

# The Food Safety Consortium Newsletter

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## Iowa State's Phage Seeks to Protect Swine on Farm

**B**acteriophages — the friendly viruses that can wreak havoc on harmful bacteria — are being harnessed to beat back *Salmonella* in livestock. A phage invented and recently patented by food safety researchers at Iowa State University is the first phage to control the spread of *Salmonella* in swine and to prevent the bacterium from developing into a vehicle of foodborne illness.

“The pen isn’t the only place pigs get *Salmonella*,” said D.L. (Hank) Harris, an animal science researcher at ISU. “They’ve got *Salmonella* when they come in from the farm. It turns out that vaccine and probiotics have not been very successful in



*Hank Harris of Iowa State led the research team that invented the Felix 0-1 phage to reduce Salmonella in livestock.*

reducing *Salmonella* in lairage immediately before slaughter. So we’re using pigs in an acute infection model to evaluate bacteriophage.”

Harris’ work to find effective ways to use bacteriophage in pigs has been successful enough to warrant further study in a collaborative Food Safety Consortium project later this year. Harris will team with Billy Hargis, an FSC researcher who directs the University of Arkansas Poultry Health Research Laboratory, to

explore ways to maximize production of bacteriophages and to determine its effectiveness against various types of *Salmonella*.

Hargis has been pursuing FSC-supported research on bacteriophages’ effectiveness against *Salmonella* in poultry. The work matches up well with Harris’ pursuit of livestock-oriented work that has been supported by the Biotechnology Research and Development Corp., a nonprofit organization funded by federal and private corporate money.

Market-weight pigs have been a particular problem because their rate of testing positive for *Salmonella* generally increases as they move from the farm to the holding pens to the slaughterhouse.

*Salmonella* infection comes from the environments to which the pigs are

*Continued on page 2*

## Extracts From Grape Seed, Green Tea Keep Chicken the Way Customers Want It

**I**f the chicken is too tough or too red, a dash of grapes and some tea can take care of it.

This is in the case of irradiated chicken. Irradiation eliminates foodborne pathogens from the product, but it can also cause some undesirable sensory results, such as changes in color, off odors and off flavors.

Food Safety Consortium researchers at the University of Arkansas have found that the unwanted changes were minimized by infusing grape seed extracts and green tea extracts into skinless, boneless chicken breasts before irradiation.

They also demonstrated that infusing a synthetic compound known as TBHQ into the chicken was effective in minimizing oxidation, the chemical process that causes the sensory changes in the food.

“TBHQ is a pure synthetic compound,” explained Navam Hettiarachchy, a UA Division of Agriculture food scientist. “Since it’s a pure compound and an antioxidant, it has the optimum activity in preventing oxidation. Nobody so far has found

anything as good as TBHQ.”

Additional good news from the findings is that the infusion of plant

extracts does not negatively affect the chicken’s color or water-holding capacity, Hettiarachchy said. Research has shown that water-holding capacity is a critical factor for

meat quality. Although color changes don’t affect the quality of the meat itself, consumer acceptance of a meat product can be hurt if it has an unfamiliar color.

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*Consumer acceptance of a meat product can be hurt if it has an unfamiliar color.*

### *Iowa State's Phage... continued*

exposed — the transportation vehicles, the holding pens, the other pigs — and it comes quickly. “Healthy pigs become *Salmonella* culture positive in tissue samples within as few as three hours after infection resulting from exposure to *Salmonella*-infected pigs,” Harris said.

When released into infected animals, phages release their DNA into the host cells of pathogenic bacteria, where they then produce more phages that kill the host cells.

Harris’ team at ISU invented the Felix 0-1 phage to reduce *Salmonella* in livestock, which can be injected into the swine until about three hours before slaughter and still be effective in controlling *Salmonella*. The time window until the three-hour mark is significant because pigs are especially at risk of infection during those hours of being held in close quarters with other pigs.

“Intervention with Felix 0-1 phage treatment following exposure to *Salmonella* and prior to harvest is effective in reducing the amount of *Salmonella* in an animal,” Harris said. “Alternatively,

treatment of animals prior to harvest will limit the risk of contamination of healthy swine by infected swine in the event the animals were exposed to *Salmonella* when housed with other animals or transported to the slaughterhouse.”

Using the Felix 0-1 phage between three and 24 hours before slaughter has an advantage over other phages because it is lytic — causing the destruction of certain cells — for the most common serotypes of *Salmonella* that are present in swine.

In addition to being administered to the animals orally, the Felix 0-1 phage can also be applied to the finished product to reduce *Salmonella* contamination. The phage can be applied to the surface of the beef, poultry, lamb or pork by spraying or soaking.

Bacteriophages have regained popularity in recent years as antibiotics have run up against increasingly resistant bacteria. Bacteriophages, which occur in nature, were discovered in the 1920s,

Harris noted, and were used to treat diphtheria and other diseases.

“But as soon as penicillin came out in the 1940s, nobody wanted to work with phages anymore except the microbiologists,” he said. The microbiologists used them to study the insertion of genes in bacteria. Meanwhile, bacteriophage research and usage continued in the Soviet Union because the Communist bloc nations had difficulty obtaining antibiotics.

The new emphasis on bacteriophages has led to projects such as development of the Felix 0-1 phage. “Our research now is to see if we can make this a practical thing to do and if there is a company that would be interested in marketing phage as a product,” Harris said. ■

*The phage can be injected into the swine until about three hours before slaughter.*

### *Extracts From Grape Seed, Green Tea... continued*



The meat’s texture is also improved by the infusion.

The grape seed and green tea extracts are already used in a variety of food products. “Using these two extracts for improving the quality of the meat during irradiation should not be a problem,” Hettiarachchy said. “The technology is available for an industry

to transfer the technology.”

The two extracts are cost effective because they are only 8 percent water being introduced into the meat in very small quantities. Also, sensory tests by trained panels have indicated that the extracts at the concentrations used do not produce any off flavor in the meat.

Tests have also shown that the extracts can extend the meat’s shelf life to 12 days. “The quality of the meat is maintained,” Hettiarachchy said. “The quality includes the juiciness, the water-holding capacity and the succulence.” ■

*Navam Hettiarachchy of Arkansas has shown that using plant extracts can counteract any problems in texture and appearance that irradiation causes on chicken.*

# From a Distance: Food Science Degrees at KSU

The food safety field is requiring more education of those in the industry who hope to hold key jobs as well as those who already do. Utilizing information generated by the Food Safety Consortium and others, Kansas State University is offering food science degrees and certificates by distance education.

It started in 1975 when tapes were the most advanced technology for distance education. “The U.S. Department of Agriculture came to K-State and said that they needed some continuing education courses for their inspectors,” said Kelly Getty, a program coordinator for distance education and Food Safety Consortium faculty researcher.

Kansas State is the only university offering distance education as a way to complete a bachelor’s degree in food science (for those students who already have completed at least 60 hours of undergraduate courses) or to complete the master’s degree curriculum. It also offers an undergraduate certificate or a graduate certificate for students who complete 20 hours of course work in food science but are not seeking a degree.

“Most of the students that we have are in industry,” said Deanna Retzlaff, also a program coordinator for the curriculum. “We have a few who are on campus. We also have quite a few military people — food inspectors and those with the veterinary corps.”

The distance education students are scattered far from Kansas and not

many of them have previously attended the university. “Of the master’s students, two are at Papa John’s International — one in Florida and another in Kentucky,” Getty said. “They’re already working in a corporate environment. We have three students in Gaffney, S.C., working at a Stouffer’s plant. They’re basically in places where there isn’t a food science program nearby. I have a master’s student at a Cargill plant in Iowa that also comes to K-State to recruit B.S. graduates and undergraduates for internships.”

There are more than 50 students completing bachelor’s degrees via distance education during a typical

semester. About 12 master’s students are usually enrolled. A few students are seeking graduate certificates and more than 30 students are accepted in the undergraduate certificate program.

Distance education students who pursue the master’s degree have access to most of the courses that on-campus students can take. Like the on-campus students, they must also choose between taking 28 hours of course work plus submitting a written report or taking 24

hours of course work and completing a full master’s thesis.

A related grant has also facilitated Kansas State to add interactivity to some courses, such as the Principles of HACCP and Applied Microbiology for Meat and Poultry Processors courses. Retzlaff explained that the interactive component equips the video that students watch with segments that require students to answer a question correctly before being permitted to continue.

Additionally, a series of videos on CD, each about 10 minutes long, were funded through a USDA grant that paid for production costs. Those 10 video modules have been incorporated in the Applied Microbiology in Meat and Poultry Processors course.

Getty works with the KSU Division of Continuing Education to market the distance education food science program nationwide. Flyers and e-mail promotions are sent to prospective students on the mailing lists for industries, professional associations and the military among others along with advertisements in *Food Technology* magazine. ■

*‘Most of the students that we have are in industry.’*



*Kelly Getty (left) and Deanna Retzlaff examine distance education programs for development at Kansas State.*

## Report from the Coordinator



Gregory J. Weidemann

Scientific procedures are paying off for public health. Food safety researchers have long advocated that implementing science-based Hazard Analysis and Critical Control Point (HACCP) methods in food production and processing would result in a safer food supply. Now, the theory continues to be backed up by the latest numbers.

The federal Centers for Disease Control and Prevention (CDC) released figures in late April showing that infections from five pathogenic bacteria have been declining since 1996. The date is significant because it was in 1997 that the U.S. Department of Agriculture began mandating the use of HACCP in federally inspected meat, poultry and egg products plants.

Elsa Murano, the USDA undersecretary for food safety and a former Food Safety Consortium researcher from a few years back, delivered the good news in a statement.

“The CDC ... noted significant declines from 1996 to 2003 in illnesses caused by *E. coli* (42 percent), *Salmonella* (17 percent), *Campylobacter* (28 percent) and *Yersinia* (49 percent),” Murano said. “Illnesses caused by *Salmonella*

*typhimurium* (typically associated with meat and poultry) decreased by 38 percent. Most significantly, between 2002 and 2003, illnesses caused by *E. coli* O157:H7, typically associated with ground beef, dropped by 36 percent. The reduction in *E. coli* O157:H7 illness brings the U.S. very close to achieving the Healthy People 2010 goal of one case per 100,000 people.”

Robert Tauxe, CDC’s chief of Foodborne and Diarrheal Diseases Branch, credits consumer awareness of food safety as one of the factors in the decline. He pointed out that more consumers are using thermometers when cooking meat (which, by the way, is another result of a Food Safety Consortium research project) and more are washing their hands before handling food.

The reporting of these numbers is possible because of FoodNet, a surveillance system established in 1996 that quantifies, monitors and tracks the incidence of laboratory-diagnosed cases of foodborne illnesses caused by several bacteria. The data are collected at sites in nine states across the nation.

There is still more work to be done. Tauxe said it was too early to claim vic-

tory and that more time is needed before we can know if this trend will be sustained. CDC targeted some specific areas for future focus:

Mandatory on-farm efforts to reduce contamination of eggs with *Salmonella enteritidis*, greater use of pasteurized eggs and irradiated ground meat, and reduction of pathogens in broiler chickens and turkeys, cattle and ground beef and seafood.

So there’s not much doubt why Murano concluded her remarks by saying the new data provide a challenge. “Through research, education and the application of effective regulations, we intend to make the safest food supply in the world even safer,” Murano said.

As usual, that’s where we come in. The research and education are our critical tasks. The food safety community can accept the congratulations for its work in getting us to this point as we work to raise the bar higher. ■

## KSU Grant to Address Agroterrorism, Food Security

For the next five years, Kansas State University’s food safety program has been awarded a \$2 million grant from the university’s Targeted Excellence effort that will be used to address food safety and agroterrorism issues.

The project is known as Food Safety and Security — Protecting America’s Health, Agricultural Infrastructure and Economy. It will enhance KSU’s existing food safety and security program and provide additional expertise for the 34,000-square-foot BL3 Biosecurity Research Institute facility on campus as well as the Bioprocessing and Industrial Value-Added Program.

“Students with comprehensive interdisciplinary training in food safety and security are needed, and this type of training is non-existent,” said Curtis Kastner, director of the KSU Food Science Institute. “Students trained with the proposed interdisciplinary perspective will be valuable, intellectually diverse thought leaders.”

Kastner said KSU has a “rich history of successfully addressing pre-harvest (animal and plant production) and post-harvest (food microbiology and toxicology) issues that directly impact food safety.” Threats of attacks by terrorist on production agriculture and the national food and water supply are a new

concern and have prompted initiatives to address the dangers to the public.

“Fortunately, past pre- and post-harvest food safety research, teaching and extension efforts have put KSU in a strong position to address this new era of agroterrorism and food security,” Kastner said.

KSU has also developed social science programs that address food safety and security issues. Kastner cited the integration of communication, history, policy, social work and economics with food science “that will make the KSU Food Safety and Security effort comprehensive and unique.” ■

# Pathogen Incidence Posts Decline, Foodborne Illnesses Continue Downward Trend

Cases of *E. coli* O157:H7 infections — one of the most severe foodborne diseases — showed a dramatic decline last year, decreasing 36 percent compared to the previous year, according to foodborne surveillance data released April 29.

The data released by Centers for Disease Control and Prevention (CDC) in collaboration with the Food and Drug Administration (FDA) and the Department of Agriculture (USDA) also showed that the incidence of three common foodborne diseases — *Campylobacter*, *Salmonella* and *Yersinia* infections — continued substantial declines seen in the past eight years.

The overall incidence of *E. coli* O157:H7 infections has declined 42 percent since 1996, while *Campylobacter* infections have dropped 28 percent and *Salmonella* infections have decreased by 17 percent.

Cases of other less common bacterial and parasitic foodborne diseases have also decreased since surveillance began in 1996. *Yersinia* infections have decreased 49 percent, and *Cryptosporidium* infections have decreased 51 percent.

The data also found that the incidence of *Listeria*, which had been decreasing the previous four years, did not decline in 2003. The national *Listeria* Action Plan was launched in 2003 to increase prevention efforts in the food chain, and a method is being developed in order to rapidly identify contaminated food items in outbreaks. The incidence

of *Salmonella enteritidis*, a common *Salmonella* serotype, has not changed significantly since 1996, demonstrating that additional efforts are needed to control this pathogen.

Children continue to suffer from foodborne illness in greater numbers than other groups. CDC, FDA and USDA are currently conducting a case-control study of sporadic cases of

*Salmonella* and *Campylobacter* to find the best opportunities for prevention in young children.

Several factors have contributed to the overall decline in foodborne illnesses.

Enhanced surveillance and outbreak investigations have identified new control measures and focused attention on preventing foodborne diseases.

The USDA Food Safety and Inspection Service implemented the Pathogen Reduction/Hazard Analysis Critical Control Point (HACCP) system in all 6,000 federally inspected meat, poultry and egg products plants over three years beginning in 1997. Since then, FSIS has strengthened HACCP enforcement through innovative inspector training and implemented rules to force plants to install new technologies and other methods proving they are effectively controlling dangerous pathogens like *E. coli* O157:H7, *Listeria monocytogenes* and *Salmonella*.

Other interventions include the FDA's regulation requiring the refrigeration and labeling of shell eggs to prevent *Salmonella enteritidis* infections; HACCP

regulation of fruit and vegetable juices as well as seafood; extensive food safety education, publication and outreach of good agricultural practices for fresh produce; and increased regulation of imported food.

Foodborne pathogens annually are responsible for an estimated 76 million illnesses in the United States. In 1996, CDC, USDA and FDA established the FoodNet surveillance system to quantify, monitor and track the incidence of laboratory-diagnosed cases of foodborne illnesses caused by *Campylobacter*, *Cryptosporidium*, *Cyclospora*, *E. coli* O157:H7, *Listeria*, *Salmonella*, *Shigella*, *Yersinia* and *Vibrio*. Since its inception, the FoodNet system has expanded to include nine sites and 41.5 million people, about 14 percent of the American population.

The full report, "Preliminary FoodNet Data on the Incidence of Infections with Pathogens Commonly Transmitted Through Food — Selected Sites, United States, 2003" appears in the *Morbidity and Mortality Weekly Report* (April 30, 2004) and is available online at [www.cdc.gov/mmwr/](http://www.cdc.gov/mmwr/). ■

*Three common foodborne diseases continued substantial declines seen in the past eight years.*

# Veneman Sees Research as Key to BSE Issues

*This is a partial transcript of remarks by Agriculture Secretary Ann M. Veneman to the Consumer Federation of America's National Food Policy Conference in Washington on May 7, 2004.*

## ... Your conference today

and yesterday focuses on two very timely issues — BSE and obesity. On each of these issues, science is helping to drive our decision-making, and research is key to finding the solutions.

Our scientific understanding of BSE, which is still a relatively new disease, has helped guide our prevention and response measures. The global scientific community has developed standards for countries to address this disease, and that dialogue is ongoing today.

We are continually updating our safeguards as the science evolves. To further enhance our system, only one week after the discovery of BSE in the state of Washington we announced a series of actions including immediately taking nonambulatory animals out of the food supply — which we know from research are among the higher-risk animals.

Science also tells us that removing specified risk materials from the edible food supply and increasing controls over the process of advanced meat recovery are important to protecting the public health. We recently announced our framework for the National Animal Identification system to be able to trace animals, to trace back animals quickly in the event of an outbreak.

Our goals are a verifiable system that is technology-neutral which gives producers flexibility to use current and effective systems and technologies as well as adopting new technologies. I also named an International Review Team of scientific experts to examine our systems and our response.

One of the recommendations that panel made was an enhanced surveillance system which we are now in the

process of implementing. Along with surveillance comes additional training and education for our employees and expanded outreach efforts to the food chain, including producers and processors.

Research is key to these ongoing efforts. For instance, new diagnostic tests that are animal identification technologies and alternative uses for animal waste and byproducts. We are committed to an effective BSE program, and we will continue to use science as our guide in making decisions.

Your discussions over the past couple of days have also focused on obesity solutions. The persistence and growth of obesity demonstrates the limit of our understanding and the need to learn more through research.

The current trend of low carbohydrate diets have set off what this week's *Time Magazine* cover story calls "Low Carb Frenzy." It is virtually impossible to watch a TV news program, read a newspaper or scan the best-seller lists without encountering these diets which are reshaping in many ways how America eats.

Low-carb foods are multiplying on store shelves and restaurant menus like the 17-year-cicada.

Research is helping us understand how different carbohydrates potentially affect weight loss and weight maintenance. For example, USDA scientists in Beltsville, which is one of our research facilities, are looking at what effects whole grains have on weight loss and risk factors for diabetes. Some of the results are showing that diets high in soluble fiber such as barley and whole oats can reduce weight, blood sugar, total cholesterol and blood pressure in some test populations. ...

To underline the importance of science to nutrition, we are adding a Nutrition Food Safety and Quality group to the three existing national program groups of USDA's Agricultural Research

Service. We will also host a national Obesity Prevention Conference in October, which will focus on research needs for preventing obesity.

We need to learn more about the complex social, economic and behavioral causes of poor dietary choices in order to better design effective program measures. This conference will help us target our resources where they can make the biggest difference.

Exercise is another component in promoting overall health and proper weight. Research is also being done at Beltsville to better understand how physical activity affects the food choices we make as well as total calories consumed and burned during the day.

Science is key to what we continue to learn about proper nutrition and exercise. Every five years a scientific advisory panel reviews the latest research and nutrition information in order to update the dietary guidelines for Americans, which USDA in cooperation with the Department of Health and Human Services have joint responsibility for. This process is under way with the scheduled release of updated dietary guidelines next January.

Just as we must analyze the current state of science to update the dietary guidelines, we must also use research to understand how we can better educate the public. USDA takes the dietary guidelines along with other nutrition standards to develop additional information on dietary guidance. ...

It is critical that we communicate effective nutrition-education messages so that our efforts are helping to translate information into positive action. ...

If it is true that we are what we eat, then our efforts to ensure a healthy food supply will make our nation a stronger place and our people more capable of meeting even the most difficult tests of our time. ■

# Partnerships Viewed as Important to Food Safety

Partnerships — both among domestic and international institutions — will be vital elements in promoting food safety at the pre-harvest stage for animal products. Rich Linton, director of the Purdue University Center for Food Safety Engineering, outlined the need for partnerships during a session in November at the Institute of Food Technologists Food Safety and Quality Conference in Orlando.

“Developing partnerships is absolutely critical,” Linton said. The steps should include “integrating research institutions and academic institutions with government, with industry and with consumer groups to be able to develop and understand what is the true role and responsibility of the producer and what kind of risk production factor they can put in place.”

*The WHO determined that epidemiology and risk assessment are the most important research areas.*

Linton noted that the World Health Organization examined research considerations and determined that epidemiology and risk assessment were the most important ones. Both research areas are associated with health issues in developing nations, he said.

“Developing countries raise specific concerns and issues that are going to require assistance,” he said. “Partnerships are going to need to be reformed and it’s absolutely critical for these things to be done for them to be important players in international trade.”

International guidelines and standards will be increasingly important as partnerships develop. “A key here is the ability to promote science-based approaches, but also to understand the implementation also has to deal with

management,” Linton said. “So understanding the combination of science and management will be key for both national and international issues.”

The detection of hazards will also be important. “We’re trying to build systems that are better and more specific, but really the key is making them affordable so the industry and government organizations will want to use them. The challenge in detecting hazards is not detecting the hazard itself but being able to separate that hazard from the food system or from the raw ingredient.”

On the domestic front, Linton agreed with remarks emphasizing education and outreach made earlier that day by Elsa Murano, U.S. Department of Agriculture undersecretary for food safety. In animal-based programs, state-level animal health agencies and cooperative extension service units are important partners in pre-harvest work.

“A combined partnership with these groups is absolutely critical in connecting with the producer,” Linton said. ■

## Papers & Presentations

**John (Sean) Fox and Hikaru H. Peterson**, Kansas State, published “Risks and implications of bovine spongiform encephalopathy for the United States: insights from other countries,” in *Food Policy*, 29 (2004): 45-60.

**Joseph Sebranek, James Dickson, Aubrey Mendonca, Helen Jensen, Dan Henroid and R.A. Martin**, Iowa State, received a \$500,000 grant from the U.S. Department of Agriculture Cooperative State, Research, Education and Extension

Service for a project on post-packaging irradiation combined with modified atmosphere packaging for control of pathogens on meat products.

**C.-M. Chen, Joseph Sebranek, James Dickson and Aubrey Mendonca**, Iowa State, published “Use of pediocin (ALTA 2341) for control of *Listeria monocytogenes* on frankfurters” in the *Journal of Muscle Foods*, 15: 35-36. ■

# Food Safety Digest

by Dave Edmark

The General Accounting Office (GAO), which serves as the auditing and investigative arm of Congress, has long advocated the merging of the federal government's oversight of food safety into one single agency. The GAO released a report on the topic more than a year ago. This spring, a GAO official testified before a House subcommittee on the issue.

Lawrence J. Dyckman, the GAO's director of natural resources and environment, suggested two points for Congress to consider: enacting comprehensive, uniform and risk-based food safety legislation and establishing a single, independent food safety agency. Another possibility GAO offered was to instead modify the existing laws and designate one current agency as the lead agency responsible for all food safety inspection matters. GAO reported that more than 30 food safety laws are currently administered by 12 federal agencies.

"We can no longer afford inefficient, inconsistent and overlapping programs and operations in the food safety system," Dyckman said. "It is time to ask whether a system that developed in piecemeal fashion in response to specific

problems as they arose over the course of several decades can efficiently and effectively respond to today's challenges." Dyckman added that a single integrated agency "can create synergy and economies of scale and provide more focused and efficient efforts to protect the nation's food supply."

A PDF copy of Dyckman's testimony is available for downloading at [www.gao.gov/cgi-bin/gettrpt?GAO-04-588T](http://www.gao.gov/cgi-bin/gettrpt?GAO-04-588T).

■ ■ ■

Now there's something new to dread: *Enterobacter sakazakii*, described as a rare but deadly pathogenic bacterium and vehicle for foodborne illness. It is named for Riichi Sakazaki, a Japanese bacteriologist, and was designated as a new species in 1980. Recently it has come to the attention of scientists that it might be more prevalent than they previously realized. The Food and Drug Administration has designated it as an emerging pathogen.

Peter Mrozinski, director of research and development for DuPont Qualicon, wrote in the April-May edition of *Food Quality* magazine that *E. sakazakii* can cause sepsis, meningitis or necrotizing enterocolitis in newborn infants. Many of the cases are fatal and survivors can suffer severe neurological complications. Adults are also susceptible to infections from the pathogen, particularly if they have serious underlying diseases or malignancies. Some studies show that powdered infant milk is a vehicle for infection. Other recent studies show that

houseflies are among the carriers of *E. sakazakii*.

Researchers have found the pathogen in beef, sausage, meat, vegetables, cheese, powdered fruit flakes, ultra-heat-treated milk, spoiled tofu, khamir and beer mugs rinsed mechanically or in open vats.

■ ■ ■

The framework for a National Animal Identification System is underway following Agriculture Secretary Ann Veneman's announcement in April that \$18.8 million will fund the program. The identification system was instigated after discovery in December of a cow with mad cow disease in Washington state. The system is designed to identify the origins of animals with a foreign disease so that the disease can be more quickly contained and eradicated.

The system will be implemented in three phases. First, USDA will evaluate current federally funded animal identification systems and determine which should be used for a national system, identify staffing needs and develop legislative proposals. The second phase would implement the chosen system at regional levels for one or more selected animal species. In the third phase, the system would be expanded to the national level.

Once a national system is selected, USDA will work with states, Indian tribes and other government entities to assist them in adapting their existing systems to the new system. ■

## The Food Safety Consortium Newsletter

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