AMERICAN MEAT INSTITUTE FOUNDATION

NEWS

A quarterly update on research, education and information

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Dear Colleague:

We are pleased to provide you with the first issue of *AMI Foundation News.* You will receive this publication quarterly to keep you informed of important developments related to meat and poultry safety, quality and nutrition.

As you may know, AMIF is committed to helping the industry reduce and ultimately eliminate *Listeria* and *E. coli* O157:H7 on our products. Toward that end, we launched a Food Safety Initiative earlier this year, and through the generous contributions of industry members, the Foundation has funded more than $2.1 million in research and education, all aimed at improving product safety and preventing foodborne disease.

Our commitment to these goals speaks to the need for more science in the ongoing effort to make foods even safer. We are proud to be working with a host of outstanding scientists and academic institutions on a variety of projects, and we are confident that their work will make meaningful and practical contributions to meat and poultry science and to the practices used in our plants.

We are pleased that the AMI Foundation is leading our industry in an aggressive approach to meeting the food safety challenges it faces. We look forward to sharing our progress with you regularly through *AMI Foundation News.*

Sincerely,

J. Patrick Boyle
Chairman

James H. Hodges
President

Research Focus:
Market Basket Survey Examines All Dietary Sources of Sodium Nitrite

Sodium nitrite is an essential ingredient in cured meats. It is nitrite that gives cured meats their characteristic color and flavor. Nitrite also prevents the outgrowth *of Clostridium botulinum* and the very serious disease botulism.

Since nitrite has been added to cured meats, Centers for Disease Control statistics indicate that botulism is no longer associated with cured meats. Like many substances, nitrite has critical health benefits when used at appropriate levels. And like most substances, when consumed at extremely high levels that do not mirror normal human consumption – as it might be in a laboratory feeding study – nitrite can cause adverse health effects. It is this fact that has entangled nitrite – and many other substances – in some controversy over the years.

The meat and poultry industry's use of nitrite has changed markedly over time. Before the 1980s, sodium nitrite was commonly used at levels of 200 parts per million (ppm). Today, the amount of nitrite allowed to be added to cured meats is much lower at 156 ppm. The levels actually used by manufacturers are often 120 ppm or less. It is also important to note that sodium nitrite dissipates during the curing process and recent surveys show that residual nitrite levels are typically less than 10 ppm.

Vegetables, especially root vegetables, contribute much more nitrite to the human diet than do cured meats. Vegetables contain nitrate, which is converted to nitrite in the mouth. The most current data shows that 93 percent of human nitrite intake comes from vegetables and saliva – a stunning fact to many in the anti-additive ranks.

Still, in many circles, nitrite is perceived to be derived from cured meats. Groups and individuals who have concerns about food additives like nitrite have argued that the nitrite in cured meats can cause health problems – a fact that the industry and most credible scientific groups dispute. Because nitrite is derived in greater numbers from vegetables – which are considered to be health promoting foods – it is highly illogical to allege that nitrite has harmful effects. Still, nitrite-free hot dog-type products are being marketed by health food stores based on this fear.

Given the reduced use of nitrite in today's cured meat manufacturing, and given changes in Americans' dietary consumption patterns, the AMI Foundation has funded a study by Robert Cassens, Ph.D., of the University of Wisconsin to establish the current contributions of various foods to total human nitrite intake.

In his study, Cassens will purchase foods that commonly comprise the American diet and test the nitrite levels found in those foods. Cassens will purchase these foods over a 12-month period to account for seasonal variations in dietary patterns. He also will purchase foods in different regions to account for differences in food processing and use of added nitrite.

Cassens' study will be essential in putting cured meats' contribution of dietary nitrite in perspective and laying to rest any alleged health effects associated with nitrite-containing cured meats.

Research Focus:
AMIF *Listeria* Literature Review to Identify Knowledge Gaps

One small but critical project recently completed through the AMI Foundation is a literature survey on the various techniques used in *Listeria* intervention.

Conducted by the University of Wisconsin-Madison Food Research Institute, the project is designed to provide an overview of all research on *Listeria* interventions from 1995 to the present time. Ellin Doyle, Ph.D., of the Food Research Institute will author the review.

"The review will be essential in helping companies reassess the adequacy of their Hazard Analysis and Critical Control Point (HACCP) plans," said AMIF President James H. Hodges. "This project also is essential in helping us assess what voids exists, what research has been done and how we can build on existing scientific foundations."

The review will be posted on the AMI web site www.meatami.org. Copies also many be obtained by contacting Susan Backus at sbackus@meatami.org.

Research Focus:
Hide and Carcass Survey to Verify Effectiveness of In-Plant *E. coli* O157:H7 Controls

AMIF's Hide and Carcass Survey Project aims to determine the effectiveness of various slaughter procedures and intervention strategies in eliminating *E. coli* O157:H7 on beef.

The project was initiated September 7, when 12 plants volunteered to submit data to AMIF about the presence of *E. coli* O157:H7 at various points during slaughter and production. The research will determine the presence of *E. coli* O157:H7 on the hide as the animal enters a plant, following hide removal and after all microbiological interventions have been applied. Plants slaughtering fed steers and heifers and non-fed cows and bulls are participating. Once the data are submitted to AMIF, they will be turned over to Colorado State University for analysis.

Continued on page 3

In-Plant *E. coli* O157:H7 Controls

Continued from page two

In recent years, the beef industry has developed several intervention methods to reduce pathogens on carcasses. Beef slaughter plants today use various combinations of intervention strategies that may include steam pasteurization, steam vacuum systems, organic acid rinses and hot water washes. This study is the first to measure various operational systems and slaughter procedures.

Findings from the study may provide a scientific justification for moving away from finished product microbiological testing and toward carcass testing for *E. coli* O157:H7. This would result in earlier pathogen detection and a better ability to prevent problems.

"Shifting testing to the carcass would help the industry prevent problems earlier in the production process, and that is a step that would benefit industry and consumers, " said AMIF President James Hodges.

Results of the study are expected in November.

Sodium Nitrite Research Projects

Principle Investigator	Organization Name	Project Title	Timeline
Cassens, Robert	University of Wisconsin-Madison	Market Basket Survey of Nitrate and Nitrite in Foods in the U.S.	One year

E. coli O157:H7 Research Projects

Principle Investigator	Organization Name	Project Title	Timeline
Belk, Keith	Colorado State University	Develop Optimal Methods for Sampling/ Colonal Feces, Hides and Carcasses to Test for the Presence of *E. coli* O157:H7 and *Salmonella* spp.	Four months and Two weeks
Smith, Gary	Colorado State University	Implement Hide and Carcass Survey to Verify Effectiveness of Slaughter Procedures and Carcass Interventions in Controlling *E. coli* O157:H7	Four months and Three weeks

1999 *Listeria monocytogenes* Research Projects

Principle Investigator	Organization Name	Project Title	Timeline
Wong, Amy C. Lee	University of Wisconsin-Madison	Reduction of *Listeria monocytogenes* Biofilm Formation in RTE Meat Processing Environments	Two years
Sebranek, Joseph G.	Iowa State University	Use of Pediocin with Other Barriers for Control of *L.m.* in RTE Processed Meats	Two years
Doyle, Ellin	University of Wisconsin-Madison	Literature Survey of the Various Techniques Used in *Listeria* Intervention	Six weeks
Daniels, Richard	Audits International	1999 U.S. Cold Temperature Study Design	Six months
Shetty, Kalidas	University of Massachusetts	Elite Herb Extracts Containing High Rosmarinic Acid and Inhibition of *Listeria monocytogenes* in Meat and Poultry Products	Two years
Dickson, James	Iowa State University	Optimum radiation dose to eliminate *Listeria monocytogenes* in packaged RTE processed meats	One year

AMIF Helps Develop FDA Brochure on Food Irradiation

One of AMIF's Food Safety Initiative objectives is to educate consumers about food irradiation. Research consistently shows that, the more consumers understand about food irradiation, the more they like it.

AMIF is working with other food industry groups to help the Food and Drug Administration complete its first consumer education brochure on food irradiation. The brochure quotes numerous government and academic experts touting the benefits and safety of food irradiation. It also describes the technology and its affect on perishable foods, such as poultry, meat, fruits and vegetables.

The brochure is expected to be released later this year. AMIF will work to inform consumers about the brochure's availability.

Consumers Learn about Safe Food Handling Through Fight BAC!™ Campaign

Now in its third year, the Fight BAC!™ campaign to teach consumers safe food handling is another component of AMIF's Food Safety Initiative. "Our ultimate goal is to eliminate *E. coli* O157:H7 from beef and *Listeria monocytogenes* from ready to eat meats," said Sara Lilygren, AMIF senior vice president for information. "But until we can reach that goal, we have an obligation to teach consumers how they can keep themselves healthy through proper food cooking and handling."

Fight BAC!™ was developed by a public/private partnership of industry, consumer and government organizations. Its four simple messages were developed through extensive consumer research. The campaign offers specialized tools for public health educators and elementary school teachers to teach basic food safety principles to consumers and students.

Current Fight BAC!™ projects include developing new patient education materials for distribution through doctors' offices. Recent research shows that many physicians know little about diagnosing or preventing foodborne illness — including physicians who treat patients most at-risk of developing severe foodborne illness, such as young children, the elderly, pregnant women and the immunocompromised.

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AMI Foundation Extends Its Appreciation To Food Safety Initiative Contributors*

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