 positive results out of 7,010 samples (0.84 percent). In CY 2002, there were 55 positive results from 7,025 samples (0.78 percent); In CY 2003, there were 20 positives out of 6,584 samples (0.30 percent), and in CY 2004, there were 14 positives out of 8,009 samples (0.17 percent).

The effectiveness of planning and applying the best available science in making policy decisions is also evident

when we look at *Listeria monocytogenes* (*Lm*). Our 2003 interim final rule on control of *Lm* in ready-to-eat (RTE) meat and poultry products, based on a thorough risk assessment, outlined three strategies that an establishment could choose from to control the pathogen depending on its product(s) and the environment in which it operates.

The effect of our *Lm* policy is encouraging. The latest data from 2003 showed a 25 percent drop in the percentage of positive *Lm* regulatory samples from the year before and a 70 percent decline compared with years prior to the implementation of HACCP.

■ ■ ■

Our science-based initiatives, including those used to counter *E. coli* O157:H7, have played a significant role in also reducing the prevalence of *Salmonella* in many of the raw products we regulate. If we look at the percentage of regulatory samples positive for *Salmonella* from our HACCP verification testing program, we see an overall aggregate downward trend from 1998 through 2003. For *Salmonella* presence in raw meat and poultry regulatory samples collected and analyzed by FSIS in 2003, 3.8 percent tested positive for *Salmonella*, as compared with 4.29 percent in 2002 and 10.65 percent in 1998.

■ ■ ■

We are giving further emphasis to fresh broilers. We've seen a gradual upward trend of *Salmonella* prevalence in this category over the years. For example, from 2002 to 2003, the percent of positive regulatory compliance samples increased from 11.5% in 2002 to 12.8% in 2003.

This is not good news, and I mentioned this yesterday at a meeting held by the U.S. Poultry and Egg Association. We are challenging the poultry industry to consider what the causes of this

upward trend could be and to examine any new technologies and processes to reverse it. Keep in mind that the FSIS performance standard for fresh broilers is 20%. However, we still expect the trend in positives to be downward.

Addressing our *Salmonella* challenge will help in our overall campaign to continue lowering the rate of foodborne illness. One of the most significant measures of our policies' impact on public health comes from the annual report published by the Centers for Disease Control and Prevention (CDC) every spring. In last year's report, there were significant declines from 1996 to 2003 in illnesses caused by *E. coli* O157:H7, *Salmonella*, *Campylobacter* and *Yersinia*.

Specifically to the products we regulate, the CDC reported that illnesses caused by *Salmonella* Typhimurium, typically associated with meat and poul-

try, decreased by 38% from 1996 to 2003. Human illnesses caused by *E. coli* O157:H7, often associated with ground beef, declined 42% from 1996 to 2003. The decrease in *E. coli* O157:H7 infections occurred primarily from 2002 to 2003. Furthermore, cases of campylobacteriosis decreased by 28% in this seven year period as well.

The CDC attributes the changes in the incidence of these infections in part to the control measures implemented by government and industry leaders, enhanced food-safety education efforts, and increased attention by consumer groups and the media. We are hopeful that if we continue on our current course, this reduction will not be just for one year, but will continue from now until we have achieved the greatest reduction possible in the illnesses caused by these pathogens.

■ ■ ■

Challenges do remain, such as controlling *Salmonella* in poultry processing. However, USDA will continue on its visionary path of pathogen reduction using science-based initiatives and working with all partners along the farm-to-table continuum. I'm very optimistic that we will continue to see our food safety infrastructure strengthen even more.

But, let's not forget one thing. Let us never take for granted the safety of our food. It took the hard work and dedication of many, including all of us in this room, to ensure that it is safe to eat in the first place. ■

Papers & Presentations

D.L. (Hank) Harris, Iowa State, was presented the Henry A. Wallace Award and recognized as one of National Hog Farmers Top 50 people. Harris also published the following articles:

Loynachan, A.T., and D.L. Harris. 2005. Dose determination for acute *Salmonella* infection in pigs. *Applied and Environmental Microbiology*, May 2005, 71 (5): 2753-2755.

Loynachan, A.T., J.E. Pettigrew, B.S. Wiseman, R.A. Kunkle and D.L. Harris. 2005. Evaluation of a diet free of animal protein in germfree swine. *Xenotransplantation*, March 2005, 12 (2): 149-155.

Loynachan, A.T., J.M. Nugent, M.M. Erdman and D.L. Harris. 2004. Acute infection of swine by various *Salmonella* serovars. *Journal of Food Protection*, July 2004, 67 (7): 1484-1488.

Irene Wesley, National Animal Disease Center, and **Gerri Ransom** of the U.S. Department of Agriculture

Food Safety Inspection Service (FSIS) convened a symposium titled "*Campylobacter*: Farm to Phylogeny" at the annual meeting of the American Society for Microbiology on June 7 in Atlanta. The symposium included experts in the field of epidemiology and the molecular biology of this major bacterial foodborne pathogen.

Wesley, **Lexa Scupham** and **Wayne Muraoka** of the National Animal Disease Center were invited to participate in a *Salmonella* Symposium hosted by Jennie-O Turkey Store on March 31 in Willmar, Minn. Presentations focused on reduction of the pathogen on-farm and during processing.

Wesley has been nominated by Agriculture Secretary Michael Johanns to serve on the National Advisory Committee on Microbiological Criteria for Foods. NACMCF is co-sponsored by USDA and the federal departments of

Health and Human Services, Defense and Commerce. The purpose of the committee is to provide scientific advice on public health issues concerning the safety and wholesomeness of the U.S. food supply.

A manuscript titled "The Effect of Events Prior to Slaughter on the Prevalence of *Campylobacter jejuni* and *Campylobacter coli* in Market-Weight Turkeys" was published in the June edition of *Applied and Environmental Microbiology*. The authors include Wesley, Muraoka, and **Scott Hurd** and **Darrell Trampel**, both of the Iowa State University College of Veterinary Medicine. The project was funded in part by the Food Safety Consortium.

Curtis Kastner, Kansas State, delivered a speech on "Food Safety and Security" on June 23 at the Kansas Society of Professional Engineers annual conference in Wichita. ■

Food Safety Digest

by Dave Edmark

The topic of genetically modified organisms continues to rock Europe. In June, food safety experts from the European Union's 25 member states failed to reach a majority on a proposal to approve a genetically modified maize. Reuters reported that this was the EU's 13th consecutive voting deadlock on a GMO foods issue.

The maize under consideration is known as 1507 and is made jointly by Pioneer Hi-Bred International and Mycogen Seeds. The application called for usage as an ingredient in foods such as starch, flours and corn syrups. The maize is engineered to resist certain herbicides and insects.

The application will be forwarded to the EU Council of Ministers, which has three months to decide whether to adopt it. If the council doesn't decide, the European Commission will adopt it.

The deadlock over maize occurred a few days after Italy called on the European Food Safety Agency to use its own research in determining risks of GMO foods and crops instead of using data from the biotechnology industry. The EU's health and consumer protection commissioner, Markos Kyprianou, disagreed with the Italian request.

"Any change in the system would

change the EU's whole approach on GMO authorizations, and it would alter the burden of proof." Kyprianou said. "Based on the system we have, there is no reason for a change."

According to Reuters, the EU ended a five-year blockade on authorizing new GMO products last year, but divisions still persist in the organization.

■ ■ ■

Elsewhere in Europe, a report from Ireland reveals that much of the population there is at risk from food-borne illness, according to *Food Quality* magazine. David McCleery, a microbiologist at University College Dublin, identified 17 different food hazards in Irish homes and found that none of the study's participants could identify all of the hazards.

"These results indicate the real need for education on food safety in the home," McCleery said. "Continuously using simple hygienic practices in the kitchen will reduce the risk of transmission of foodborne pathogens within the home."

Another study showed that 60 percent of the households of surveyed Irish school children had at least one risky food safety practice in their home kitchens. One-third of households stored raw meat above cooked meat in the refrigerator and 12 percent stored food beyond its sell-by date.

■ ■ ■

In the spring edition of this newsletter, it was reported in this space that the federal Government Accountability

Office noted that consolidation of the various agencies involved in food safety would result in better targeted and more efficient inspections. The GAO stopped short of actually recommending merging the agencies into a single food safety department.

But Merle Pierson, the USDA acting undersecretary for food safety, had something to say about the subject at a congressional committee in May. In response to the GAO report, Pierson, who oversees USDA's Food Safety and Inspection Service, defended the current arrangement.

"The strides made in protecting our food supply from intentional contamination, reduction in foodborne illness, as well as sustained reductions in the amount of pathogens on product samples collected and analyzed by FSIS, clearly indicate that our existing infrastructure and science-based policies are working and working well," Pierson said.

He noted that "FSIS would be concerned with any assessment that oversimplifies the food safety regulatory functions of FSIS and FDA (the Food and Drug Administration), or is not clear on the inherent complexities and differences in our work." He said the nation's food production system lends itself to specialized oversight by government agencies.

"It is important to recognize that while FSIS and FDA inspection activities may seem similar, they are in reality vastly diverse due to difference in authorities and responsibilities," he said.

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
World Wide Web:
<http://www.fsconsortium.net>

The Food Safety Consortium

110 Agriculture Building
University of Arkansas
Fayetteville, AR 72701-1201

ADDRESS SERVICE REQUESTED

NON-PROFIT ORGANIZATION
U.S. POSTAGE
PAID
PERMIT NO. 278
FAYETTEVILLE, AR 72701-1201