May 2009

Vol. 29, No. 5
ISSN:1541-9576
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Food Protection Trends

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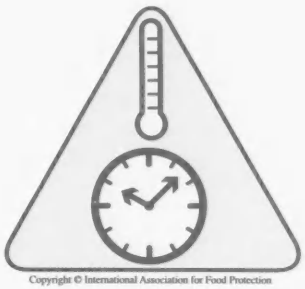

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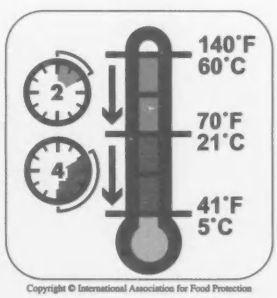

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International Association for Food Protection

FOOD PROTECTION TRENDS

VOLUME 29, NO. 5

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FOOD PROTECTION TRENDS
SCIENCE AND NEWS
FROM THE INTERNATIONAL ASSOCIATION FOR FOOD PROTECTION

Food Protection Trends (ISSN-1541-9576) is published monthly beginning with the January number by the International Association for Food Protection, 6200 Aurora Avenue, Suite 200W, Des Moines, Iowa 50322-2864, USA. Each volume comprises 12 numbers. Printed by Heuss Printing, Inc., 911 N. Second Street, Ames, Iowa 50010, USA. Periodical Postage paid at Des Moines, Iowa 50318 and additional entry offices.

Manuscripts: Correspondence regarding manuscripts should be addressed to Donna A. Bahun, Production Editor, International Association for Food Protection.

News Releases, Updates, Coming Events and Cover Photos: Correspondence for these materials should be sent to Donna A. Bahun, Production Editor, International Association for Food Protection.

"Instructions for Authors" may be obtained from our Web site at www.foodprotection.org or from Donna A. Bahun, Production Editor, International Association for Food Protection.

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Subscription Rates: ***Food Protection Trends*** is available by subscription for $255.00 US, $270.00 Canada/Mexico, and $285.00 International. Single issues are available for $31.00 US and $40.00 all other countries. All rates include shipping and handling. No cancellations accepted. For more information contact Julie A. Cattanach, Membership Services, International Association for Food Protection.

Claims: Notice of failure to receive copies must be reported within 30 days domestic, 90 days outside US.

Postmaster: Send address changes to ***Food Protection Trends,*** 6200 Aurora Avenue, Suite 200W, Des Moines, Iowa 50322-2864, USA.

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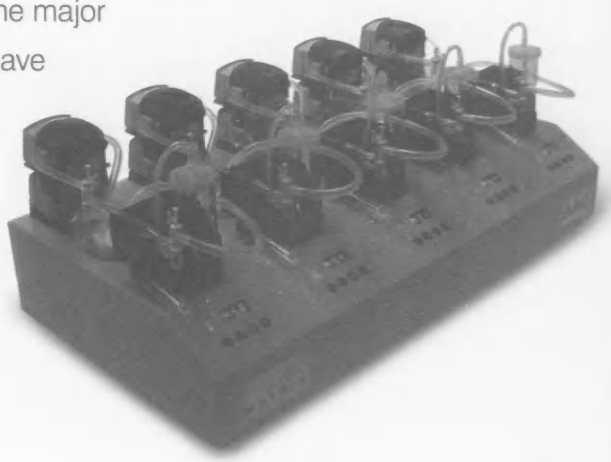

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"PERSPECTIVES" FROM YOUR PRESIDENT

By STAN BAILEY
PRESIDENT

"While we do not currently know all the facts about the burden of foodborne disease in the developing world, it is clear that food safety and security issues are different in developed and developing countries"

It is my sincere hope that each of you reading this column has enjoyed a well prepared, nutritious, and safe meal in the past few hours. At the very least I hope you had access to some good, if not extremely healthy, fast food. From a food safety perspective, the statistical odds are overwhelming that the readers of *Food Protection Trends* did not get sick from anything they ate today. In the developed world, hundreds of millions of servings of food will be consumed today with only a small number of illnesses associated with consumption of this food.

As food safety professionals we are keenly aware of the challenges of producing, processing, and distributing food that is safe, but many of us are not well informed about those without enough to eat. The United States and other developed countries have a small percentage of their population that does not always have enough to eat, but most of the time these individuals have access to government supported programs that assist with access to foods. In many developing countries and areas of the world, there are large numbers of people who do not have access to nutritious food or even to any food.

Earlier this year I was privileged to speak at the Dubai International Food Safety Conference. The conference's theme was "Food Safety in Light of Food Security" and the topic that I was asked to speak on was "Do the Emerging and Developed Countries Share the Same Food Safety Concerns?" Although somewhat familiar with this topic, I needed to do additional research before my presentation. The story that the available data tells is dispiriting, and I believe that it is important that I share with you some of the information that I discovered.

There are currently about 6.5 billion people living on the earth today. More than 850 million (13% of world's population) of these people are malnourished, with 799 million of these living in the world's developing countries. More than 153 million of the world's malnourished people are children under the age of five, and six million of these children die each year from lack of adequate food. The people that go to bed hungry every day are far more concerned about finding something to eat (food security) than about the safety of their food. According to the Food and Agriculture Organization, food security exists "when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."

At least 54 countries do not produce enough food to feed their people, nor can they afford to import the necessary commodities to make up the gap. Most of these countries are in Sub-Saharan Africa. Lack of dietary diversity and essential minerals and vitamins also contributes to increased child and adult mortality. Vitamin A deficiency impairs the immune system, increasing the annual death toll from measles and other diseases by an estimated 1.3 – 2.5 million children.

The global disease burden is estimated to be at least 1.8 million deaths each year. Estimates have suggested that waterborne disease caused by protozoa, viruses and bacteria accounts for 88% of these deaths. The intestinal parasite, schistosomiasis alone may account for 200,000,000 cases and 200,000 deaths each year. Waterborne bacterial pathogens most frequently associated with unsanitary water include diarrheogenic *E. coli, Campylobacter, Vibrios*, and *Shigella*.

The status of global food security, or should we say insecurity for many people is reasonably well documented. However, the status of food safety or food related morbidity and mortality has only recently begun to become well documented in the developed world. Unfortunately, there is little solid information about the status of food safety and disease burden in the developing world.

Since the early 1990s developing countries have begun to systematically track food safety. Initially, two types

of studies were used to estimate the food-related disease burden. England, Wales, and The Netherlands used cohort studies to estimate foodborne disease. In the United States, the CDC launched FoodNet, an active surveillance system which compares survey data to clinical observations, which is designed to help public health officials better understand the epidemiology of foodborne disease. When combined with PulseNet in the United States and internationally, a relatively robust understanding of the foodborne disease burden in developed countries has been established.

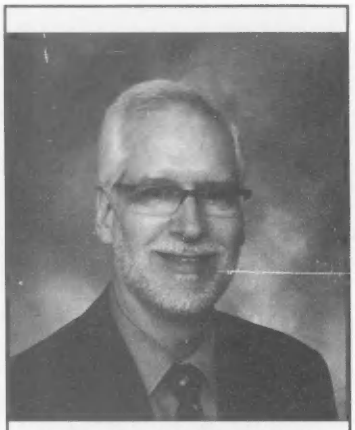
The World Health Organization (WHO) is taking the lead in trying to develop a better understanding of the disease burden associated with foods in developing countries. In 2002, a WHO consultation recognized that the food safety data for many areas of the world are under represented. This consultation decided that a series of sentinel site countries should be established and the data from these countries used to estimate the rest of the developing world. The first country chosen was Jordan, and *Salmonella, Shigella,* and *Brucella* were chosen as the first organisms to monitor. Two other WHO-sponsored consultations in 2004 and 2007 were conducted with the objectives of establishing robust methods to facilitate data transfer and establishing standardized methodology for a better understanding of the global burden of food borne disease.

While we do not currently know all the facts about the burden of foodborne disease in the developing world, it is clear that food safety and security issues are different in developed and developing countries. Even though there are different challenges in emerging countries, establishment of safe food production, processing, and distribution practices will lead to a more secure food supply. The benefits of improved food safety systems will directly benefit the health of the population of the country as well as offer the opportunity for economic development of any natural food resources. No matter where one lives, it is important to remember that basic food safety principles are the same, no matter if you are in an emerging or developed country.

Your IAFP Executive Board has worked very hard in the last few years to make IAFP a truly "International" Association. As a result, we are now seeing an increasing number of members and attendees from all over the world to our European Symposium, our International Symposium and our North American Annual Meeting. In addition, some of the IAFP Foundation sponsored student travel scholarships are targeted to students from outside of North America and specifically for students from developing countries. It is clear to me that among the many strong points of IAFP, our members are clearly our best resource. The strength and knowledge that we all gain by the exposure to scientists and students with a wide diversity of experiences will make all of us better prepared to face the challenges that we will surely face in the future.

As always, I welcome your comments or feedback. Please E-mail me at stan.bailey@na.biomerieux.com. Please join us in Grapevine, Texas for the IAFP 96th Annual Meeting on July 12–15, 2009.

"COMMENTARY" FROM THE EXECUTIVE DIRECTOR



By DAVID W. THARP, CAE
EXECUTIVE DIRECTOR

"If you have not reviewed a copy of FPT in the flipbook style, we encourage you to try it out"

This month, let's review a number of items including IAFP's new Web site, *Food Protection Trends* "flipbook," the Annual Meeting Program and Abstract Book and the Secretary election. One additional item is a discussion about Timely Topics and Rapid Response Symposia. Ok, here we go!

Early last month, IAFP unveiled its new Member friendly Web site. From the ad on the following page, you can see the new look of IAFP's home page. There have been months of work put into the new design and layout to better organize information and material for your use. The color palate matches with IAFP's new Membership materials and our exhibit booth. There is now a theme through all of our Association promotional material and the Web site incorporates this same look.

The Member login from the home page allows access to all the resources available to IAFP Members. Currently, you can access the Membership Directory, Committee and PDG listings, past articles from both the *IAFP Report* and *Food Protection Trends* and the new, "flipbook" style *Food Protection Trends*. You can also renew your IAFP Membership and change your password once logged in to your "Member Dashboard."

Another nice feature of the home page is that there is an easy-to-use events calendar and the latest IAFP news. Users will be able to submit events for inclusion on the calendar.

Also new on IAFP's Web site is the *FPT* flipbook (mentioned above). If you have not reviewed a copy of *FPT* in the "flipbook" style, we encourage you to "try it out!" It is easy to use – the table of contents is linked to each page, so you can move quickly throughout the journal to the pages that interest you. At the present time, the *FPT* flipbook is available to all Members as a part of your basic Membership fee. So, take advantage of this great opportunity to view the *FPT* flipbook while you can. Archived issues in the "flipbook" style are available from July 2008 forward.

For IAFP 2009, we will provide attendees with a "flipbook" style Program Book and Abstract Book. This will be in addition to the printed Program Book. Users will be able to link from the Program Book directly to the related abstract. They will also be able to search the Abstract Book by author name or subject matter. Links will be provided from the author listing to the abstract of the author's presentation. It should make finding information for attendees much easier than in past years. We intend to place these two books on the IAFP Web site prior to Annual Meeting so that you can use them prior to your arrival in Texas.

This month, we congratulate Katie Swanson from Ecolab as she received the majority of the votes cast in the recent election of our 2009–2010 Secretary. It is imperative that we thank Mark Moorman from Kellogg Company who was not elected, but was willing to stand for election. Both Katie and Mark are to be commended for their dedication and willingness to serve IAFP in this very important manner.

Katie will take office at the conclusion of IAFP 2009 in July. She has committed to a five-year term on the IAFP Executive Board and will serve one-year as President beginning at IAFP 2012. We look forward to Katie's involvement on the Board and know that she will carry out her responsibilities professionally.

The last item to discuss is a question I receive occasionally. It has to do with our Timely Topics Symposium and our Rapid Response Symposium. Sometimes I am asked why we have two names. Originally, IAFP wanted to be poised and ready to provide food safety professionals with current, up-to-date information

after a food-related outbreak occurred. This, we felt would provide a learning experience immediately following such an event taking place. So we prepared our plan and proposed to title the meeting, a "Rapid Response."

If you remember, we held our first Rapid Response Symposium on leafy greens just three weeks after the recall was issued. More recently, we held a Rapid Response Symposium on the peanut products outbreak. Both Symposia were well attended and the speakers allowed posting of their presentations on the IAFP Web site to further inform interested professionals.

Then, last year after the pot pie recall incident, we decided to hold a symposium on prepared, but not ready-to-eat foods. This one took place a little after the fact, so we did not feel it was a "rapid response." We titled it a "timely topic" symposium. Then early this year, we were asked to consider developing a symposium on raw milk consumption. Again, not a rapid response, but surely a timely topic in food safety! So, this has been the evolution of our two important series of one-day symposia.

We believe these symposia are continuing to meet with our mission objective of "providing food safety professionals worldwide with a forum to exchange information on protecting the food supply." This is why we are here and why we have so many great IAFP Members willing to help us fulfill our mission!

ARTICLES

Food Protection Trends, Vol. 29, No. 5, Pages 268–271

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International Association for Food Protection

Comparison of Traditional Thermocouples and Data Loggers for Simplified Temperature Monitoring Using Shellstock Oysters as a Model

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SUMMARY

Temperature control is an important aspect of food safety, and thermocouples have long been used for temperature monitoring. Nonetheless, thermocouples are not ideal for all products, particularly those of irregular size or those subjected to multiple handling steps throughout the farm-to-fork continuum. Newer electronic time-temperature recording devices are smaller, portable, and less prone to slippage. However, their accuracy, in comparison to that of traditional thermocouples, has yet to be validated. The purpose of this study was to compare traditional thermocouples and button data loggers with respect to their ability to record the temperature of shellstock oysters accurately during normal commercial storage. Commercial burlap bags of oysters were obtained and the temperature of individual oyster specimens was monitored internally and externally by use of T-type thermocouples and button data loggers. Specimens with thermocouples or button data loggers were placed side by side at different locations in the commercial burlap bags (top, middle, and bottom) to achieve representative cooling profiles based on product location. No statistically significant differences ($P \leq 0.02$) in oyster cooling profiles were observed when thermocouple data were compared to button data logger data, irrespective of location in the commercial sacks (top, middle, and bottom) or temperature monitor location (internal vs. external). The results support the use of button data loggers as a practical and relatively inexpensive alternative for monitoring the temperature of oysters and perhaps other food products as they pass through the farm-to-fork continuum.

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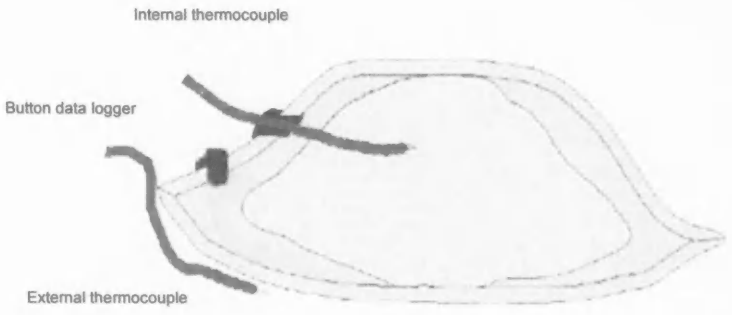
FIGURE 1. Schematic of thermocouple and button data logger placement on an experimental oyster specimen. Note: any single oyster specimen was fitted with only one probe. Adapted from Martin et al. 2007.



INTRODUCTION

Temperature control is an important aspect of food safety. Thermocouples are widely used for temperature sensing because they are inexpensive ($0.50/0.3 m for the thermocouple plus cost approximately $200.00), for the multimeter readout display are interchangeable, and can measure temperatures over a wide range *(10)*. They are, however, less suitable for applications where smaller temperature differences need to be measured with high accuracy *(2)*. For example, T-type thermocouples have a standard limit of error of 1°C *(3)*, and small temperature differences are defined as increments between whole degrees. Furthermore, using thermocouples for temperature monitoring in certain circumstances, for instance in molluscan shellfish, is difficult because of concerns about portability, slippage, and sensitivity to moisture. Taken together, this means that temperature data collected by use of thermocouples may not always be as accurate or reliable as one might wish.

Improvements in time-temperature indicators have resulted in miniaturization, waterproofing, and ease and security of data retrieval *(1)*. These new devices, termed button data loggers, are relatively inexpensive ($35.00 for each button data logger and $45.00 for the interface cable between button data logger and the computer) and durable in moist environments. For example, the Smartbutton data logger measures temperature in 0.5°C increments, holds 2,048 consecutive temperature readings, can be programmed to take temperature readings at intervals of 1 to 255 min and/or with alarms at upper or lower temperature settings, and has a 10-year battery *(1)*. An appealing application for these button data loggers is monitoring the temperature of seafood, particularly molluscan shellfish, during harvest, handling, shipment, and storage. The purpose of this study was to compare traditional thermocouples and button data loggers with respect to their ability to accurately record the temperature of shellstock oysters under simulated commercial storage conditions.

MATERIALS AND METHODS

Cooling curves of oysters

During the summer of 2007, three commercial size burlap bags of oysters (approximately 120 kg/bag) were obtained on three different days from a commercial oyster harvester. The bags of oysters were transported to the Food Microbiology Laboratory, Louisiana State University (LSU) AgCenter (Baton Rouge, Louisiana) in covered trucks. Immediately upon receipt of the product at LSU, temperature recording devices were put in place. For each commercial bag, 9 oysters were obtained. Replicates (3 oysters each) were fitted with temperature probes representing (i) internal thermocouple placement; (ii) external thermocouple placement; and (iii) external button data logger placement. For internal thermocouple placement, a 0.64 cm hole was made by drilling into the shell approximately 1.27 cm from the bottom center of the oyster. These holes were cleaned of any drilling debris and blotted dry of water and oyster liquor with absorbent paper, consistent with the method described by Martin et al. *(7)*. A T-type thermocouple (copper-constant) (TMQSS-032U-6, OMEGA Engineering Inc., Stanford, CT) was inserted approximately 2.54 cm into the oyster meat and the hole was then sealed with modeling clay (Crayola, PA). Thermocouples were secured with duct tape to the outside of the shell to measure external oyster temperature. The thermocouple data were collected by use of an OM-3000 portable datalogger (OMEGA Engineering Inc, Stanford, CT). SmartButton data loggers (ACR Systems Inc., Surrey, B.C., Canada) were taped to the outside of a third set of oysters (Fig. 1). Sets of three oysters (thermocouple-external; thermocouple-internal; and button data logger-external) were placed side by side at different locations in the burlap sacks (top, middle, and bottom) in an effort to record temperatures representative of different product locations. In addition, a thermocouple wire was placed inside and outside of the burlap bags to monitor ambient temperature. The commercial oyster bags were allowed to equilibrate to room temperature (18 to 20°C) and then placed in a walk-in cooler (5°C) for 360 min (6 h). Although commercial shellstock oysters may be stored under refrigeration conditions for up to 21 days prior to consumption *(4)*, this abbreviated time period was chosen simply for the purpose of comparing data loggers and thermocouples with respect to temperature monitoring capabilities. The data loggers and thermocouples were programmed to record temperatures every two minutes. The study was repeated three times for each type of temperature recorder and placement location.

Statistical analysis

The 2005 *Vibrio parahaemolyticus* risk assessment uses the work of Cook and Ruple *(5)* to justify the assumption that growth of this organism does not occur at temperatures <10°C. Therefore, temperature data were stratified for statistical analysis, using this biologically relevant cut-off value. The Wilcoxon signed-rank test for paired data was used to compare button logger with internal probe measurements, and to compare button logger and internal probe measurements with concurrent ambient external thermocouple temperature readings *(8)*. The Bonferroni

TABLE 1. Summary statistics for the difference between button data logger, and internal and external thermocouple temperature recordings

Comparisons†	Internal Logger < 10°C		Internal Logger ≥ 10°C	
	Median	Range in Diff. (°C)	Median	Range in Diff. (°C)
Sack Location Top (n = 107)				
B vs I	0.3	-0.1,0.6	0	-1.0,0.6
E vs I *	0.3	0.1,0.6	0.8	0.3,1.2
E vs B*	0.0	-0.5,0.7	0.8	-0.1,2.1
Sack Location Middle (n = 87)				
B vs I	1.0	0.8,1.2	1.0	0.7,1.3
E vs I	0.3	0.0,0.5	0.5	0.0,0.7
E vs B	-0.7	-0.9,0.6	-0.6	-1.0,1.0
Sack Location Bottom (n = 136)				
B vs I	0.6	0.4,1.0	0.8	0.5,1.0
E vs I	0.0	-0.1,0.2	0.2	0.1,0.4
E vs B	-0.6	-0.9,-0.4	-0.5	-0.8,- 0.3

B = button data logger

I = internal thermocouple placement

E = external thermocouple placement

† Comparisons expressed as median and range with data stratified by temperature (< 10°C or ≥ 10°C)

* indicates statistically significant differences are compared values for any one treatment at two different temperature stratifications (< 10°C or ≥ 10°C)

correction (0.05/3, number of comparisons = 3) was used to adjust the target *P* value for hypothesis testing in multiple comparisons *(11)*; hence, a *P* value of ≤ 0.02 was considered significant. Statistical analysis was performed by use of JMP, version 6.03 (SAS Institute, Cary NC).

RESULTS AND DISCUSSION

No practical difference was observed between the two temperature recording techniques and the three locations. More specifically, among the total of 552 averaged values (n = 184/logger, top, middle, bottom) from four replicates at each sampling time point, the button data loggers did not exceed the internal thermocouple probe values by more than 1.3°C at any sampling point, a difference that was not statistically significant (Table 1). Additional stratified analysis based on temperature cutoffs (internal thermocouple readings < 10°C or ≥ 10°C) also showed no statistically significant differences between internal probes and data loggers. Because internal thermocouples have been the gold standard for obtaining internal temperature measurements, this was considered the key and most important comparison in this study. However, other temperature recording comparisons yielded similar results. For example, external thermocouple temperature recordings did not exceed the internal probe recordings by more than 1.2°C; again, these differences were not statistically significant. In one instance, when the externally placed thermocouples were compared to the button data loggers, a single reading showed a difference as great as 2.1°C. However, this was a clear outlier, as the next highest discrepancy between the two methods was 1.5°C.

Analysis of cooling curves for different placement of the thermocouple wires were also showed no statistically significant differences between oyster temperature when thermocouple wires were placed inside the oyster meat vs. on the outside of the oyster shell (representative cooling curve in Fig. 2). Healthy oysters open every 2 h whether they are in water or not, so it is not surprising that the internal oyster meat temperature rapidly equilibrates to that of the surrounding ambient environment *(6)*. In addition, there were no statistically significant differences between thermocouple wires and button data logger readings when each was placed on the outside of the oyster and used to monitor oyster temperature (representative cooling curve in Fig. 3).

Thermocouples are the traditional means of monitoring storage temperatures during product holding and transport *(9)*. However, thermocouple placement can be awkward, and thermocouples are easily displaced because the wires must be directly connected to the multimeter readout display. In contrast, button loggers can be taped on the surface of the product, package, or shipping carton, with no need for wires. Although displacement was not evaluated in this study, it is likely that button loggers would be much less likely to experience displacement during the handling that might occur during routine product storage and/or transport. As a result, button loggers provide a robust alternative for monitoring temperature in all sorts of products, not just molluscan shellfish. Their ease of use may have the added benefit of enhancing compliance with temperature monitoring guidelines.

CONCLUSIONS

Button data loggers have potential applications for monitoring temperatures in a variety of perishable foods, including other seafood products, meat and poultry products, and produce, and could simplify temperature monitoring during transportation and storage. For

FIGURE 2. Representative cooling curves for different locations of thermocouples (internal (I) and external (E)).

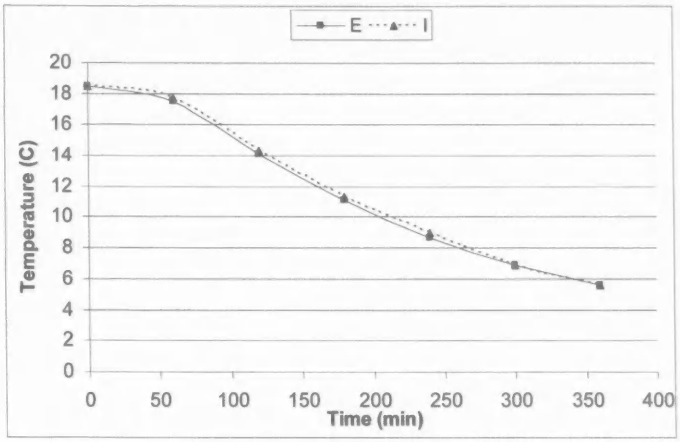
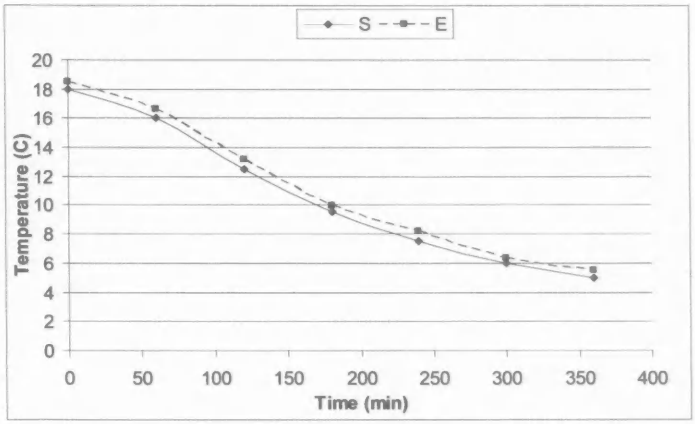


FIGURE 3. Representative cooling curves for comparison of SmartButton data logger (S) and external thermocouple (E).



example, button data loggers could be placed in containers in different locations of the transport truck to monitor refrigeration temperatures as a function of product location. The ease of external placement and relatively low cost provided by button loggers could enhance compliance with temperature monitoring guidelines. The availability of a simplified method for real-time temperature monitoring should result in decreased risk of pathogen proliferation, as well as potential improvements in product shelf life, both of which would help assure the quality and safety of the food supply.

ACKNOWLEDGMENTS

This study was funded by the US Department of Agriculture, Cooperative State Research, Education and Extension Service (CSREES), National Research Initiative Competitive Grants Program, Epidemiological Approaches to Food Safety, 2004-35212-14882. Manuscript FSR09-03 of the Department of Food Science, Bioprocessing, and Nutrition Sciences, North Carolina State University. The use of trade names in this publication does not imply endorsement by the North Carolina Agricultural Research Service nor criticism of similar ones not mentioned.

REFERENCES

1. ACR Systems. ACR SmartButton product specifications. Available at: http://acrsystems.s3.amazonaws.com/products/smartbutton/smartbutton.pdf. Accessed on 3 January 2009.
2. Anonymous. 2008. Thermocouple temperature sensors. Available at: http://www.temperatures.com. Accessed on 8 June 2008).
3. Anonymous. 2009. "Thermocouples – An Introduction." Omega Engineering. Available at http://www.omega.com/thermocouples.html. Accessed on 1 January 2009.
4. Cook, D. W., P. O'Leary, J. C. Hunsucker, E. M. Sloan, J. C. Bowers, R. J. Blodgett, and A. DePaola. 2002. *Vibrio vulnificus* and *Vibrio parahaemolyticus* in US retail shell oysters: A national survey from June 1998 to July 1999. J. Food Prot. 65:79–87.
5. Cook, D. W., and A. D. Ruple. 1989. Indicator bacteria and *Vibrionaceae* multiplication in post-harvest shellstock oysters. J. Food Prot. 52:343–349.
6. Eble, A. F., and R. Scro. 1996. General Anatomy. *In* The Eastern Oyster Crassostrea virginica. Ch. 1. p. 19–71. *In* V. S. Kennedy, R. I. E. Newell, and A. F. Eble (ed). Maryland Sea Grant, MA.
7. Martin, D. E., J. Supan, U. Nadimpalli and S. G. Hall. 2007. Effectiveness of a heat/cool technique for shucking oysters. Aquacult. Eng. 37:61–66.
8. Noether, G. E. 1991. Introduction to statistics the non-parametric Way. Springer-Verlag, New York.
9. Pollock, D. D. 1991. Introduction. *In* Thermocouples: Theory and properties. Ch. 1. p. 1–33. D.D. Pollock (ed). CRS Press, Inc. Boca Raton, FL.
10. Ramsden, E. D. 2000. Temperature measurement. Sensors. Available at http://www.sensorsmag.com/sensors/Technologies+In+Depth%2FSensors%2FTemperature/Temperature-Measurement/ArticleStandard/Article/detail/358202. Accessed on 2 January 2000.
11. Sokal, R., and F. J. Rohlf. 1995. Biometry: the principles and practice of statistics in biological research. 3rd Edition, W. H. Freeman and Co., New York. p. 182–184.

Food Protection Trends, Vol. 29, No. 5, Pages 272–278

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International Association for Food Protection

A Comparison of Hand and Machine Dishwashing from a Hygienic Standpoint

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SUMMARY

In Europe, the majority of dishwashing is done manually, whereas dishwashing machines are used in approximately one-fourth of washing procedures. In this work, we investigated the survival of *Enterococcus faecium* with machine dishwashing and hand dishwashing. Bacterial counts in the wash tank of the dishwasher were reduced by more than 3 log units within 5 minutes. Bacterial reduction was much slower during hand dishwashing, in which a reduction of 0.7 log units was observed after 43 minutes. It was also observed that the type of soil has little influence on the survival of *E. faecium* in dishwater during hand dishwashing.

The mean numbers of *E. faecium* on cleaned dishware was 13–26 times higher for items cleaned by hand dishwashing than for those cleaned by machine dishwashing. Plates that were not visually clean after hand dishwashing had higher numbers of surviving *E. faecium* than plates that were visually clean.

From a hygienic point of view, machine dishwashing is superior to hand dishwashing. In the machine, a higher temperature and pH are combined with lower COD (chemical oxygen demand) and faster drying, creating a harsh environment for microorganisms. Machine dishwashing is also more easily replicated than hand dishwashing, since it is controlled by the specifications of the machine.

INTRODUCTION

Dishwashing is one of the oldest activities in kitchens all over the world. The most common way to perform dishwashing is to soak the items in water with detergent, clean them in dishwater together with detergent, and finally put them through a rinsing process. It is tedious work, often performed in odd locations where ergonomics and ventilation are not optimum. Still, this way of cleaning is the most common method in both domestic and professional kitchens.

Hygiene is essential for dishwashing in both domestic and professional kitchens *(1, 4, 23)*. In domestic kitchens, a small number of meals are served to a restricted number of persons, so that if cross-contamination occurs, only a relatively small number of individuals are affected. In professional kitchens, there is a chance for numerous people to be infected by foodborne illness caused by, for example, contaminated dishes *(7)*. Foodborne illness can cause a large cost and a burden for society *(16, 22)*. Increased use of dishwashers can improve hygiene through dishwashing at higher temperatures and the use of more effective and aggressive detergents *(30)*. Dishwashers that utilize a combination of chemical and mechanical treatment of dishes are offered on the market in Europe *(27)*.

A peer-reviewed article

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An estimate of the distribution of various dishwashing methods for professional kitchens in Europe shows that about 70% utilize hand dishwashing, 20–25% dishwashers that use water as a means to remove soil mechanically, and 5–10% dishwashers that use additional means of removing soil mechanically, through the use of granules. This study reveals some aspects of the differences between hand dishwashing and machine dishwashing. An experimental method was designed for hand dishwashing, and similar experiments were performed in a one-tank dishwasher. The test organism used, *Enterococcus faecium*, is a heat-resistant bacterium utilized in microbiological testing of dishwashers *(2, 6)*. Water consumption and capacities are discussed.

MATERIALS AND METHODS

Preparation of *E. faecium*

Cells of *E. faecium* were prepared from freeze-dried cultures (ATCC 6057, purchased from CCUG (5)). The freeze-dried cells were dissolved in 1ml physiological saline solution and then cultivated for 24 h at 30°C in 100-ml Tryptic Soy Broth (Merck 1.05459.0500, Darmstadt, Germany) in a 1000-ml flask shaken at 200 rpm (Rotamax 120, Heidolph-Instruments GmbH & Co.Kg, Schwabach, Germany). One ml was then transferred from the overnight culture to 100 ml fresh Tryptic Soy Broth and cultivated as just described. The procedure was repeated once more. The third culture was transferred to centrifuge tubes and centrifuged at 2500 g for 5 min in a table centrifuge (Jouan, Saint-Herblain, France). The pellets were washed 3 times with cold 0.9% NaCl solution and the cells were then stored in 0.9% NaCl at 4°C for two weeks.

The cell suspension was serially diluted, and 100 µl of each dilution were spread on agar plates using a bent glass rod. The concentration of *E. faecium* was determined by the spread plate technique, in duplicate, on Kanamycin esculin azide agar (Merck 1.05222.0500); the plates were incubated for 4 days at 30°C. The concentration of the *E. faecium* cell suspension was found to be 9.48 log CFU/ml. The absence of contamination in the cell suspension was assured by microscopy, using a Sagitta microscope XSP-136A (Sagitta Pedagog AB, Mariestad, Sweden) and by colony morphology as determined with Tryptic Soy Agar (Merck 1.05458.0500).

Preparation of soiled dishware

Soil 1 was made of 10 g egg powder mixed with 50 ml tap water. Then 20 g castor sugar was dissolved in 150 ml water; the solution was heated to boiling, then removed from the heat; 50 g potato powder (Felix®) and the dissolved egg powder was added and the mixture was stirred until homogenous. The dishware was baked for 17–20 h at 55°C. Soil 2 was prepared from a pie filling recipe, according to NSF/ANSI 3–2005 *(18)*; the dishes were baked for 1 h at 93°C. Soil 3 consisted of boiled rice; the dishes were baked for 18 h at 55°C. Soil 1 is a heavy soil that adheres firmly to dishware and that has a more complex composition than soil 2 and 3 *(26)*.

Dishware was autoclaved before use. The bottom of three Gastro-Norm trays (GN *(24)*), was covered with soil 1: one GN 1/1 65 mm tray, one GN 1/2 200 mm tray and one GN 1/3 200 mm tray. Half the bottom of a GN 1/1 65 mm tray was covered with soil 1, whereas one 1/1 20 mm tray was not soiled. Plates were treated with soil 1, 2 and 3, which was streaked out on the inner circle (~14 cm in diameter) of the plates. Approximately one tablespoon of soil 1, 2 and 3 was used for each plate. One tablespoon of soil 1 corresponds to 5 g baked soil.

Cross-contamination test in dishwasher

The dishwasher used in this study can be utilized for washing of both pots and items such as plates, cutlery, cups, etc. *(13)*. Dirty trays and plates are placed in the dishwasher as shown in Fig. 1. In the granule washing mode, the machine uses plastic granules in the water flow to remove soil mechanically from the dishware. The granules are made of poly oxy methylene (POM), which is approved for use with foodstuffs. The times for washing and rinsing are summarized in Table 1 for the normal program with granules (one of the programs used for washing of pots) and the program used for plates, cutlery, cups, etc. The wash water temperature is regulated at 65°C and the rinse water temperature at 85°C. Dishwashing agent (2 ml/liter Tornado, Diskteknik; Vallentuna, Sweden *(20)*) and Tryptic Soy Broth (3%) were added to the wash tank. Rinse agent was added to the rinse tank before the programs began (0.5 ml/liter Tyfon, Diskteknik *(21)*).

The wash tank was inoculated to a starting concentration of 4 log CFU/ml. A total of 18 plates were washed in a square basket. Every second plate was soiled with soil 1. In the next sequence with the same water, ordinary dishwasher-utensils, Gastro-Norm trays, treated with soil 1 were washed. The combi mode program was used for the plates, and the normal program with granules was used for the trays. The dishwater was mixed about 30 s before withdrawal of the first sample.

Cross-contamination tests in hand dishwashing

The same test setup was used for the two hand dishwashing tests, A and B. Hand dishwashing agent (0.5 ml/liter Dizzy, Diskteknik *(19)*) and 3% Tryptic Soy Broth (Merck 1.05459.0500) were added to the washing bowl containing hot tap water (final volume 15 liters). *E. faecium* was added to the dishwater (4 log CFU/ml) and mixed in. The starting concentration was determined by dilution and spread plating of the solution used for inoculation. The rinse water bowl was filled with 12 liters of hot tap water. The temperature of dishwater and rinse water was measured during the experiment by use of a calibrated PT100 (ETI Precision s/n D9811393, Pentronic, Gunnebo, Sweden) and a calibrated Logger 175-T3 (Testo, Lenzkirch, Germany). The COD in dishwater and rinse water was measured with the COD Cell test (Merck 1.14691.0001). The pH of the dishwater before inoculation was measured with a calibrated pH meter PHM210 and a pHC2015-8 electrode (Radiometer Copenhagen, Copenhagen, Denmark).

In test A, twelve plates with soil 1 were soaked for five min in the dishwashing bowl. A manual washing was then started; as a result, the plates were soaked for 5–20 min. Each plate was washed for 30 s, dipped into the water in the rinse bowl, and placed in a basket. One person washed and rinsed the first 6 plates; another person washed and rinsed the remaining 6.

TABLE 1. Times and temperatures during dishwashing

Program	Dishware	Granules	Wash		Rinse	
			Time (s)	Temp. (°C)	Time (s)	Temp. (°C)
Combi mode	Plates, cutlery, etc.	No	120	65	20	8
Normal	Pot wash	Yes	210*	65	40	85

* 210 s wash cycle: 180 s with granules and 30 s without granules

TABLE 2. Type of dishware and soil in the different experiments

Experiment	Dishware	Soil
Dishwasher	9 plates	1
	9 plates	-
	Two 1/1 65 mm trays	1
	One 1/2 200 mm tray	1
	One 1/3 200 mm tray	1
	One 1/1 20 mm tray	-
Hand dishwashing (A)	12 plates	1
Hand dishwashing (B)	10 plates	2
	10 plates	3

In test B, ten plates with soil 2 (pie filling base) were soaked for five min in the dishwashing bowl and then a manual washing was started, so that the plates were soaked for 5–12 min. Each plate was washed for 30 s, dipped in the water rinse in the bowl, and placed in a basket. Another ten plates with soil 3 (boiled rice) were soaked for five minutes in the dishwashing bowl, and the same washing procedure was used. One person washed the plates with soil 2, and another person washed the plates with soil 3.

Two hand dishwashing experiments were performed to evaluate the experimental procedure used; these experiments were performed on two non consecutive days, and the machine dishwashing experiments were performed on a separate day. The types of dishware and soil in the dishwasher and the hand dishwashing experiments are summarized in Table 2.

Analyses of wash and rinse water

Samples of 20 ml were aseptically withdrawn from the wash tank of the dishwasher at different time points. The samples were immediately neutralized by addition of 1 ml 0.1 M HCl and cooled in an ice bath. Samples of 20 ml were aseptically withdrawn from the washing bowl and from the rinse water bowl at different time-points during the hand dishwashing tests, and the samples were cooled. The dishwater and rinse water samples were streaked out on Tryptic Soy Agar (Merck 1.05458.0500) and kanamycin esculin azide agar (Merck 1.05222.0500). A volume of 100 µl sample was streaked out in duplicate on each type of medium. The rinse water samples were not diluted before spreading. For dishwater, both undiluted samples and samples diluted 1:10 were spread. The agar plates were incubated for 3–4 days at 36°C.

Analyses of dishware

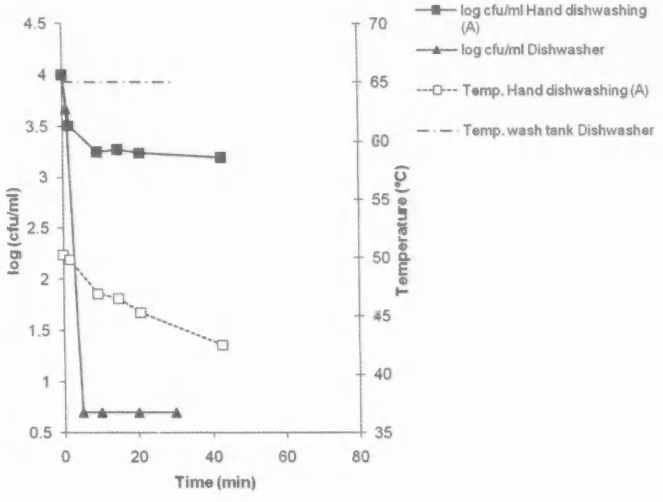
Kanamycin esculin azide agar (~50°C) was poured onto the bottom inner areas of the washed trays and on the washed plates. Only the inner circle (~14 cm in diameter) of the plates was covered with agar. All washed dishware was included, as well as non-soiled dishware. The trays and plates were incubated for 3 days at 36°C.

RESULTS

Bacterial counts and temperatures of the dishwater during machine dishwashing and hand dishwashing are summarized in Fig. 2. The dishware was soiled with the more complex and adhering soil 1 in both experiments. The bacterial counts in the dishwasher were reduced by more than 3 log units within 5 min. The water in the wash tank in the dishwasher had a temperature of 65°C. Bacterial reduction was much slower during hand dishwashing, in which a reduction of 0.7 log units was observed after 43 min. The temperature, approximately 50°C at the start of the hand dishwashing experiment, decreased over time (43°C after 43 minutes). Figure 3 displays the bacterial counts and temperatures in the two hand dishwashing experiments. Plates with soil 1 were cleaned in Experiment A, whereas plates with soils 2 and 3 were cleaned in experiment B. Bacterial reductions and temperatures were similar in the two hand dishwashing experiments. After 14–15 minutes, a bacterial reduction of 0.7 log units and a temperature decrease of 4°C

FIGURE 1. The dishwasher with plates.

FIGURE 2. Bacterial counts and temperatures in dishwater during hand dishwashing (Experiment A) and in dishwasher. Dishware was soiled with soil 1 and 3% tryptic soy was added to the dishwater. Detergent was added to the dishwasher (2 ml/liter Tornado) and to the washing-up bowl (0.5 ml/liter Dizzy). The dotted line at 0.7 CFU/ml indicates the detection level.



were observed in both hand dishwashing experiments. The deviation in bacterial reduction between the two hand dishwashing experiments was at most 0.1 log units for comparable sampling time points. For the temperature, the maximum deviation was 2°C for comparable sampling time points. For each set of duplicate plates during the two hand dishwashing experiments and the sample withdrawn from the wash tank of the dishwasher after 1 min, the deviations of CFU/plate were at most 12 to 15%.

E. faecium was detected at a level of 0.7 CFU/ml in the rinse water during the two hand dishwashing experiments (Fig. 4). The temperature decrease of the rinse water was similar in the two hand dishwashing experiments, 3–4°C during the first 15 min. Figure 5 shows the COD concentrations of the dishwater during the hand dishwashing experiments. COD levels of 6000–10000 mg/liter were found at the end of the experiments. The COD of the rinse water was below detection level in both hand dishwashing experiments.

Figure 6 displays the mean CFU of *E. faecium* per washed item in the different experiments. The mean numbers of E. faecium were 13–26 times higher for the items washed by hand than for those washed by machine. *E. faecium* was detected on all 32 plates after hand dishwashing, but on only 2 out of 18 plates and 2 out of 5 trays after machine dishwashing.

For hand dishwashing, the plates with soils 1 and 3 were not visually clean, with several spots of soil remaining on the surface. The plates with the soil that adhered least, soil 2, were visually clean. In the dishwasher, the plates with soil 1 did not get clean, whereas the trays with soil 1 got almost perfectly clean. For the adherent soil, the COD in the dishwater for hand dishwashing increased to about 12000 mg/l, and for the less complex soils (2 and 3) 8000 COD mg/liter was achieved. From Fig. 5, it is seen that it takes some time to dissolve the soil in the dishwater. The concentration of nutritents in the dishwater is not homogeneous which results in variation for different samples.

DISCUSSION

The reduction of bacteria and the temperature changes in the dishwater show good correspondence between the hand dishwashing experiments. The temperatures varied from 50°C at the beginning to 37°C at the end of the experiments, which are the most common temperatures for washing dishes *(12, 15)*. The reduction of *E. faecium* was small for hand dishwashing, only 0.7 to 1.0 log units, which is in accordance with previous results *(10)*. The different types of soil did not influence the reduction of *E. faecium*.

When hand dishwashing is compared to machine dishwashing with regards to hygienic aspects, the reduction of *E. faecium* in the dishwater was much more efficient for this type of machine than for hand dishwashing of soiled plates. One difference between hand dishwashing and machine dishwashing is the detergents used. Detergents for hand dishwashing normally have a pH

FIGURE 3. Bacterial counts and temperatures in dishwater during hand dishwashing. Dishware was soiled with soil 1 (Experiment A) or soils 2 and 3 (Experiment B). An amount of 3% tryptic soy and 0.5 ml/liter detergent (Dizzy) was added to the dishwater. The dotted line at 0.7 CFU/ml indicates the detection level.

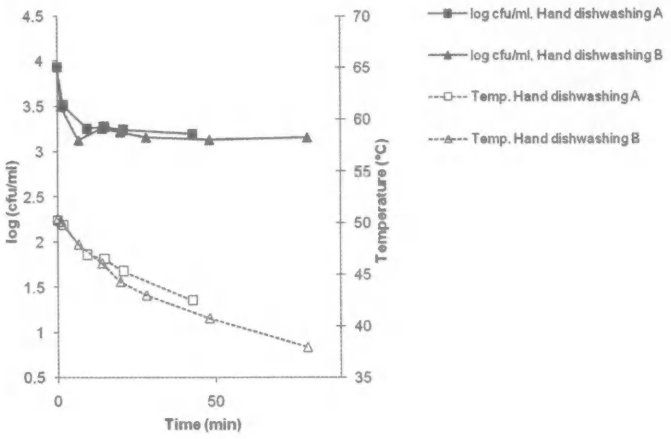
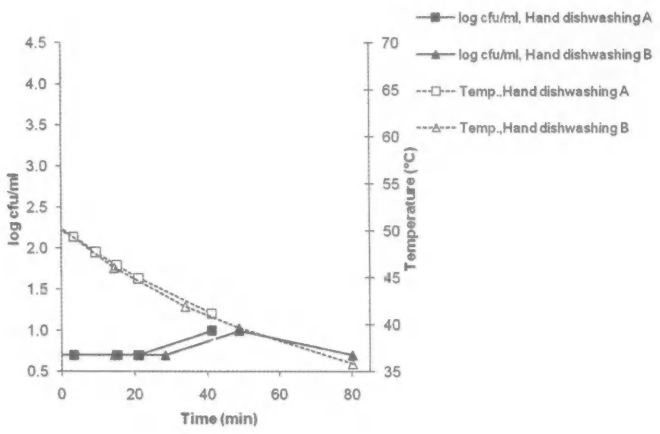


FIGURE 4. Bacterial counts and temperatures in rinse water during the two hand dishwashing experiments. The dotted line at 0.7 CFU/ml indicates the detection level.



around 7, with or without antibacterial substances *(3, 9)*. For machine dishwashing, the normal pH is about 10–12. The combination of high temperature (55–65°C) and high pH in machine dishwashing reduces the bacterial number more effictively than hand dishwashing *(10, 14, 29)*. Machines with granules to assist in cleaning do not show any increased levels of bacteria in the dishwater or among granules *(25)*.

From the start of the hand dishwashing experiments, the numbers of bacteria were below the detection limit in the rinse water. When the hand dishwashing was finished after 40 minutes, a slight increase of the bacterial content of the rinse water was seen. After another 40 minutes, the content of bacteria was below the detection limit. The reason for this behavior is the lack of nutrients remained in the rinse water. After completion of dishwashing, a small amount of nutrients remained in the water and the temperature had decreased; both of these are favorable factors for growth of microorganisms. The amount of nutrition measured as COD was less than 300 mg/liter in the rinse water, in contrast to the amount in the dishwater, in which all the soil from the dishware was collected. In dishwashers, values from 2000 up to 6000 COD mg/liter have been reported *(8, 28)*. Furthermore, the procedure in a dishwasher is different from the rinse procedure in hand dishwashing. In a machine, rinse water is sprayed over the dishware after the washing cycle, and the rinse water is reused as dishwater. Contaminating the rinse water from the dishware is therefore not possible.

The number of CFU/item is considerable higher for hand dishwashing than for machine dishwashing, because the concentration of bacteria in the dishwater was considerably higher for hand dishwashing than for machine dishwashing, and the plates were not properly cleaned. To compare hand dishwashing to machine dishwashing, plates were used as dishware. However, a dishwasher can be used for both trays and plates; for this reason, experiments were conducted for trays also. The results (CFU/item) were the same for plates and for trays in the dishwasher. Cross-contamination from dishwater to plates has been found in a traditional dishwasher and in hand dishwashing, but only on those plates or bowls that contained visible soil after dishwashing *(26)*. There are, of course, other processes and items in the kitchen in which different surfaces act as vectors for microbial transfer, i.e., plastic gloves, plastic aprons, plastic salad crates, stainless steel surfaces and conveyor belts *(11, 17)*.

Because of higher temperatures of the plates after the machine dishwashing cycle and the addition of drying agent in the rinse water, drying of the dishware is much faster for machine dishwashing than for hand dishwashing. Trays, utensils and plates should be as dry as possible after the dishwashing cycle to minimize the risk of bacterial growth on the surfaces.

Machine dishwashing is a more reproducible process than hand dishwashing, since it is controlled by the specifications of the machine. The temperature of the dishwater is kept constant at 65°C, in contrast to the dishwater temperature for

TABLE 3. Comparison of capacities for dishwashing of plates by machine and manually

Procedure	Pre soaking	Dishwashing and rinsing	Loading and unloading	Capacity	Capacity of plates per hour
Hand dishwashing soils (2, 3)	5–15 min	15 min	-	20 plates per 20 min	60
Hand dishwashing soil (1)	5–15 min	15 min	-	12 plates per 20 min	36
Machine dishwashing soil (1)	-	3 min	3 min	18 plates per 6 min	180

FIGURE 5. COD in dishwater samples withdrawn at different time points during hand dishwashing Experiments A (soil 1) and B (soils 2 and 3).

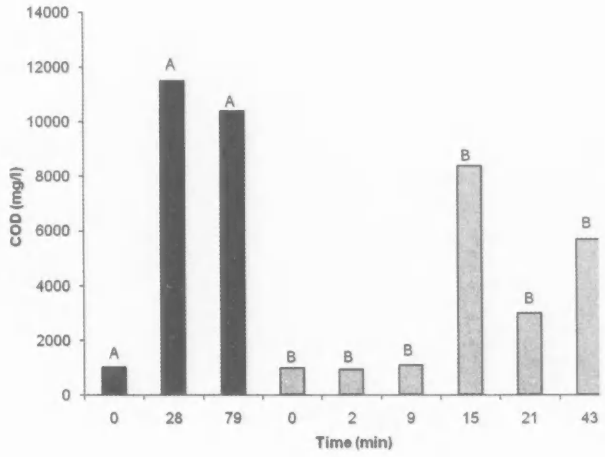
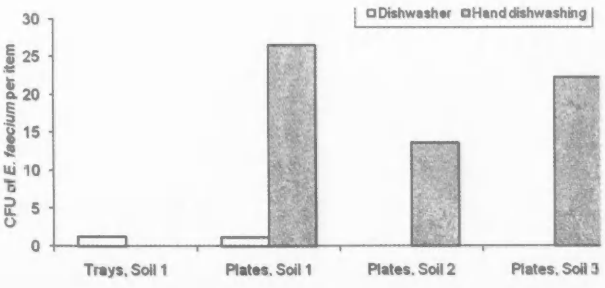


FIGURE 6. Mean CFU of *E. faecium* per washed item in the different experiments.



hand dishwashing, which decreases during the process. Because of the risk of injury, the dishwater temperature is seldom above 55°C for hand dishwashing.

The total consumption of tap water for hand dishwashing was 27 liters in the experiments. Assuming that the water is used for two batches of dishware, 20 plates each batch, then the ratio is 0.7 liters fresh water per plate. For the dishwasher, 5 liters of rinse water are used each time a program is run. Before the first program, the wash water tank is filled with 83 liters of tap water. The dishwater is reused, except for the exchange using the 5 liters of rinse water at each program. Generally, 20 programs are performed before depletion of water in the dishwater tank occurs. This corresponds to 360 plates, resulting in a consumption of 0.5 liters of fresh water per plate. With regard to overall fresh water consumption, the dishwasher is more efficient. The capacity is higher for machine dishwashing than for hand dishwashing, even though only a short pre-soaking time (5 min) is accounted for in hand dishwashing (Table 3).

CONCLUSIONS

The bacterial content of dishwater is not reduced significantly in hand dishwashing over time. However, in machine dishwater, the reduction of *E. faecium* is more than 3 log units, compared to 1 log unit for hand dishwashing. Furthermore, the results show that for machine dishwashing, there is less cross-contamination from dishwater to dishes and other wares because of the lower bacterial level in the dishwasher process. The consumption of water is less for machine dishwashing. Taking soaking into account, the time needed for wash-

ing is longer for the hand dishwashing process. Because the rinse water dilutes the dishwater in the dishwashing machine, the concentration of soil, measured by determining the COD, becomes lower than for hand dishwashing. The risk of personnel becoming contaminated by the dishwater is less for the closed process in a machine dishwasher than for the open process used in hand dishwashing. Even aerosols can cause irritations in the hand dishwashing process.

ACKNOWLEDGMENTS

Granuldisk AB is gratefully acknowledged for supplying the dishwasher for tests and for communication.

REFERENCES

1. Barrie, D. 1996. The provision of food and catering service in hospital. J. Hosp. Inf. 33:13–33.
2. Bradley, C. R., and A. P. Fraise. 1996. Heat and chemical resistance of enterococci. J. Hosp. Inf. 34:191–196.
3. Charnock, C. 2003. The antibacterial efficacy of Norwegian hand dishwashing detergents. Food Prot. Trends. 23(10):790–796.
4. Cogan, T. A., J. Slader, S. F. Bloomfield, and T. J. Humphrey. 2002. Achieving hygiene in the domestic kitchen: the effectiveness of commonly used cleaning procedures. J. Appl. Microbiol. 92:885–892.
5. Culture collection, CCUG (http://www.ccug.se). University of Göteborg, Department of Clinical bacteriology, Göteborg, Sweden.
6. Deutsche Norm DIN 10512. Food hygiene — commercial dishwashing with one tank-dishwashers — hygiene requirements, type testing, Gewerbliches Geschirrspülen mit Eintank-Geschirrspülmaschinen Dezember 2001. Beuth Verlag GmbH, Berlin, Germany.
7. Entis, P. 2007. Food safety: old habits, new perspective. Chapter 5, cross-contamination, p. 69–87. ASM Press, American Society for Microbiology, Washington, D.C.
8. Harpel, S., F. Tilkes and S. Krüger. 1994. Forderungen an die maschinelle Dekontamination vor Geschirr unter hygienischen Gesichtspunkten sowie an eine geringe Belastung der Abwässer – ein Widerspruch? (Requirements to the decontamination in dishwashing machines under hygienic and environmental aspects – a contradiction in terms?). Zbl. Hyg. 195:377–383.
9. Holah, J. T., and K. E. Hall. 2006. The effect of an antibacterial washing-up liquid in reducing dishwater aerobic plate counts. Lett. Appl. Microbiol., 42:532–537.
10. Johansson, E., E. Ståhl Wernersson and H. Håkanson. 2005. Effects on the survival of *Enterococcus faecium* in dishwater. Food Res. Int. 15:118–128.
11. Kusumaningrum, H. D., G. Riboldi, W. C. Hazeleger, and R. R. Beumer. 2003. Survival of foodborne pathogens on stainless steel surfaces and cross-contamination to foods. Int. J. Food Microbiol. 85:227–236.
12. Lee, J., R. Cartwright, T. Grueser, and M. A. Pascall. 2007. Efficiency of manual dishwashing conditions on bacterial survival on eating utensils. J. Food Eng. 80:885–891.
13. Manual, Granule Combi User Manual. 2007. Granuldisk AB, Malmö, Sweden.
14. Mattick, K., K. Durham, G. Domingue, F. Jørgensen, M. Sen, D. W. Schaffner, and T. Humphrey. 2003. The survival of foodborne pathogens during domestic washing-up and subsequent transfer onto washing-up sponges, kitchen surfaces and food. Int. J. Food Microbiol. 85:213–226.
15. Mattick, K., K. Durham, M. Hendrix, J. Slader, C. Griffith, M. Sen, and T. Humphrey. 2003. The microbiological quality of washing-up water and the environment in domestic and commercial kitchens. J. Appl. Microbiol. 94:842–848.
16. Mead, P. S., L. Slutsker, V. Dietz, L. F. McCaig, J. S. Bresee, C. Shapiro, P. M. Griffin, and V. Tauxe. 1999. Food-related illness and death in the United States. Emerg. Infect. Dis. 5:607–625.
17. Northern Hygiene Laboratories Ltd. Technical Team, Thorpe House, Kelleythorpe Estate, Driffield, UK. 2008. Use your eyes for contamination control. Int. Food Hyg. 18:11–12.
18. NSF International Standard / American National Standard 3–2005. Commercial warewashing equipment. NSF International, Ann Arbor, Michigan, US.
19. Safety data sheet, Dizzy Handdisk, Pride Chess. 2007.
20. Safety data sheet, Tornado, Pride Chess. 2007.
21. Safety data sheet, Tyfon, Pride Chess. 2007.
22. Snowdon, J. A., J. C. Buzby, and T. Roberts. 2002. Epidemiology, cost, and risk of foodborne diseases, p. 31–51. *In* D.O. Cliver and H. P. Riemann (eds), Foodborne Diseases, 2nd ed. Academic Press, London, UK.
23. Speirs, J. P., A. Anderson, and J. G. Anderson. 1995. A study of the microbial content of the domestic kitchen. Int. J. Env. Health Res. 5:109–122.
24. SS-EN 631–1. 1993. Materials and articles in contact with foodstuffs — catering containers, Part 1: Dimensions of containers. CEN, European Committee for Standardization, Brussels, Belgium.
25. Ståhl Wernersson, E., H. Håkanson, I. Lindvall, and C. Trägårdh. 2003. Hygiene in warewashers utilizing blasting granules that foodservice establishments use. Food Prot. Trends. 23(10):797–807.
26. Ståhl Wernersson, E., E. Johansson, and H. Håkanson. 2004a. Cross-contamination in dishwashers. J. Hosp. Inf. 56:312–317.
27. Ståhl Wernersson, E., E. Johansson, and H. Håkanson. 2004b. Granule-assisted dishwashing improves hygiene. Food Service Technol. 4:129–137.
28. Ståhl Wernersson, E., E. Johansson, and H. Håkanson. 2005. Dishwashing water quality properties, p. 112–115. In J. H. Lehr and J. Keeley (eds.), Encyclopedia of water, water quality and resource development, vol. 2. John Wiley & Sons, Inc., Hoboken, New Jersey.
29. Ståhl Wernersson, E., M. Jeppsson, and H. Håkanson. 2006. The effect of dishwater parameters on the survival of *Staphylococcus aureus* and vegetative cells and spores of *Bacillus cereus*. J. Foodservice. 17:111–118.
30. Tomlinson, A., and J. Carnali. 2007. A review for key ingredients used in past and present auto-dishwashing formulations and physico-chemical processes they facilitate, p. 197–255. *In* I. Johansson and P. Somasundaran (eds.), Handbook for cleaning/decontamination of surfaces, Elsevier B.V., Amsterdam, The Netherlands.

Katherine M.J. Swanson Elected as Secretary

The International Association for Food Protection welcomes Dr. Katherine M.J. Swanson to the Executive Board as Secretary. Dr. Swanson will take office at the conclusion of the Awards Banquet at IAFP 2009, the Association's 96th Annual Meeting in Grapevine, Texas. By accepting this position, Dr. Swanson has made a five-year commitment to the Association and will begin her term as President in 2013.

Dr. Swanson is Vice President of Food Safety at Ecolab Inc., where she identifies control strategies for emerging food safety concerns and assists customers with high level food safety issues. Prior to joining Ecolab in 2004, Dr. Swanson was Director of Global Product Safety at General Mills, responsible for microbiology, thermal process, toxicology, food allergen, and non-food premium support worldwide. As Director of Microbiology & Food Safety for The Pillsbury Company, Dr. Swanson restaged their world-class HACCP program to meet regulatory requirements around the world. She also developed food allergen training for R&D and operations, managed electronic specification systems, oversaw food quality audits, and developed corporate product quality management systems. Earlier in her Pillsbury career, Dr. Swanson conducted microbiological research on fresh and frozen vegetables, bakery products, canned foods, fish, and pizza. Prior to joining Pillsbury, Dr. Swanson was a senior microbiologist at 3M, where she developed food applications for innovative microbiological test methods. She was also an Assistant Professor of Food Microbiology at Cornell University.

With a long history of appointments on influential committees, Dr. Swanson has made significant contributions to food safety. She is a member of the International Commission on Microbiological Specifications for Foods (ICMSF), and chairs their editorial committee. As a seven-year member of the National Advisory Committee on Microbiological Criteria for Foods (NACMCF), Dr. Swanson contributed to reports on HACCP principles, Redefinition of Pasteurization, Safety-Based Shelf-Life Labeling, Fresh Produce, Sprouted Seeds, Evaluation of NSF Standard 75, Codex Pasteurized Milk Products, and others. Dr. Swanson is a Fellow of the Institute of Food Technologists (IFT) and completed a three-year term on the IFT Board of Directors in 2008. She served on the IFT Panel that addressed redefinition of Potentially Hazardous Foods, which shaped changes in the Food Code. Dr. Swanson also served on the Food and Drug Administration's Science Advisory Board, the Conference for Food Protection's Council III, and currently serves on the National Academy of Science's Standing Committee for the Review of Food Safety and Defense Risk Assessments, Analyses, and Data. Dr. Swanson has published and presented on food safety management, microbial ecology of vegetable and cereal products, norovirus, *Bacillus cereus*, and *Listeria monocytogenes*, and in the last five years alone has delivered over 50 invited presentations around the world.

Since joining in 1980, Dr. Swanson has enthusiastically served IAFP. She was on the *Journal of Food Protection* Editorial Board for eleven years (1988–99) and the Food Protection Trends Editorial Board for three years (2005–07). She was also an active member of the Organizing Committee for the very successful 2008 IAFP Latin America Symposium on Food Safety held in Campinas, Brazil. Dr. Swanson was a past jury member for the Black Pearl Award and has presented numerous papers at IAFP Annual Meetings.

Dr. Swanson received her B.S. degree in Dietetics from the University of Delaware, and her M.S. and Ph.D. degrees in Food Science from the University of Minnesota. She has received numerous awards, including the 2003 NFPA (now GMA) Food Safety Award and the 2008 National Center for Food Safety and Technology Food Safety Award.

International Association for Food Protection.

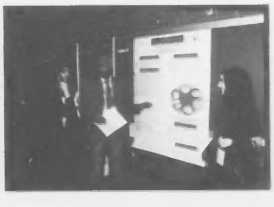
Fourth Dubai International Food Safety Conference

The Fourth Dubai International Food Safety Conference (DIFSC) took place over the dates of February 24 to 26 at the Dubai Convention and Exhibition Centre. Alongside of Gulfood Expo, DIFSC attracted more than 850 attendees this year. IAFP's involvement was more evident in its second year with the conference as more than half the speakers this year were IAFP Members. Many were invited by IAFP on behalf of DIFSC to give their presentations to the audience of food safety professionals.

DIFSC provides delegates with a good understanding of the current food safety issues, food safety management techniques and the best practices followed in the food industry. The Conference offers an excellent opportunity for industry professionals to meet with experts from around the world while acting as a platform to resolve food safety issues in the region while providing opportunities for students to learn about food safety.

At the Opening Session, IAFP President Stan Bailey and Executive Director David Tharp presented Mr. Hussain Nasser Lootah, Director General of the Dubai Municipality, with a plaque in recognition of and appreciation for the work carried forth in the area of food safety by the Dubai Municipality. The presentation also recognized the cooperative efforts of the Dubai Municipality and IAFP to protect the public health.

IAFP looks forward to continuing work with DIFSC organizers from the Dubai Municipality for program development of future conferences. This cooperative effort provides an excellent opportunity for IAFP to communicate directly with food safety professionals in the region while helping to identify leading food authorities for inclusion on the program. We look forward to our ongoing working arrangements with the Dubai International Food Safety Conference.



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An Ounce of Prevention

You've heard it before—an ounce of prevention is worth a pound of cure—but prevention is the proactive side of human resources administration that is often neglected and sometimes forgotten. Most business owners in the food services industry are so focused on what they do best that they forget about employment law compliance. Food services represent one of America's largest employers, so business owners must make it a point to know what compliance entails. Whether the business is manufacturing and packaging or catering and hospitality, employees have certain rights.

- The Family Medical Leave Act (FMLA) regulates and ensures protection of the employees' benefits and position while employees are on leave for qualifying events (such as the birth of a child). Documentation and confidentiality are essential, and the paperwork involved can be a challenge for a small business. While there are some very large companies in the food services industry, there are also thousands of smaller ones that can be daunted by the red tape.
- The Fair Labor Standards Act (FLSA) outlines classification of employee status. In other words, this is the law that sets the minimum wage and regulates overtime pay, recordkeeping and child labor. Again, food and beverage companies employ people of various ages and demographics. Regulations must be followed.

The cost of not protecting your company is far greater than the cost of taking measures before a problem arises. The 2004 Small Business Economy: Report to the President, from the Office of Advocacy of the Small Business Administration, says that in 2001, firms with fewer than 20 employees paid nearly 60% more to comply with federal regulations than their larger counterparts with more than 500 employees. Consider these facts:

- Non-compliance with FLSA regulations may cost the employer two years' back pay and liquidated damages. If the violation is determined to be willful, the fine can be up to three years in back pay.
- In 2003, companies paid out $236.2 million to the Equal Employment Opportunity Commission (EEOC) to settle charges of some kind of discrimination. (Compare this to 1993, when companies paid $126.8 million to settle charges.)

In addition, companies that do not follow Wage & Hour laws can face costly fines and penalties for not paying their employees correctly. This includes such areas as correct classification of employees (which determines whether an employee is entitled to overtime pay) and paying employees for breaks. One recent example of this involves Wal-Mart. In December 2008, Wal-Mart Stores Inc. agreed to pay as much as $54.25 million to settle a class-action lawsuit claiming that it forced its employees in Minnesota to work through their breaks without pay. If the lawsuit had continued into its penalty-setting phase in January, Wal-Mart could have faced up to $2 billion in punitive damages.[1]

To protect yourself from employment-related lawsuits, it is a good idea to educate your staff on Wage & Hour laws, sexual harassment, legislation and discrimination policies, and to distribute a legally-compliant employee handbook that outlines other federal and state policies and your expectations of your employees. You also need to be sure that your hiring managers are properly trained on these issues, and that they provide the appropriate training to their employees, when applicable, to avoid any fines, penalties and/or employment-related lawsuits. These preventive measures can help reduce the risk of fines—and ultimately costs—for your business.

Verification is Crucial

Although keeping abreast of federal and state regulations is an excellent way to prevent employment-related lawsuits, business owners in the food services industry must also take steps to prevent penalties and fines associated with failure to complete new hire paperwork correctly. Non-compliance can lead to big problems for small business owners in this industry. Whether it is food service contracting, distilleries or equipment, the consequences are serious.

When hiring, it is imperative to ensure that you are hiring people who are eligible to work in the United States; otherwise, your company may face penalties and fines for employing illegal workers. In December 2008, IFCO Systems North America, the nation's largest pallet management services company, agreed to a $20.7 million settlement of claims alleging that they had knowingly hired illegal aliens. This settlement agreement resolves only the corporate liability and does not encompass pending criminal cases against IFCO managers and employees. The settlement also includes $2.6 million in back pay and penalties relating to overtime violations under the Fair Labor Standards Act. IFCO also agreed to enroll in and use E-Verify for all new hires companywide.[2]

Under the Immigration Reform and Control Act of 1986, employers must review original documents required for employment authorization validation and record

that information on an I-9 form. Completing an I-9 form incorrectly can lead to fines, so employers must ensure that it is done correctly. Fortunately, this process has become more efficient today with the help of the federal government's introduction of the E-Verify program.

The E-Verify process is initiated by entering the I-9 data for newly-hired or contract employees into the federal government's database, which consists of the Social Security Administration (SSA) database information and the Department of Homeland Security (DHS) database information. The data submitted is checked against the SSA database first and then routed to the DHS database for any inconsistencies. If any discrepancy is triggered, the employee is allowed to contest it and investigate it with a representative of SSA or DHS (wherever the discrepancy surfaced) to seek resolution.

State E-Verify Requirements

The voluntary use of E-Verify is available to employers in all states; however, some states have made it a requirement. The State of Arizona was the first to pass legislation, The Arizona Legal Worker's Act, on January 1, 2008, making participation for all employers mandatory. Other states and the federal government have followed suit with E-Verify legislation. States have varying requirements that mandate specific employer groups (e.g., government and state contractors, public employers, all employers) to participate. Some state requirements currently in force are:

Colorado

- All state contractors and political subdivisions of the state are required to use E-Verify.
- Political subdivisions of the state are required to use E-Verify.

Georgia

- Public employers are required to use E-Verify.
- All state contractors with 100 or more employees are required to use E-Verify.

Minnesota

- All hiring authorities within the Executive branch of state government are required to use E-Verify.
- State contractors with contracts in excess of $50,000 are required to use E-Verify.

Mississippi

- All state agencies are required to use E-Verify.
- All state contractors are required to use E-Verify.
- All private companies with 250 or more employees are required to use E-Verify.

Missouri

- All state agencies and local governments are required to use E-Verify.
- All state contractors with contracts in excess of $5,000 are required to use E-Verify.
- Employers who receive state loans, tax abatement, or state-administered or subsidized tax credits are required to use E-Verify.
- Voluntary use is permitted for all others and serves as an affirmative defense to allegations of hiring unauthorized aliens.

North Carolina

- All State agencies, offices and universities are required to use E-Verify.

Oklahoma

- All state and local agencies are required to use E-Verify.
- All state contractors are required to use E-Verify.

Rhode Island

- All state agencies and departments within the Executive branch of State government are required to use E-Verify.
- All contractors and companies doing business with the State are required to use E-Verify.

South Carolina

- All public employers and public contractors with 500 or more are required to use E-Verify.

Tennessee

- Voluntary use of E-verify shields employers from sanctions if they use E-verify within 14 days of employment.

Use of E-Verify provides employers with a defense in that using this process and getting an employment authorization approval indicates that they did not knowingly hire an illegal worker.

E-Verify's Program Benefits for Employers and Employees include:

- Reduction in unauthorized employment.
- Elimination of Social Security mismatch letters.
- Minimized verification-related discrimination.
- Helping US employers maintain a legal workforce.
- Improved accuracy of wage and tax reporting.
- Protection of jobs for authorized US workers.
- Protection of civil liberties and employee privacy.

Making sure that your employees' new hire paperwork is completed accurately is just the beginning. There are many hidden minefields in employment law, and employers are not always aware of how much liability is truly involved. Discrimination, harassment, retaliation charges and Wage & Hour violations can cause a company damages that may take years to resolve.

For additional guidance on these and other employment-related guidelines, you may wish to retain an attorney who specializes in employment law or consult with a professional employer organization.

1. Steve Alexander, "Wal-Mart to pay $54 million to settle suit over unpaid work," Star Tribune, December 10, 2008, http://www.startribune.com/business/35819094.html?elr=KArksUUUU, accessed on December 10, 2008.
2. David C. Whitlock, "Record Worksite Enforcement Settlement Sends Message to Employers of Illegal Aliens," Littler Employment & Labor Law Solutions Worldwide,™ December 2008, http://www.littler.com/PressPublications/Lists/ASAPs/DispASAPs.aspx?id=1317, accessed in December 2008.

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Amit Morey
Auburn University
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Jackson County Environmental Health Division
Independence

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WISCONSIN

Joanne Ruebl
Cherney Microbiological Services
Green Bay

WHAT'S HAPPENING IN FOOD SAFETY

Young 'Disease Detectives' Learn Lesson in Preventing Infectious Disease

Dr. David Butler-Jones, Canada's chief public health officer, has launched an educational program designed to help students learn about foodborne illnesses, how they're caused and how to prevent the risk of infection.

Students in a Grade 5 Winnipeg classroom became junior epidemiologists, or 'disease detectives,' in a mock outbreak of a mysterious illness causing many of their schoolmates to miss school. Through interactive play and online activities, Buffet Busters invites students to search for clues and uncover the cause of the illness, how it was transmitted, and how to prevent it. In the process, students learn how safe food-handling practices at home can prevent the spread of disease.

"Creating healthy habits and practicing safe food handling starts at an early age. These students are learning an important lesson about the causes of food contamination and how to protect themselves and their families against infectious disease," said Dr. Butler-Jones. "This initiative shows how collaboration between the federal and provincial governments, health experts and educators can lead to the creation of innovative public health tools and resources that contribute to better health for Canadians and for our communities."

Developed to complement the Grade 5 curriculum on the maintenance of good health, Buffet Busters teaches kids how to protect themselves and others against foodborne diseases.

The Buffet Busters education program includes a teacher's guide, four animated outbreak scenarios and three classroom activities. Buffet Busters was developed by the Public Health Agency of Canada's National Microbiology Laboratory in consultation with the US Center for Disease Control and Prevention, education consultants, educators and students in Manitoba.

For more information on Buffet Busters educational program, visit the Web site at www.buffetbusters.ca.

FDA Issues Guidance on Safe Production of Foods Containing Peanut-derived Ingredients

The US Food and Drug Administration's (FDA) Center for Food Safety and Applied Nutrition (CFSAN) has issued guidance to the food industry advising manufacturers that peanuts and peanut-derived products used as food ingredients pose a risk of *Salmonella* contamination, and recommending measures that manufacturers can take to address that risk for peanut-derived products received from their ingredient suppliers and for the products they themselves produce. CFSAN also issued a companion bulletin to operators of food-service establishments and retail food stores that offer food products containing peanuts and peanut-derived ingredients.

The guidance recommends that manufacturers obtain their peanut-derived ingredients only from suppliers who use production processes that have been demonstrated to adequately reduce the presence of *Salmonella*, or that they ensure that their own manufacturing process would adequately reduce the presence of *Salmonella*. The guidance provides information that manufacturers should consider in evaluating their processes.

The bulletin asks retail and food service operations to work with their suppliers to ensure that all peanut-derived products used as ingredients or sold as food have been manufactured and packed in accordance with current good manufacturing practice requirements. Retail and food service operations should take steps to ensure that their suppliers use production processes that have been demonstrated to adequately reduce the presence of *Salmonella* and should work with their suppliers to ensure that all peanut-derived products used as ingredients or sold as food are not subject to an on-going product recall.

The guidance and bulletin are being issued in the midst of a large, ongoing, multi-state outbreak of consumer illness associated with consumption of food products containing peanut-derived ingredients produced by a single peanut processor. FDA will accept public comments on the guidance. Both the guidance and bulletin were posted on FDA's Web site (Peanut-Derived Product Guidance, and Peanut-Derived Product Bulletin) and are scheduled to be published soon in the Federal Register.

FDA is aware that the Grocery Manufacturers Association (GMA), collaborating with other food industry organizations in a *Salmonella* Control Task Force, has recently published an industry guidance document concerning programs to control *Salmonella* and help ensure the safety of low-moisture food products. Manufacturers that use a peanut-derived product as an ingredient in a food product may find GMA's document useful. FDA is not responsible for the content of GMA's document.

Appointment of Margaret Hamburg to Lead FDA Lauded by Governor Lowell Weicker

The following is a statement by Governor Lowell Weicker, Jr., former governor and three-term US Senator from Connecticut, and President of the Board of the Trust for America's Health (TFAH) on the appointment of Margaret A. (Peggy) Hamburg, MD, to serve as Commissioner of the Food and Drug Administration (FDA). Dr. Hamburg has served as a TFAH Board Member for the past five-and-a-half years.

With this selection, the President is sending a strong signal that the public's health and safety will be the top priorities of the nation's largest regulatory agency. Dr. Hamburg has the expertise and judgment needed for this challenging position, and the American people should rest assured that she will always act in their best interests and that her decisions will be grounded in science and evidence.

Dr. Hamburg is widely recognized as one of the nation's leaders in public health and medicine. Her commitment to fighting health threats, ranging from tuberculosis, HIV/AIDS, bioterrorism, foodborne illnesses, and other infectious diseases, is world renowned.

Dr. Hamburg is also a proven manager, having turned around an ailing and under-resourced health department in New York City, where she restored both morale among workers and the agency's credibility among its citizens.

As top policy advisor to the US Secretary of Health and Human Services during the Clinton Administration, Dr. Hamburg helped craft and implement forward-thinking policies on a wide range of health concerns. She has shown that she can reach across party lines, having worked for both Democratic and Republican mayors in New York City, and across segments of government, industry, and a wide range of community groups.

FDA Warns Consumers about Potentially Contaminated Cheese

The US Food and Drug Administration is warning consumers not to eat Queso Fresco Fresh Cheese Mexican style soft cheese (two specific lots) or any Queso Cotija Molido Mexican style grated cheese manufactured and distributed by Peregrina Cheese Corp. of New York City. These products could be contaminated with *Listeria monocytogenes*, an organism which can cause serious and sometimes fatal infections in pregnant women, young children, frail or elderly people, and others with weakened immune systems.

Although healthy individuals may suffer only short-term symptoms such as high fever, severe headache, stiffness, nausea, abdominal pain and diarrhea, *Listeria monocytogenes* infection can cause miscarriages and stillbirths among pregnant women. Consumers who may have recently consumed these products and have these symptoms should contact their health care providers.

No illnesses are known to be associated with the products at this time. The company is recalling certain products based on sampling and analysis by the FDA that detected *Listeria monocytogenes* in some of the samples.

The company is recalling two lots of its Queso Fresco Fresh Cheese Mexican style soft cheese and one lot of its Queso Cotija Molido Mexican style grated cheese.

The Queso Fresco Fresh Cheese comes in a 14-ounce foil wrapped packages marked with lot number 4469 or 4477 affixed to each package on a white sticker and bearing UPC number 8 17424 00024 6 and Plant # 36-8431.

The Queso Cotija Molido Cheese comes in 15-ounce clear plastic bags that are marked with UPC number 8 17424 00027 7 and Plant # 36-1388, but do not contain a lot number or production date.

Both products were distributed to retail stores in the New York City boroughs of Brooklyn, Queens, Bronx and Manhattan, and two towns in Pennsylvania (Scranton and Hazelton) in early February. The company has contacted all its customers and instructed them to destroy all affected products in their inventory.

Consumers who purchased any of the products are urged to discard them immediately. Although the FDA detected *Listeria monocytogenes* in only one production date of Peregrina Cheese Corporation's Queso Cotija Molido Cheese, the agency is urging consumers to discard all of these products because they do not contain a lot code or production day code to

allow consumers to distinguish between a product that is of concern and a product that is not of concern.

Joy Gaze of Campden BRI Receives 2009 GMA Food Safety Award

Robert Brackett, chief science officer of the Grocery Manufacturers Association (GMA) has announced that Joy Gaze of Campden BRI is the 2009 recipient of the GMA Food Safety Award.

"On behalf of GMA and its members, I wish to congratulate Ms. Gaze for being named the recipient of the 2009 GMA Food Safety Award," said Dr. Brackett. "Through her considerable work and accomplishments in food safety research and education, she has made a tremendous contribution to improving the safety of our food supply."

Ms. Gaze is an internationally recognized expert in the field of thermobacteriology. Through her work at Campden, she has trained thousands of industry personnel from all around the world in safe manufacturing practices for food and beverage products. She has conducted research and published heat process recommendations in relation to the inactivation of foodborne pathogens; safe manufacturing recommendations for the preparation, packing, processing and cooling of pasteurized, sterilized and aseptically produced foods; along with basic information on pasteurization, spore heat resistance, food preservation factors and their effects on key pathogens.

Her research on vegetative cell and endospore thermal resistance yielded established thermal processes such as the 70°C for 2 minute process used to ensure a 6-log reduction of *Listeria monocytogenes* and the 90°C for 10 minute process used to ensure a 6-log reduction of *Clostridium botulinum*.

The GMA Food Safety Award honors those individuals or organizations who have demonstrated a longstanding commitment to improving the safety of food. The recipient of this award must possess at least 10 years of service in the food safety arena and have successfully demonstrated sustained contributions in research, education and information transfer. In addition, the recipient must display innovative and effective strategies to promote a safer food supply while solving significant food safety problems.

Bettcher Industries Appoints New President

Bettcher Industries, Inc. announces several significant organizational changes in the long-planned executive management succession for the company. Mr. Don Esch has been appointed to the position of president and chief operating officer of Bettcher Industries. Mr. Esch, who had served as executive vice president, succeeds Larry Bettcher in this role. Mr. Bettcher remains chairman and chief executive officer of the company.

During his eight-year tenure at Bettcher Industries, Mr. Esch has spearheaded the company's significant sales growth and its expansion into overseas markets – particularly Brazil and China where new subsidiary companies have now been established. He has also played a key role in several strategic acquisitions made by the company in recent years.

Prior to joining Bettcher Industries, Mr. Esch held executive leadership positions at ImagePoint, APV Baker (a division of Invensys), and Leggett & Platt, Inc. He holds an undergraduate degree in economics from Albion College and an MBA degree from the University of Oklahoma's Price School of Business.

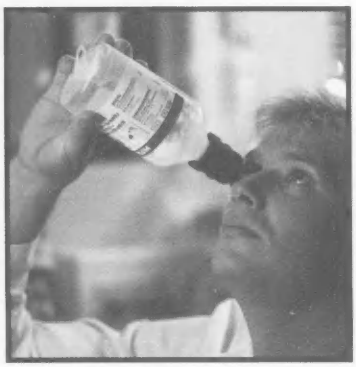
Succeeding Mr. Esch in the sales and marketing portion of his former role is David Quebbemann. Mr. Quebbemann joins Bettcher Industries from OMRON Corporation.

Mr. Quebbemann holds an undergraduate degree in mechanical engineering from the University of Wisconsin at Madison and an MBA degree from DePaul University's Charles H. Kellstadt Graduate School of Business.

Brenner Named Vice President of Sales for Eagle's Foodservice Division

The Eagle Group is pleased to announce that Mark Brenner has been promoted to the position of vice president of sales for the food service division.

Commenting on the appoint of Mr. Brenner to vice president, Larry McAllister, Eagle's president said "Mark has been with Eagle for over 11 years and is a 37-year veteran of our industry. He brings a vast background and a wealth of experience to this position."



Weber Scientific

Weber Scientific First to Offer Innovative Plum® Emergency Eye and Skin Wash Product Line

Weber Scientific will become the first American distributor to offer an innovative line of emergency eye and skin wash products manufactured by the Danish company Plum Skin Safety. The line is distinguished by several state-of-the-art features, including a pH-neutralizing rinsing solution; flexible, ergonomic eye cups; and sterile, pre-filled wash bottles designed to ensure effective rinsing and minimize waste. The bottles require no routine maintenance or cleaning and meet all US federal regulations.

The line will be available to American distributors through Bel-Art Products.

"Plum products, including the pH-neutralizing eye and skin washes, have been available in Europe for over ten years and we are excited to introduce these products to the American market," said Bel-Art Product Manager Robert N. Petersen.

Eye and skin injuries caused by corrosives and/or debris are often serious and can cause damage rapidly. In the case of an accident that could cause temporary or permanent damage, instant access to fast and effective emergency eye and skin wash is crucial. Whether a workplace carries the risk of injury from debris, chemicals, or both, there is a Plum product to meet these needs.

"According to the US Bureau of Labor Statistics, over 36,000 non-fatal eye injuries resulting in days away from work occur each year at the workplace. Being safe means being prepared. Installing Plum emergency eye and skin washes in your workplace demonstrates your commitment to safety," said Mr. Petersen.

One of the line's most cutting-edge features is the availability of two different types of rinsing solution. The first solution is sterile 0.9% sodium chloride, or saline, which is standard in traditional eye washes. This solution corresponds to the eye's natural fluid to gently wash away particulate debris.

While saline solution is an effective rinse for a debris-related injury, it does little to restore pH, which may be dangerously altered in an accident involving acids, alkalis or chemicals. For this reason, Plum also offers a sterile 4.9% buffered phosphate solution that rapidly neutralizes acids and alkalis to restore the eye's natural pH. It is the only emergency rinsing solution of its kind in the world. The pH-neutralizing solution has been proven to completely restore the eye's pH in 20 seconds or less, while rinsing with classic saline solution makes only minor changes in pH after 45 seconds. These few seconds can make the difference in preventing chemicals from penetrating the cornea and permanently impairing vision.

Another unique feature is the built-in eye cup on each eye wash bottle. Flexible and form-fitting, the eye cup has many elements that ensure gentle and effective rinsing, including: ergonomic design to keep eyelid open during use; control-flow nozzles for efficient rinsing and less waste; drain holes to lead fluid and debris away from the eye during rinsing; color-coding to indicate solution type; dust cap to ensure cleanliness; and molded-in arrows that indicate direction to twist open. Bottles come in 200 and 500 ml sizes and can be stored in wall-mountable stations or used on their own in vehicles, toolboxes or first aid kits.

Like the eye wash bottles, the Plum emergency shower bottle has several features to ensure its effectiveness. The 1000 ml bottle is pre-filled with pH-neutralizing solution and equipped with a special wide-pattern spray nozzle that distributes liquid rapidly and evenly over a large area of the body. The hand-held bottle allows the user to control solution flow and rinse designated areas of the skin, unlike fixed emergency showers that soak the entire body.

Innovatively designed, easy to use and low-maintenance, Plum emergency eye and skin wash products are an important addition for increased safety in the workplace. For workplaces with fixed emergency wash stations, the one-of-a-kind pH-neutralizing solution is an excellent complement to the existing saline or water wash.

Weber Scientific
800.328.8378
Hamilton, NJ
www.weberscientific.com

Be sure to mention, "I read about it in *Food Protection Trends*"!

DuPont Qualicon Releases New BAX® System Assay for Rapid *Vibrio* Detection

A new BAX® system assay from DuPont Qualicon can be used by seafood processors and government laboratories to detect *Vibrio* in less than 24 hours. The BAX® system Real-Time PCR Assay for *Vibrio* detects even low levels of three distinct species — *V. cholerae*, *V. parahaemolyticus* and *V. vulnificus* — from the same sample.

Tested on shrimp, tuna, oysters, scallops and crab, the BAX® system delivers reliable, differentiated results in less than one day, and its performance is equivalent to or better than the reference culture method, which typically takes three to five days.

"DuPont Qualicon is constantly finding ways to make food testing faster, more accurate and more convenient," said Michael Chong, Asia Pacific business manager – DuPont Qualicon. "A 20-hour test for *Vibrio* will certainly improve operational efficiencies for seafood companies. And that will allow them to make product release decisions more quickly and with confidence."

Vibrio are bacteria typically found in saltwater and unsanitary drinking water, and several species are pathogenic in humans. Consumption of contaminated raw or undercooked shellfish, such as oysters, mussels, clams and scallops, can cause foodborne illness. Open wounds that are exposed to contaminated seawater can also become infected and lead to septicemia, especially in people with liver disease. Over 180,000 people worldwide became ill from *V. cholerae* infections in 2007, and the current cholera outbreak in Zimbabwe has already caused more than 60,000 illnesses and 3,100 deaths.

Food processing companies around the world rely on the BAX® system to detect pathogens or other organisms in raw ingredients, finished products and environmental samples. The automated system uses leading-edge technology, including polymerase chain reaction (PCR) assays, tableted reagents and optimized media to also detect *Salmonella*, *Listeria monocytogenes*, *E. coli* O157:H7, *Enterobacter sakazakii*, *Campylobacter*, *Staphylococcus aureus*, and yeast and mold. With certifications and regulatory approvals in the Americas, Asia and Europe, the BAX® system is recognized globally as the most advanced pathogen testing system available to food companies.

DuPont Qualicon
800.863.6842
Wilmington, DE
www2.dupont.com

New Basic-Air™ from Hardy Diagnostics

The new Basic-Air™ is an accurate and affordable "active" microbial air sampler with only the basic features. The Basic-Air™ was designed for users that don't need all the expensive advanced features that some air samples have, such as connectivity to barcode, plate spinning, or duplicate simultaneous testing capability. The Basic-Air™ utilizes standard 60 mm or 90 mm agar plates which are inexpensive and readily available from Hardy Diagnostics. Each unit comes with a 90 mm plate holder and cover. The unit features a delayed activation mode to avoid the collector from accidentally contaminating the air sample. The air is sampled by volume (not timed) for higher accuracy and reproducibility. The Basic-Air™ sampler is battery operated and rechargeable (8 hours of operation per charge). Air volume is adjustable and can be set from a sample size of 0 to 9,999 liters at an air flow rate of 100 l/min.

Hardy Diagnostics
800.266.2222
Santa Maria, CA
www.HardyDiagnostics.com

bioMérieux Receives AOAC Research Institute Performance Tested Methods℠ Certification for High Performance VIDAS® Easy SLM (*Salmonella*) Test

The AOAC Research Institute (RI), a subsidiary of AOAC INTERNATIONAL, granted Performance Tested Methods℠ certification to bioMérieux for VIDAS® Easy SLM (*Salmonella*). The test is a rapid, automated solution that requires fewer steps than traditional methods for *Salmonella* testing. bioMérieux also submitted the VIDAS Easy SLM (*Salmonella*) to the recently launched AOAC RI Emergency Response Validation (ERV) program for *Salmonella* contamination in peanut butter.

"In hectic times of product contamination and recalls, we formed the ERV Program to rapidly evaluate and certify investigative methods," said Scott G. Coates, managing director of AOAC Research Institute. "We are very pleased that bioMérieux has taken the next step in commitment to total quality by participating in the ERV program for *Salmonella* contamination in peanut butter."

VIDAS Easy SLM (*Salmonella*) provides a simple solution for detection of *Salmonella* species in a variety of foods. VIDAS Easy SLM (*Salmonella*) is an assay test that reduces hands-on technician time, materials and provides a faster turn-around-time versus conventional methods. When selected and utilized as the preferred method, the VIDAS technology has been proven to detect the targeted pathogen.

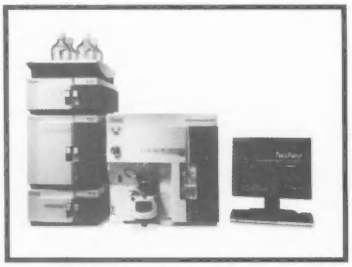
"We are deeply saddened by the illnesses and deaths that have been associated with the recent *Salmonella* outbreaks," said Herb Steward, executive vice president and general manager, bioMérieux North America. "bioMérieux has been proactively working with food industry experts, including the AOAC, to reinforce emergency response programs and to drive quality control and food safety initiatives."

The ERV program is based on the Performance Tested Methods℠ (PTM) program operated by the AOAC Research Institute. The ERV program takes advantage of the existing pool of PTMs and AOAC Official Methods of Analysis℠. The ERV program is designed to evaluate these previously AOAC-approved methods for the specific contaminant and food type causing the crisis, in this case *Salmonella* species in peanut butter products.

bioMérieux
800.638.4835
Hazelwood, MO
www.biomerieux.com

Thermo Fisher Scientific Introduces Complete LC/MS/MS Food Safety Testing Solution

Thermo Fisher Scientific Inc., has announced a complete food and environmental safety testing solution



Thermo Fisher Scientific Inc.

designed to help laboratories meet increasingly stringent monitoring requirements, simplify analysis and boost productivity. The Thermo Scientific workflow solution features the TSQ Quantum Access MAX™ triple-stage quadrupole mass spectrometry system and TraceFinder™ software, which comes with preconfigured methods.

The unique ability of this system to perform structural confirmation and library matching enables it to confirm and quantitate hundreds of compounds in a single experiment, dramatically increasing sample throughput and lowering cost per sample.

"TraceFinder software provides food and environmental laboratories with the tools to react quickly to the need to detect new contaminants in the food supply," said Dipankar Ghosh, strategic marketing manager for environmental and food safety solutions at Thermo Fisher Scientific. "The built-in methods database reduces method development time from hours or days to minutes by providing optimized conditions for analytes."

The new TSQ Quantum Access MAX mass spectrometer (MS) is based on the proven TSQ Quantum triple-stage quadrupole platform and features a mass range of m/z 10 to 3,000. The system can perform up to 3,000 highly selective reaction monitoring (H-SRM) acquisitions, enabling a higher tolerance for precursor ion selection for quantitative assays. This provides increased analyte selectivity, resulting in lower limits of detection as well as improved precision and accuracy. Only Thermo Scientific high-precision hyperbolic quadrupoles can perform H-SRM without any significant loss in transmission. The selectivity provided by H-SRM, followed by quantitation-enhanced data-dependent MS/MS (QED-MS/MS), provides uncompromised quantitative performance at low levels as well as unequivocal structural confirmation.

The TSQ Quantum Access MAX also delivers twice the sensitivity of its predecessor due to the new heated electrospray ionization probe, the HESI-II. A further boost to productivity comes from another new feature – the instrument's high-speed positive/negative switching at better than 25 ms, which enables multi-residue screening in a single analytical run.

TraceFinder's extensive menu of preconfigured methods and report formats makes screening for routine contaminants a simple process, even for novice users. The software's simple point-and-click interface prompts the user through the steps to create methods for targeted screening and quantitation: choose the test, build the sample list, choose the report options and submit the samples for analysis. Users access the built-in selective reaction monitoring (SRM) library and choose the liquid chromatography/mass spectrometry conditions to create the desired method. The sample is then analyzed and a report

is created based on the selected report template.

TraceFinder also offers improved data security with a rights-based user log-in system that limits access to methods and data. This ensures that data is not compromised and that changes are clearly recorded. TraceFinder supports both English and Chinese languages, and will soon support Japanese.

Thermo Scientific, Inc.
800.532.4752
Waltham, MA
www.thermo.com

Biolog Launches MicroStation™ Version of Its Revolutionary GEN III Microbial Identification System

Biolog, Inc. has announced the release of its GEN III MicroStation System. The new GEN III System is built around a single test panel that can be used to identify both Gram-negative and Gram-positive bacteria. The GEN III System employs a simple one-minute setup protocol with no preliminary or off-line testing. Most phenotypic ID systems require multiple preliminary tests such as a Gram stain and oxidase or catalase tests in order to choose the appropriate test panel. Elimination of preliminary test requirements as well as a simple one minute set-up procedure saves time and makes training of new staff on bacterial identification far easier. Furthermore, the new system has a much larger database compared to other test kits. The GEN III System can identify 1,044 species whereas other phenotypic systems identify only about 300.

The much larger database is an important feature to Biolog's customers, who work in diverse disciplines of microbiology. Another major benefit is that the new system is fully compatible with previous Biolog systems, even those that have been in the field now for 20 years. This allows Biolog's customer base to quickly and easily upgrade. Biolog has also announced the release of an updated database for filamentous fungi with updated nomenclature and an expanded photo library. Using GEN III in conjunction with Biolog's other microbial identification databases, over 2,200 species of bacteria, yeast and filamentous fungi can be identified quickly, easily, and accurately.

Biolog, Inc.
800.284.4949
Hayward, CA
www.biolog.com

MicroBioLogics® EZ-CFU™ One-Step Lyophilized Microorganism Preparations for Growth Promotion Testing Offer 8 Hours of Stability

MicroBioLogics, Inc. has announced that after a thorough study and validation process, the MicroBioLogics Research and Development Team has confirmed that their EZ-CFU™ One Step product line will perform to its specifications for up to 8 hours after hydration, if the suspension is refrigerated between use. Previously the product, designed specifically for pharmaceutical QC Laboratories performing Growth Promotion Tests, had to be used within 30 minutes of hydration.

EZ-CFU™ One Step lyophilized microorganism preparations are manufactured to deliver less than 100 Colony Forming Units (CFU) per 0.1 ml of hydrated suspension, which meets the requirements for Growth Promotion Testing of Media under the USP Guidelines (USP 32 Chapter <61>).

MicroBioLogics Industrial products manager, April Miceli, states, "We're always looking for ways to improve our products to better suit our customers' needs. Now that EZ-CFU™ One Step offers up to 8 hours of stability, our customers can really save a lot of time and money." Miceli adds, "The added value of this product is important at a time when laboratories continue to be challenged with stringent regulatory requirements and shrinking budgets."

MicroBioLogics manufactures EZ-CFU™ One Step in nearly 40 different microorganism strains, all derived from well-known culture collections including ATCC®, NCTC and NCIMB.

MicroBioLogics, Inc.
320.229.7058
St. Cloud, MN
www.MicroBioLogics.com

IVAN PARKIN LECTURE

Navigating Food Safety through Times of Economic Chaos: A Call to Action

SUNDAY, JULY 12
6:00 P.M. - 7:30 P.M.

Dr. Paul A. Hall

AIV Microbiology and Food Safety Consultants, LLC
Hawthorn Woods, Illinois

Dr. Paul A. Hall is the President and Chief Operating Officer for AIV Microbiology and Food Safety Consultants, LLC, a company dedicated to providing an array of food safety solutions for the global food and beverage industry. Dr. Hall is also on the Board of Directors of Purfresh, Inc., the leading provider of sustainable clean technology solutions for food and water including advanced ozone-based applications for cold storage and disinfection.

During his professional career, Dr. Hall has held a number of positions in the food industry, including Vice President of Global Food Safety for ConAgra Foods, and the position of Vice President of Global Business Development for Matrix MicroScience, Inc., a leading technology company that focuses on the concentration, capture, and detection of foodborne pathogens and spoilage organisms.

Dr. Hall also had a seventeen-year career with Kraft Foods where his last position was Chief Microbiology and Food Safety Officer for Kraft, Global. Dr. Hall has also held positions as a Microbiology Manager in Corporate Research and Development for Anheuser Busch Companies, Inc. and in Central Research for Ralston Purina Company, both in St. Louis, MO. He is Past President of the International Association for Food Protection and has been actively involved with various professional organizations and institutes, including the International Life Sciences Institute, the University of Georgia Center for Food Safety, the American Society for Microbiology, the Institute of Food Technologists, the Grocery Manufacturers' Association, and the International Dairy Foods Association, among others. He serves on the editorial boards of the *Journal of Rapid Methods and Automation in Microbiology* and *Food Safety Magazine*.

Dr. Hall holds a bachelor's degree in Microbiology from the University of Missouri-St. Louis, a master's degree in Technology Management from Washington University, and a Ph.D. in Quality Management from LaSalle University. He has lectured extensively around the world on microbiological food safety, HACCP, rapid testingand detection methods, and microbiological risk management.

Dr. Hall was the recipient of IAFP's prestigious 2006 Harold Barnum Industry Award for excellence in leadership and contributions to the area of microbiological food safety for the industry and in 2007 he was inducted as a Fellow of IAFP.

JOHN H. SILLIKER LECTURE

The 2008 Irish Dioxin Crisis: A Public Health, Food Safety, Economic, Legal, or a Risk Communication Challenge?

WEDNESDAY, JULY 15
4:00 P.M. - 4:45 P.M.

Dr. Patrick Wall

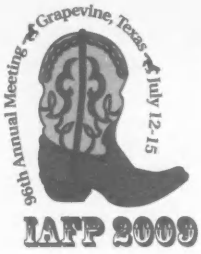
University College Dublin
School of Public Health and Population Sciences
Belfield, Ireland

Dr. Patrick Wall is Associate Professor of Public Health in University College Dublin's School of Public Health and Population Sciences which hosts the National Nutrition Surveillance Centre. His research interests include food safety, foodborne diseases, lifestyle-related diseases and health damaging consumer behaviour. He is a co-director of the UCD Centre for Behaviour and Health.

Dr. Wall was the first Chief Executive of the Irish Food Safety Authority (FSAI) and contributed to the setting up of this science-based consumer protection agency created partly in response to the BSE crisis. He has just completed a term as the Chairperson of the European Food Safety Authority, a pan EU Agency with a remit in risk assessment and communication. Dr. Wall was one of seven non-Chinese nationals on the committee advising on food safety arrangements for the 2008 Beijing Olympics. He was a member of the crisis management team convened to deal with the recent Irish dioxin contamination incident. He is a member of the Ireland's Healthy Eating Guidelines Steering Committee and is the Chairperson of the Irish Government's CJD Advisory Committee.

Dr. Wall is the Chairperson of the UK Food Standards Agency's (FSA) Advisory Body for the Delivery of Official Controls which is currently overseeing the transformation of the UK Meat Hygiene Service.

In addition to qualification in veterinary and medicine from University College Dublin and the Royal College of Surgeons, Dr. Wall has an MSc in Infectious Diseases from the University of London and an MBA. He is a Diplomat of the European College of Veterinary Public Health and a Fellow of the UK Faculty of Public Health Medicine.



IAFP 2009 SPECIAL CONTRIBUTORS

BD

DUPONT

NSF

BIOMÉRIEUX INDUSTRY

IAFP FOUNDATION

QAI Quality Auditing Institute Ltd

BIO-RAD

JohnsonDiversey
Clean is just the beginning

SDI
Strategic Diagnostics Inc.

Cargill

KRAFT

Springer
the language of science

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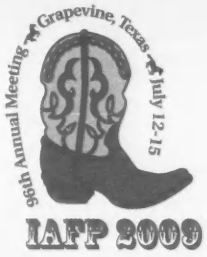
Weber Scientific



PRELIMINARY PROGRAM

SUNDAY, JULY 12

Opening Session – 6:00 p.m. – 7:30 p.m.

Ivan Parkin Lecture – *Navigating Food Safety through Times of Economic Chaos: A Call to Action*, Dr. Paul A. Hall, AIV Microbiology and Food Safety Consultants, LLC, Hawthorn Woods, Illinois

MONDAY, JULY 13

All Day – 10:00 a.m. – 6:00 p.m.

Poster Session

P1 Meat and Poultry, Pathogens, Seafood, and Education

Morning – 8:30 a.m. – 12:00 p.m.

Symposia

S1 ICMSF Symposium on International Developments in Food Safety
S2 Sterilant Gas Decontamination of Food and Environments and Emerging Technologies
S3 Harnessing Irradiation for the Marketplace Today
S4 Epidemiological Trends of Noroviruses

Roundtables

RT1 Public Health Decision Making – A Character Building Exercise
RT2 Selling Food Safety to Employees: Creating a Fully Functioning Food Safety Culture in Retail Grocery and Foodservice Operations

Technical Session

T1 Dairy, General Microbiology, and Sanitation

Afternoon – 1:30 p.m. – 5:00 p.m.

Symposia

S5 Pathogen and Spoilage Persistence in the Processing Environment and Food Products: Where, Why and How We Know
S6 Zapped! Optimizing the Consumer Experience of Microwave Cooking through Labeling, Infrared Thermography, and Validation
S7 *Listeria monocytogenes* Controls from Local to Global – Are They Working?
S8 The Effect of Climate Change on Food Availability and Safety
S9 Tracking and Tracing Technologies – Do You Know Where Your Steak and Tomatoes Come From?
S10 International Food Protection Issues: Overview and Global Commodity Trade

Technical Sessions

T2 Antimicrobial, Seafood, and Non-microbial Food Safety
T3 Applied Laboratory Methods

TUESDAY, JULY 14

All Day – 10:00 a.m. – 6:00 p.m.

Poster Session

P2 – Risk Assessment, Applied Laboratory Methods, Novel Laboratory Methods, Toxicology, Water, Sanitation, and Microbial Spoilage

Morning – 8:30 a.m. – 12:00 p.m.

Symposia

S11 Foodborne Disease Outbreak Update: *Campylobacter* in Fresh Peas, *Salmonella* Schwarzengrund in Pet Food, *Salmonella* Saintpaul in Tomatoes/Peppers
S12 Attribution of Foodborne Illness/Disease
S13 Best Practices for Cleaning and Validation
S14 Enhancing Oyster Safety through *Vibrio* Control Plans
S15 Less Recognized and Underappreciated Foodborne Pathogens – No Crystal Ball for the Next Big Bug

Technical Sessions

T4 Education and Novel Laboratory Methods
T5 Produce

Afternoon – 12:15 p.m. – 1:00 p.m.

IAFP Business Meeting

Afternoon – 1:30 p.m. – 5:00 p.m.

Symposia

S16 Facing a Persistent Challenge: *Salmonella* Control in Low-Moisture Foods
S17 Food Safety in Global Food Trade
S18 Looking for Thresholds: A Multi-Disciplinary "Key Events" Approach
S19 Round Up Your Pathogen Plan: Enrichment, Sample Preparation and the Legal and Social Perspectives
S20 Environmental Reservoirs of Major and Emerging Foodborne Pathogens
S21 Integrating Epidemiology and Microbiology to Solve Complex Food Safety Problems

Technical Session

T6 Meat and Poultry

WEDNESDAY, JULY 15

All Day – 9:00 a.m. – 5:00 p.m.

Poster Session

P3 General Microbiology, Antimicrobials, Produce, Dairy and Epidemiology

Morning – 8:30 a.m. – 12:00 p.m.

Symposia

S22 Third Party Certification Systems: Can It Make Our Food Safer?
S23 A Systems Approach to Minimize *Escherichia coli* O157:H7 Food Safety Hazards Associated with Fresh and Fresh Cut Leafy Greens
S24 Emerging Chemical Hazards in Food

Roundtable

RT3 Measuring and Interpreting Food Handling Behavior and Its Impact on Policy Emerging Chemical Hazards in Food

Technical Sessions

T7 Risk Assessment, Spoilage, and Beverages and Water
T8 Pathogens

Afternoon – 1:30 p.m. – 3:30 p.m.

Symposia

S25 Food Safety Challenges for Unrefrigerated Display of Ready-to-Eat Foods
S26 Shigatoxin *E. coli*: The Bad, the Worse, and the Pathogenic
S27 Food Defense Session (Title to be determined)
S28 CSI Beverage Plant: On the Trail of Hot- and Cold-Fill Spoilers
S29 Food Safety Programs Across an Integrated Poultry Industry

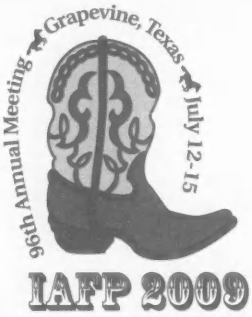
Debate

Pros and Cons of Zero-Tolerance Policy for Pathogens in Food

4:00 p.m. – 4:45 p.m.

John H. Silliker Lecture – *The 2008 Irish Dioxin Crisis: A Public Health, Food Safety, Economic, Legal, or a Risk Communication Challenge?* – Dr. Patrick Wall, University College Dublin, School of Public Health and Population Sciences, Belfield, Ireland

Program subject to change



IAFP 2009 GENERAL INFORMATION

REGISTER ONLINE

Register online at **www.foodprotection.org**

REGISTRATION INCLUDES

Register to attend the world's leading food safety conference.

Full Registration includes:

- Program and Abstract Book
- Welcome Reception
- Ivan Parkin Lecture
- Cheese and Wine Reception
- Technical Sessions
- Poster Presentations
- Symposia
- Exhibit Hall Admittance
- Exhibit Hall Lunch (Mon. & Tues.)
- Exhibit Hall Reception (Mon. & Tues.)
- John H. Silliker Lecture
- Awards Banquet

PRESENTATION HOURS

Sunday, July 12	
Opening Session	6:00 p.m. – 7:30 p.m.
Monday, July 13	
Symposia & Technical Sessions	8:30 a.m. – 5:00 p.m.
Tuesday, July 14	
Symposia & Technical Sessions	8:30 a.m. – 5:00 p.m.
Wednesday, July 15	
Symposia & Technical Sessions	8:30 a.m. – 3:30 p.m.
Closing Session	4:00 p.m. – 4:45 p.m.

GOLF TOURNAMENT

Saturday, July 11	
Golf Tournament at Tour 18	6:30 a.m. – 2:00 p.m.

Join your friends and colleagues for an exciting round of golf before IAFP 2009.

DAYTIME EVENTS

Saturday, July 11	
JFK and Dallas City Tour	9:00 a.m. – 3:00 p.m.
Sunday, July 12	
Grapevine Historical Tour (Lunch included)	10:00 a.m. – 3:00 p.m.
Monday, July 13	
Fort Worth Stockyards Tour (Lunch included)	12:00 p.m. – 5:00 p.m.
Tuesday, July 14	
Fort Worth Arts Tour (Lunch included)	10:00 a.m. – 3:00 p.m.

EVENING EVENTS

Sunday, July 12	
Opening Session	6:00 p.m. – 7:30 p.m.
Cheese and Wine Reception *Sponsored by Kraft Foods*	7:30 p.m. – 9:30 p.m.
Monday, July 13	
Exhibit Hall Reception *Sponsored by DuPont Qualicon*	5:00 p.m. – 6:00 p.m.
Monday Night Social Texas Fun on the Ranch	6:30 p.m. – 10:00 p.m.
Tuesday, July 14	
Exhibit Hall Reception	5:00 p.m. – 6:00 p.m.
IAFP Foundation Fundraiser Dinner at Cowboys Golf Club	6:30 p.m. – 9:30 p.m.
Wednesday, July 15	
Awards Banquet Reception	6:00 p.m. – 7:00 p.m.
Awards Banquet	7:00 p.m. – 9:30 p.m.

SPECIAL EVENTS

Saturday, July 11	
NIFSI Project Directors Meeting	11:00 a.m. – 5:00 p.m.
Tuesday, July 14	
Texas A&M Breakfast	7:00 a.m. – 8:30 a.m.
Tuesday, July 14	
NFPA Alumni and Friends Reception	6:00 p.m. – 8:00 p.m.

EXHIBIT HOURS

Sunday, July 12	7:30 p.m. – 9:30 p.m.
Monday, July 13	10:00 a.m. – 6:00 p.m.
Tuesday, July 14	10:00 a.m. – 6:00 p.m.

HOTEL INFORMATION

Hotel reservations can be made online at **www.foodprotection.org**.

The IAFP Annual Meeting Sessions, Exhibits and Events will take place or depart from the Gaylord Texan Resort.

Gaylord Texan Resort	$169.00 per night

CANCELLATION POLICY

Registration fees, less a $50 administration fee and any applicable bank charges, will be refunded for written cancellations received by June 26, 2009. No refunds will be made after June 26, 2009; however, the registration may be transferred to a colleague with written notification. Refunds will be processed after July 20, 2009.

Event and extra tickets purchased are nonrefundable.

International Association for Food Protection®
6200 Aurora Avenue, Suite 200W
Des Moines, IA 50322-2864, USA
Phone: +1 800.369.6337 • +1 515.276.3344
Fax: +1 515.276.8655
E-mail: info@foodprotection.org
Web site: www.foodprotection.org

IAFP 2009 ACTIVITIES

SATURDAY, JULY 11

COMMITTEE MEETINGS
2:00 p.m. – 5:00 p.m.

WELCOME RECEPTION
5:00 p.m. – 6:30 p.m.
Sponsored by Quality Auditing Institute

SUNDAY, JULY 12

COMMITTEE MEETINGS
7:00 a.m. – 5:00 p.m.

STUDENT LUNCHEON (ticket required)
12:00 p.m. – 1:30 p.m.
Sponsored by Unilever

EDITORIAL BOARD RECEPTION (by invitation)
4:30 p.m. – 5:30 p.m.

OPENING SESSION AND IVAN PARKIN LECTURE
6:00 p.m. – 7:30 p.m.

CHEESE AND WINE RECEPTION
7:30 p.m. – 9:30 p.m.
Sponsored by Kraft Foods

MONDAY, JULY 13

COMMITTEE AND PDG CHAIRPERSON BREAKFAST (by invitation)
7:00 a.m. – 9:00 a.m.

EXHIBIT HALL LUNCH
12:00 p.m. – 1:00 p.m.
Sponsored by JohnsonDiversey

EXHIBIT HALL RECEPTION
5:00 p.m. – 6:00 p.m.
Sponsored by DuPont Qualicon

MONDAY NIGHT SOCIAL (ticket required)
6:30 p.m. – 10:00 p.m.
Texas Fun on the Ranch

TUESDAY, JULY 14

EXHIBIT HALL LUNCH
12:00 p.m. – 1:00 p.m.

BUSINESS MEETING
12:15 p.m. – 1:00 p.m.

EXHIBIT HALL RECEPTION
5:00 p.m. – 6:00 p.m.
Partially sponsored by Quality Assurance and Food Safety Magazine

PRESIDENT'S RECEPTION (by invitation)
6:00 p.m. – 7:00 p.m.

FOUNDATION FUNDRAISER (ticket required)
6:30 p.m. – 9:30 p.m.
Dinner at Cowboys Golf Club

WEDNESDAY, JULY 15

JOHN H. SILLIKER LECTURE
4:00 p.m. – 4:45 p.m.

AWARDS RECEPTION AND BANQUET
6:00 p.m. – 9:30 p.m.

IAFP JOB FAIR
Sunday, July 12 through Wednesday, July 15

Employers, take advantage of the opportunity to recruit the top food scientists in the world! Post your job announcements and interview candidates.

IAFP 2009 EVENT INFORMATION

GOLF TOURNAMENT

Saturday, July 11

Golf Tournament at Tour 18 — 6:30 a.m. – 2:00 p.m.

Have you ever dreamed of playing Amen Corner at Augusta National? How about a round of golf at Murifield Village, Firestone Country Club, or Southern Hills? Oakmont? Sawgrass? Crooked Stick? Doral? Each of these famed golf courses and more are represented in this unique golfing experience at "Tour 18" Golf Course, the site of IAFP's 2009 Golf Tournament. "Tour 18" has duplicated legendary holes from the most celebrated golf courses for your enjoyment.

Imagine yourself playing on carefully simulated holes from some of the greatest golf holes in America. This collaboration of incredible replicas offers one fantastic challenge after another, creating a uniquely memorable experience.

This will be an opportunity you won't want to miss! Sign up now to join your friends and colleagues in this best-ball, pre-meeting tournament to start IAFP 2009 off with some fun!!! Price includes transportation, greens fees with a cart, range balls, breakfast, lunch and prizes.

DAYTIME EVENTS

Saturday, July 11

JFK and Dallas City Tour — 9:00 a.m. – 3:00 p.m.

Do you remember where you were on November 22, 1963? On this day, John F. Kennedy, the 35th President of the United States of America was assassinated in downtown Dallas. Visit the Sixth Floor Museum to learn more about this historic day. Continue to explore the heart of Dallas including the Historic West End District, Pioneer Plaza, the renowned Dallas Farmer's Market and more.

Sunday, July 12

Grapevine Historical Tour — 10:00 a.m. – 3:00 p.m.
(Lunch included)

After a scrumptious brunch at Willhoittes on Main Street you will visit Nash Farm and witness the life and times of the early farmers and settlers who established Grapevine. Your journey will continue to the Grapevine Vintage Railroad, the Grapevine Heritage Museum and the Vetro Glass Studio, where you can watch the glass blowing artisans. A memorable wine tasting experience at Cross Timbers will complete your day.

Monday, July 13

Fort Worth Stockyards Tour — 12:00 p.m. – 5:00 p.m.
(Lunch included)

Begin your day with lunch at Risky's Barbeque before you are transported back in time to the Wild West, visiting the Fort Worth Historic Stockyards, the largest horse and mule market in the world during WWII. Explore the Texas Cowboy Hall of Fame and then see an actual boot making demonstration at the Ponder Boot Company. End your day with the Fort Worth Herd Cattle Drive, the only true cattle drive left in the US.

Tuesday, July 14

Fort Worth Arts Tour 10:00 a.m. – 3:00 p.m.
(Lunch included)

The Kimbell Art Museum's holdings range in period from antiquity to the 20th century and includes masterpieces by Duccio, El Greco, Rembrandt, Monet and Picasso to name a few. Next you will have lunch at the famed Joe T. Garcia's Mexican Cuisine, one of the most popular restaurants in the area. Then it's on to the Sid Richardson Museum to see the finest and most focused collections of Western art in America.

EVENING EVENTS

Sunday, July 12

Opening Session 6:00 p.m. – 7:30 p.m.

Cheese and Wine Reception 7:30 p.m. – 9:30 p.m.
Sponsored by Kraft Foods

Monday, July 13

Exhibit Hall Reception 5:00 p.m. – 6:00 p.m.
Sponsored by DuPont Qualicon

Monday Night Social

Texas Fun on the Ranch 6:30 p.m. – 10:00 p.m.

Howdy, partner! Pull on your boots and get ready to kick up your heels at Circle R Ranch. Hop aboard a horse-drawn hay wagon for a leisurely ride, try your hand in a quick-draw "shoot-out," learn to rope and work up a Texas-sized appetite for an all-you-can-eat barbecue. Enjoy the country-western band and join the fun as you are taught a Texas line dance. Don't miss this Wild West experience!

Tuesday, July 14

Exhibit Hall Reception 5:00 p.m. – 6:00 p.m.

IAFP Foundation Fundraiser 6:30 p.m. – 9:30 p.m.
Dinner at Cowboys Golf Club

Support the IAFP Foundation and enjoy an evening of food and fun at the Cowboys Golf Club, a tribute to the five-time world champion NFL football team. The clubhouse features a hall of honor with a magnificent display of the coveted Super Bowl trophies and memorabilia of Cowboys legends both past and present. Participate in the putting contest to show off your skills or relax on the patio to enjoy the fresh air. Then, enjoy a delicious dinner and live music. What a perfect way to end your day and support the IAFP Foundation!

Wednesday, July 15

Awards Banquet Reception 6:00 p.m. – 7:00 p.m.

Awards Banquet 7:00 p.m. – 9:30 p.m.

SPECIAL EVENTS

Registration required

Saturday, July 11

NIFSI Project Directors Meeting 11:00 a.m. – 5:00 p.m.

The National Integrated Food Safety Initiative (NIFSI) is hosting its bi-annual Project Directors Meeting in conjunction with the International Association for Food Protection's Annual Meeting. This meeting will help to: (1) Facilitate regional and national coordination of efforts to avoid duplication and create synergy in productivity; (2) Foster alignment of program activities with national and international priorities in food safety research, education, and extension; and (3) Showcase the impacts of different NIFSI grants in food safety. This meeting will also provide a mechanism for gathering stakeholder input on emerging issues and priority areas impacting the safety of America's food supply.

Registration fee includes lunch and breaks.

Tuesday, July 14

Texas A&M Breakfast 7:00 a.m. – 8:30 a.m.

Current and Former Students of Texas A&M University, get your "Gig 'em" going by joining fellow Aggies for breakfast before heading off to the symposia. Catch up on all the news and meet new members of the Aggie Network.

Tuesday, July 14

NFPA Alumni and Friends Reception 6:00 p.m. – 8:00 p.m.

National Canners Association has evolved to today's major food association GMA, and IAFP's Annual Meeting draws many of its alumni and friends. The Gaylord's shuttle bus will take us on the short ride to a local watering hole for this casual, strictly social event featuring drinks, snacks, billiards, and friends from GMA today and yesterday. All are welcome.

Contribute to the Twelfth Foundation Silent Auction Today!

Proceeds from the Silent Auction Benefit the Foundation

Support the Foundation by donating an item today. A sample of items donated last year included:

- 3M Gift Box
- "Taste of Chicago" Gift Certificates
- Experience Atlanta Gift Basket
- Rosemary's Garden Bath & Body Products
- 2009 Annual Meeting Registration
- Jimmy Buffet Autographed Album
- Cultured Freshwater Pearl Necklace w/Sapphire and Silver Clasp
- *JFP* On-A-Stick (Back Issues)
- *Y'all Come Eat*–Signed by Paula Deen
- Author Signed Scientific Text Books
- 10 lb. Nestle Crunch Bar

To donate an item go to our Web site at www.foodprotection.org and complete the Silent Auction Donation Form or contact Donna Gronstal at dgronstal@foodprotection.org +1 515.276.3344; +1 800.369.6337

IAFP FOUNDATION

IAFP 2009 REGISTRATION FORM

3 Ways to Register

ONLINE	FAX	MAIL
www.foodprotection.org	+1 515.276.8655	6200 Aurora Ave., Suite 200W Des Moines, IA 50322-2864, USA

Member Number: _____

First name (as it will appear on your badge) _____ Last name _____

Employer _____ Title _____

Mailing Address (Please specify: ❒ Home ❒ Work) _____

City _____ State/Province _____ Country _____ Postal/Zip Code _____

Telephone _____ Fax _____ E-mail _____

❒ Regarding the ADA, please attach a brief description of special requirements you may have.

❒ IAFP occasionally provides Attendees' addresses (excluding phone and E-mail) to vendors and exhibitors supplying products and services for the food safety industry. If you prefer NOT to be included in these lists, please check the box.

PAYMENT MUST BE RECEIVED BY JUNE 9, 2009 TO AVOID LATE REGISTRATION FEES

REGISTRATION FEES	MEMBERS	NONMEMBERS	TOTAL
Registration	$ 430 ($ 480 late)	$ 650 ($ 700 late)	_____
Association Student Member	$ 80 ($ 90 late)	Not Available	_____
Retired Association Member	$ 80 ($ 90 late)	Not Available	_____
One Day Registration* ❒ Mon. ❒ Tues. ❒ Wed.	$ 230 ($ 255 late)	$ 360 ($ 385 late)	_____
Spouse/Companion* (Name): _____	$ 60 ($ 60 late)	$ 60 ($ 60 late)	_____
Children 15 & Over* (Names): _____	$ 25 ($ 25 late)	$ 25 ($ 25 late)	_____
Children 14 & Under* (Names): _____	FREE	FREE	_____
*Awards Banquet not included			
Additional Awards Banquet Ticket – Wednesday, 7/15	$ 55 ($ 65 late)	$ 55 ($ 65 late)	_____
Student Luncheon – Sunday, 7/12	$ 10 ($ 15 late)		_____
DAYTIME EVENTS		**# OF TICKETS**	
Golf Tournament at Tour 18 – Saturday, 7/11	$ 145 ($ 155 late)	_____	_____
JFK and Dallas City Tour – Saturday, 7/11	$ 58 ($ 63 late)	_____	_____
Grapevine Historical Tour – Sunday, 7/12 (Lunch included)	$ 83 ($ 88 late)	_____	_____
Fort Worth Stockyards Tour – Monday, 7/13 (Lunch included)	$ 84 ($ 89 late)	_____	_____
Fort Worth Arts Tour – Tuesday, 7/14 (Lunch included)	$ 85 ($ 90 late)	_____	_____
EVENING EVENTS			
Monday Night Social – Texas Fun on the Ranch – Monday, 7/13	$ 45 ($ 55 late)	_____	_____
IAFP Foundation Fundraiser – Dinner at Cowboys Golf Club – Tuesday, 7/14	$ 140 ($ 150 late)	_____	_____
SPECIAL EVENTS			
NIFSI Project Directors Meeting – Saturday, 7/11	$ 80 ($ 90 late)	_____	_____
Texas A&M Breakfast – Tuesday, 7/14	$ 10 ($ 20 late)	_____	_____
NFPA Alumni and Friends Reception – Tuesday, 7/14	$ 35 ($ 45 late)	_____	_____
ABSTRACTS			
Annual Meeting Abstracts (citable publication to be mailed Sept. 1)	$ 30	$ 30	_____

Payment Options: ❒ **VISA** ❒ **Master Card** ❒ **American Express** ❒ **Discover**

❒ **Check Enclosed**

TOTAL AMOUNT ENCLOSED $ _____
US FUNDS on US BANK

CREDIT CARD # _____

CARD ID #* _____ EXP. DATE _____

SIGNATURE _____

*Visa, Mastercard and Discover: See 3-digit Card ID number on the back of the card after account number.
American Express: See 4-digit, non-embossed number printed above your account number on the face of your card.

❒ Check box if you are a technical, poster, or symposium speaker.

Refunds subject to cancellation policy

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International Association for Food Protection®

IAFP 2009 WORKSHOPS

WORKSHOP 1	WORKSHOP 2	WORKSHOP 3
Your Toolkit for Cleaning by Design...What Can Go Right	Microbiological Sampling and Testing in Food in Food Safety Management	Beyond Food Safety Management – How to Create a Food Safety Culture
Friday and Saturday July 10–11 8:00 a.m. – 5:00 p.m.	Saturday July 11 8:00 a.m. – 5:00 p.m.	Saturday July 11 8:00 a.m. – 5:00 p.m.

REGISTRATION – (Payment must be received by June 26, 2009 to avoid late registration rates).
Cancellations received by June 26 will be refunded, less a $50.00 administrative fee. No refunds will be made after this date.

	Early Rate	Late Rate		Early Rate	Late Rate		Early Rate	Late Rate
Member	$675.00	$750.00	Member	$380.00	$455.00	Member	$345.00	$420.00
Non-Member	$775.00	$850.00	Non-Member	$480.00	$555.00	Non-Member	$445.00	$520.00

Student rates available, contact Julie at jcattanach@foodprotection.org for more information.

Workshop 1 – Your Toolkit for Cleaning by Design...What Can Go Right — Friday and Saturday, July 10–11

The concept of sanitary design has long been recognized by the food industry as an integral part of developing, implementing and maintaining a successful food safety program. Hygienic design considerations play a vital role in food safety management, as processors face potential economic challenges resulting from loss of product through spoilage, food safety concerns and loss of market confidence. Investigations involving product contamination by spoilage organisms or pathogenic bacteria however, have shown that faulty equipment design and use of incompatible construction materials can lead to ineffective cleaning and sanitation, and create conditions that will allow microbial growth to occur, resulting in product contamination. Although cleanability of the equipment is a major criterion in the pre-qualification stage prior to purchase of new equipment; consideration for addressing hygienic design during installation and its integration with auxiliary systems in food production areas could be overlooked.

Furthermore, although the application of sanitary design principles is widely embraced by the food industry in new equipment acquisitions and in the construction of food plant and retail establishments, upgrading an existing plant/equipment design to meet hygienic requirements can be prohibitively expensive. Understanding the concept of sanitary design when modifying existing plant equipment can prevent or minimize the risk of microbial contamination resulting from the development of harborage areas or niches.

Whether building a new facility, remodeling an existing food plant and retail establishment, purchasing new equipment, or simply repairing existing structures or equipment, participants will receive practical information from experts in meat, liquid, dry and retail food processes in designing cleaning and sanitation programs that can be implemented to advance food safety and quality. Attendees will gain practical and theoretical understanding of hygienic design and be able to identify non-hygienic features, improve equipment designs and make better informed decisions about equipment purchases and/or modifications.

Topics:

- Hygienic design standards in the US
- Hygienic design standards in European countries (EHEDG) and equipment validation to meet US requirements
- Challenges and improvement opportunities in the cleaning and sanitation of existing and retrofitted equipment in various industries: case studies
- Validation of cleaning and sanitation processes: What works and how effective it is
- Considerations for equipment qualification and redesign

Instructors:

John N. Butts, Land O'Frost, Lansing, IL, USA
Don Graham, Graham Sanitary Design Consulting, Ltd., Jackson, MI, USA
Debra Henyon, Elopak, Inc., New Hudson, MI, USA
John T. Holah, Campden & Chorleywood Food Research Association, Gloucestershire, UK
Jeffrey L. Kornacki, Kornacki Microbiology Solutions, Inc., McFarland, WI, USA
Todd Rossow, Publix Super Markets, Inc., Lakeland, FL, USA
Tracie G. Sheehan, Sara Lee Corporation, Downers Grove, IL, USA
Purnendu C. Vasavada, University of Wisconsin-River Falls, River Falls, WI, USA
John Weisgerber, Weisgerber Consulting LLC, Downers Grove, IL, USA

Organizers:

Rocelle Clavero, Sara Lee Corporation, Downers Grove, IL, USA
Yale Lary, Sysco Corporation, Houston, TX, USA

INTENDED AUDIENCE

Engineers working in equipment design, processors specifying or purchasing new equipment, technical sales people, new project managers and plant quality assurance/food safety managers. Manufacturers, fabricators and engineers of food plant and retail equipment. Food safety professionals involved in the design, implementation and validation of food safety systems.

Workshop 2 – Microbiological Sampling and Testing in Food Safety Management – Saturday, July 11

It is well recognized that no amount of sampling and testing can ensure the absence of pathogens in foods. However, there are many useful applications of microbiological testing related to monitoring and verification; e.g., testing critical ingredients, in-process monitoring, final product verification, port-of-entry testing where there is no historical data, etc.

In the 1970s, ICMSF introduced statistically based sampling plans, derived from a risk-based approach. These sampling plans have been adopted by organizations such as Codex Alimentarius and national authorities for certain applications. However, there are many examples where these plans have been applied inappropriately or incorrectly.

This 'hands-on" workshop will (re-)introduce participants to the principles and limitations of microbiological sampling and testing for food safety assurance. Participants will learn how the performance of a sampling can be determined and how suitable sampling plans for particular pathogens and foods and intended consumers are established. Some calculations of the statistical aspects of sampling will be illustrated, like detection probabilities, effects of log-normal distributions of organisms, operating characteristic curves, and within-lot and between-lot testing. The use of sampling and testing in food safety management will be discussed and illustrated from both the governmental and industry perspectives.

Participants are asked to bring laptops to the workshop and will work individually, or in pairs, on case studies to demonstrate the issues and principles discussed.

Topics:

- Importance of testing in food safety management
- Basics of establishing suitable sampling plans and determining their performance
- Within-lot and between-lot sampling and statistics
- Illustrative examples of microbial testing and sampling plans

ORGANIZED AND SUPPORTED BY ICMSF

Instructors:

Leon G.M. Gorris, Unilever, Safety & Environmental Assurance Centre, Sharnbrook, U.K.
Marcel H. Zwietering, Laboratory for Food Microbiology, Wageningen University, Wageningen, The Netherlands
Tom Ross, Food Safety Centre, University of Tasmania, Hobart, Australia
Russell S. Flowers, Silliker Group Corp., Homewood, IL, USA

Organizer:

Leon G.M. Gorris, Unilever, Safety & Environmental Assurance Centre, Sharnbrook, U.K.

INTENDED AUDIENCE

Members involved in, or with a keen interest in understanding, microbiological sampling and testing for food safety management from the industry as well as the governmental perspective.

Workshop 3 – Beyond Food Safety Management – How to Create a Food Safety Culture – Saturday, July 11

Food safety awareness is at an all time high. New and emerging threats to the food supply are being recognized. Accordingly, retail and foodservice establishments, and food producers at all levels of the food production chain, have a growing responsibility to ensure that proper food safety and sanitation practices are followed, thereby, safeguarding the health of their guests and customers.

Achieving food safety success in this changing environment requires going beyond traditional training, testing, and inspectional approaches to managing risks. It requires a better understanding of organizational culture and the human dimensions of food safety. To improve the food safety performance of a retail or foodservice establishment, an organization with thousands of employees, or a local community, you must change people's behavior.

The importance of organizational culture, human behavior, and systems thinking is well documented in the occupational safety and health fields. However, significant contributions to the scientific literature on these topics are noticeably absent in the field of food safety.

This workshop will be the first of its kind designed to teach participants how to create a food safety culture – not just a food safety program. Designed as a series of lectures and participatory, hands-on sessions, workshop participants will be divided into teams to work through different case studies such as:

- food safety for large foodservice chains
- you are hired as consultant by the CEO of a large international company to strengthen their food safety performance, what advice will you give?
- a community's inspection scores are getting worse, as public health director, what can you do to improve restaurant inspection scores in the community?

By the end of the workshop, participants will have gained a real working knowledge of different behavioral change theories, key elements of an effective food safety culture, and a thorough understanding of the differences between a traditional food safety management system versus a behavior-based food safety approach. In addition, participants will have received practical, real-world advice and be better equipped for their next promotion or challenge. As a take away resource, participants will also receive an autographed copy of Frank Yiannas' new book, *Food Safety Culture, Creating a Behavior-based Food Safety Management System.*

Organized and Instructed by Frank Yiannas: In addition to working for well-known global brands, Frank is the Past President of the International Association for Food Protection, recipient of the 2007 NSF Lifetime Achievement Award for Leadership in Food Safety, and author of the book, *Food Safety Culture, Creating a Behavior-based Food Safety Management System.*

INTENDED AUDIENCE

Food safety managers, consultants, public health directors, restaurateurs, etc.

TO REGISTER, GO ONLINE TO WWW.FOODPROTECTION.ORG

COMING EVENTS

JUNE

- **1–3, Texas Association for Food Protection Annual Meeting,** Omni Southpark, Austin, TX. For more information, contact Toby Breland at 903.752.9459; E-mail: tobybreland@brookshires.com.
- **2–3, Principles of Inspecting and Auditing Food Plants Workshop,** San Antonio, TX. For more information, call AIB International at 800.633.5137 or go to www.aibonline.org.
- **3–6, 5th Med-Vet-Net Annual Scientific Meeting,** Euroforum Infantes, San Lorenzo de El Escorial, Madrid, Spain. For more information, call +34.913944097 or go to www.medvetnet.org/cms/.
- **3–6, HACCP Workshop for Packaging Suppliers Workshop,** Louisville, KY. For more information, call AIB International at 800.633.5137 or go to www.aibonline.org.
- **6–9, IFT Annual Meeting,** Anaheim Convention Center, Anaheim, CA. For more information, call 1.800.IFT.FOOD or go to www.am-fe.ift.org.
- **8–10, 2009 Midwest AOAC Annual Meeting and Exposition,** Embassy Suites on the River, Des Moines, IA. For more information, go to www.midwestaoacorg/2009 Hotel_Information.html.
- **10–12, ISO/IEC 17025 and Accreditation,** Minneapolis, MN. For more information, contact Julie Stevens at 301.644.3235; E-mail: jstevens@A2LA.org.
- **13–16, Australian Association for Food Protection Annual Meeting,** Brisbane, AU. For more information, contact Ian Jenson at 61.2.9463.9264 or ijenson@mla.com.au.
- **17–18, IDFA Washington Conference,** Hotel Monaco, Washington, D.C. For more information, call Kellie Bland at 202.220.3557 or go to www.idfa.org.
- **19–26, Twenty-Ninth International Workshop/Symposium–Rapid Methods and Automation in Microbiology,** Kansas State University, Manhattan, KS. For more information, contact Dr. Daniel Y.C. Fung at 785. 532.1208; E-mail: dfung@ksu.edu.
- **21–24, NEHA's 73rd Annual Eduational Conference,** Atlanta, Georgia. For more information, call 303.756.9090 or go to www.neha.org.
- **24, New Zealand Association for Food Protection Annual Meeting,** Christchurch, New Zealand. For more information, contact David Lowry at 64.7.958.2306; E-mail: david.lowry@ecolab.com.
- **25–26, HACCP Workshop,** Harrisburg, PA. For more information, contact AIB International at 800. 633.5137 or go to www.aibonline.org.

JULY

- **1–3, National Association of Local Boards of Health 17th Annual Conference,** Philadelphia, PA. For more information, call 419.353.7714 or go to www.nalboh.org/NALBOH_Conference.htm.
- **6–9, Sfam Summer Conference 2009,** Manchester Metropolitan University, United Kingdom. For more information, go to www.sfam.org.uk/summer_conference.php.
- **9–10, HACCP Workshop,** Bloomington, MN. For more information, contact AIB International at 800. 633.5137 or go to www.aibonline.org.
- **10–11, IAFP Workshops,** Gaylord Texan Resort, Grapevine, TX. For more information, go to www.foodprotection.org.
- **12–15, IAFP 2009 Annual Meeting,** Gaylord Texan Resort, Grapevine, TX. For more information, go to www.foodprotection.org.
- **13–16, Australian Association for Food Protection Annual Meeting,** Brisbane, Australia. For more information, contact Ian Jenson at 61.2.9463.9264; E-mail: ijenson@mla.com.au.
- **22–25, HACCP Workshop for Packaging Suppliers,** Vancouver, WA. For more information, call AIB International at 800. 633.5137 or go to www.aibonline.org.
- **27–28, Engineering for Food Safety,** Manhattan, KS. For more information, contact AIB International at 800.633.5137 or go to www.aibonline.org.
- **29–31, The 2009 NACCHO Annual Conference,** Rosen Shingle Creek Resort, Orlando, FL. For more information, go to www.naccho.org/events/nacchoannual2009/.

AUGUST

- **9–13, Dietary Managers Association 49th Annual Meeting,** Hyatt Regency Atlanta On Peachtree Street, Atlanta, GA. For more information, call 800.323.1908 or go to www.dmaonline.org.

SEPTEMBER

- **8–12, 6th International Conference on Predictive Modeling in Foods,** Renaissance Washington, D.C. Hotel, Washington, D.C. For more information, contact Debbie Donze at ddonze@helmsbriscoe.com or go to www.6icpmf.org.
- **13–16, American Association of Cereal Chemists International Annual Meeting,** Baltimore Convention Center, Baltimore, MD. For more information, call 651.454.7250 go to www.aaccnet.org.
- **13–16, 123rd AOAC Annual Meeting,** Philadelphia, PA. For more information, go to www.aoac.org.
- **15–16, Upper Midwest Dairy Industry Association,** Centennial Meeting, Holiday Inn, St. Cloud,

COMING EVENTS

MN. For more information, contact Gene Watnaas at 218.769.4334 or saantaw@prtel.com.

- **20–24, IDF World Dairy Summit–United Dairy World 2009,** Maritim Hotel Berlin, Berlin, Germany. For more information, go to www.wds2009.com.
- **22–24, New York State Association for Food Protection 86th Annual Conference,** Doubletree Hotel, East Syracuse, NY. For more information, contact Janene Lucia at 607.255.2892; E-mail: jgg@cornell.edu.
- **23–25, Washington Association for Food Protection Annual Conference,** Campbell's Resort, Lake Chelan, WA. For more information, contact Stephanie Olmsted at 206. 660.4594 or go to www.waffp.org.

OCTOBER

- **6–7, Iowa Association for Food Protection Annual Conference,** Quality Inn & Suites, Ames, IA. For more information, contact Lynn Melchert at lynn.melchert@swissvalley.com.
- **7–8, Associated Illinois Milk, Food and Environmental Sanitarians Fall Conference,** Stoney Creek Inn, East Peoria, IL. For more information, contact Steve DiVincenzo at Steve.DiVincenzo@illinois.gov.
- **13–16, 2009 ASTHO Annual Meeting,** Vienna (Tysons Corner), VA. For more information, go to www.astho.org.
- **26–29, North Dakota Environmental Health Association Annual Conference,** Doublewood Inn, Fargo, ND. For more information, go to www.ndeha.org.

NOVEMBER

- **2–4, Sweets Middle East,** Dubai International Convention and Exhibition Centre, Dubai, U.A.E. For more information, phone 971.4.308.6748; E-mail: sweetsmiddleeast@dwtc.com.
- **2–4, Snaktec,** Dubai International Convention and Exhibition Centre, Dubai, U.A.E. For more information, phone 971.4.308.6748; E-mail: sweetsmiddleeast@dwtc.com.
- **7–11, 137th APHA Annual Meeting and Exposition,** Philadelphia, PA. For more information, go to www.apha.org/meetings.

IAFP UPCOMING MEETINGS

JULY 12-15, 2009
Grapevine, Texas

AUGUST 1-4, 2010
Anaheim, California

JULY 31-AUGUST 1, 2011
Milwaukee, Wisconsin

In Memory

Bruce J. Bradley

Jerome, Idaho

We extend our deepest sympathy to the family of Bruce Bradley who recently passed away. IAFP will always have sincere gratitude for his contribution to the Association and the profession. Mr. Bradley has been a member of IAFP since 2000.

ADVERTISING INDEX

Journal of Food Protection®

ISSN: 0362-028X
Official Publication

International Association for Food Protection
Reg. U.S. Pat. Off.

Vol. 72 | April 2009 | No. 4

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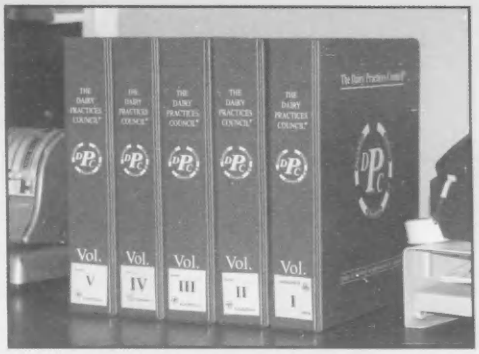

IAFP Offers "Guidelines for the Dairy Industry" from The Dairy Practices Council®

This newly expanded Five-volume set consists of 82 guidelines. Now Available on CD

1 Planning Dairy Freestall Barns
2 Effective Installation, Cleaning, and Sanitizing of Milking Systems
3 Selected Personnel in Milk Sanitation
4 Installation, Cleaning, & Sanitizing of Large Parlor Milking Systems
5 Directory of Dairy Farm Building & Milking System Resource People
6 Natural Ventilation for Dairy Tie Stall Barns
7 Sampling Fluid Milk
8 Good Manufacturing Practices for Dairy Processing Plants
9 Fundamentals of Cleaning & Sanitizing Farm Milk Handling Equipment
10 Maintaining & Testing Fluid Milk Shelf-Life
11 Sediment Testing & Producing Clean Milk
12 Tunnel Ventilation for Dairy Tie Stall Barns
13 Environmental Air Control and Quality for Dairy Food Plants
14 Clean Room Technology
15 Milking Center Wastewater
16 Handling Dairy Products from Processing to Consumption
17 Prevention of & Testing for Added Water in Milk
18 Fieldperson's Guide to High Somatic Cell Counts
21 Raw Milk Quality Tests
22 Control of Antibacterial Drugs & Growth Inhibitors in Milk and Milk Products
24 Troubleshooting High Bacteria Counts of Raw Milk
25 Cleaning & Sanitation Responsibilities for Bulk Pickup & Transport Tankers
27 Dairy Manure Management From Barn to Storage
28 Troubleshooting Residual Films on Dairy Farm Milk Handling Equipment
29 Cleaning & Sanitizing in Fluid Milk Processing Plants
30 Potable Water on Dairy Farms
31 Composition & Nutritive Value of Dairy Products
32 Fat Test Variations in Raw Milk
33 Brucellosis & Some Other Milkborne Diseases
34 Butterfat Determinations of Various Dairy Products
35 Dairy Plant Waste Management
36 Dairy Farm Inspection
37 Planning Dairy Stall Barns
38 Preventing Off-Flavors and Rancid Flavors in Milk
39 Grade A Fluid Milk Plant Inspection
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45 Gravity Flow Gutters for Manure Removal in Milking Barns
46 Dairy Odor Management
48 Cooling Milk on the Farm
49 Pre- & Postmilking Teat Disinfectants
50 Farm Bulk Milk Collection Procedures
51 Controlling the Accuracy of Electronic Testing Instruments for Milk Components
53 Vitamin Fortification of Fluid Milk Products
54 Selection of Elevated Milking Parlors
54S Construction Materials for Milking Parlors
56 Dairy Product Safety (Pathogenic Bacteria) for Fluid Milk and Frozen Dessert Plants
57 Dairy Plant Sanitation
58 Sizing Dairy Farm Water Heater Systems
59 Production and Regulation of Quality Dairy Goat Milk
60 Trouble Shooting Microbial Defects: Product Line Sampling & Hygiene Monitoring
61 Frozen Dessert Processing
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63 Controlling The Quality And Use Of Dairy Product Rework
64 Control Points for Good Management Practices on Dairy Farms
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66 Planning A Dairy Complex - "100+ Questions To Ask"
69 Abnormal Milk - Risk Reduction and HACCP
70 Design, Installation & Cleaning of Small Ruminant Milking Systems
71 Farmers Guide To Somatic Cell Counts In Sheep
72 Farmers Guide To Somatic Cell Counts In Goats
73 Layout of Dairy Milk Houses for Small Ruminant Operations
75 Direct Microscopic Exam of Milk from Small Ruminants (training CD)
78 Biosecurity for Sheep and Goat Dairies
80 Food Allergen Awareness In Dairy Plant Operations
83 Bottling Water in Fluid Milk Plants
85 Six Steps to Success - Production of Low SCC Milk (training CD)
90 On-Farm & Small-Scale Dairy Products Processing
91 HACCP - SSOP's and Prerequisites
92 HACCP - Principle Number One: Hazard Analysis
93 HACCP - Principles 2 & 3 Critical Control Points & Critical Limits
97 Direct Loading of Milk from Parlor into Bulk Tankers
98 Milking Procedures for Dairy Cattle
100 Food Safety in Farmstead Cheesemaking
101 Farmers Guide To Somatic Cell Counts In Cattle
102 Effective Installation, Cleaning & Sanitizing of Tie Barn Milking Systems
103 Approving Milk and Milk Product Plants for Extended Runs
105 Sealing Bulk Milk Truck Tanks
106 On Farm Anaerobic Digesters "100+ Questions to Ask

IAFP has agreed with The Dairy Practices Council to distribute their guidelines. DPC is a non-profit organization of education, industry and regulatory personnel concerned with milk quality and sanitation throughout the United States. In addition, its membership roster lists individuals and organizations throughout the world.

For the past 38 years, DPC's primary mission has been the development and distribution of educational guidelines directed to proper and improved sanitation practices in the production, processing, and distribution of high quality milk and milk products.

The DPC Guidelines are written by professionals who comprise six permanent task forces. Prior to distribution, every guideline is submitted for approval to the state regulatory agencies in each member state. Should any official have an exception to a section of a proposed guideline, that exception is noted in the final document.

The guidelines are renown for their common sense and useful approach to proper and improved sanitation practices. We think they will be a valuable addition to your professional reference library.

If purchased individually, the entire set would cost $442.00. We are offering the set, packaged in five looseleaf binders for $330.00.

IF PURCHASED ON CD, take a 10% discount plus FREE shipping world wide.

To purchase this important source of information, complete the order form below and mail or fax (515-276-8655) to IAFP.

Please enclose $330.00 plus $17.00 shipping and handling for each set of guidelines within the U.S. Outside U.S., shipping will depend on existing rates. Payment in U.S. $ drawn on a U.S. bank or by credit card.

I would like to order: Hard Copy ☐ CD ☐

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(Allow 4 weeks minimum from date of request.)

DAIRY

- ❒ D1010 The Bulk Milk Hauler: Protocol & Procedures
- ❒ D1031 Dairy Plant
- ❒ D1050 Food Safety: Dairy Details
- ❒ D1060 Frozen Dairy Products
- ❒ D1080 High-Temperature, Short-Time Pasteurizer
- ❒ D1090 Managing Milking Quality
- ❒ D1100 Mastitis Prevention and Control
- ❒ D1105 Milk Hauling Training
- ❒ D1120 Milk Processing Plant Inspection Procedures
- ❒ D1130 Pasteurizer: Design and Regulation
- ❒ D1140 Pasteurizer: Operation
- ❒ D1180 10 Points to Dairy Quality

ENVIRONMENTAL

- ❒ E3031 Allergy Beware
- ❒ E3040 Asbestos Awareness
- ❒ E3055 Effective Handwashing – Preventing Cross Contamination in the Food Service Industry
- ❒ E3125 Good Pest Exclusion Practices
- ❒ E3128 Integrated Pest Management (IPM)
- ❒ E3131 Key Pests of the Food Industry
- ❒ E3133 Physical Pest Management Practices
- ❒ E3235 Regulatory and Good Manufacturing Practices
- ❒ E3236 Rodent Control Strategies
- ❒ E3240 Sink a Germ
- ❒ E3245 Wash Your Hands
- ❒ E3251 Would Your Restaurant Kitchen Pass Inspection?
- ❒ E3260 Swabbing Techniques for Sampling the Environment and Equipment

FOOD

- ❒ F2005 A Lot on the Line
- ❒ F2007 The Amazing World of Microorganisms
- ❒ F2008 A Recipe for Food Safety Success
- ❒ F2009 Basic Personnel Practices
- ❒ F2011 Available Post Harvest Processing Technologies for Oysters
- ❒ F2012 Control of *Listeria monocytogenes* in Retail Establishments
- ❒ F2013 Control of *Listeria monocytogenes* in Small Meat and Poultry Establishments
- ❒ F2014 Controlling Food Allergens in the Plant
- ❒ F2015 Controlling *Listeria*: A Team Approach
- ❒ F2016 Bloodborne Pathogens: What Employees Must
- ❒ F2017 Building a Better Burger – Improving Food Safety in the Food Supply Chain
- ❒ F2021 Egg Production
- ❒ F2025 The Special of the Day: The Eggceptional Egg
- ❒ F2030 "Egg Games" Foodservice Egg Handling & Safety
- ❒ F2036 Emerging Pathogens and Grinding and Cooking Comminuted Beef
- ❒ F2037 Cooking and Cooling of Meat and Poultry Products
- ❒ F2039 Food for Thought – The GMP Quiz Show
- ❒ F2040 Food Irradiation
- ❒ F2045 Food Microbiological Control
- ❒ F2050 Food Safe-Food Smart – HACCP and Its Application to the Food Industry (Part 1 & 2)
- ❒ F2060 Food Safe Series I (4 videos)
- ❒ F2070 Food Safe Series II (4 videos)
- ❒ F2080 Food Safe Series III (4 videos)
- ❒ F2081 Food Safety Begins on the Farm
- ❒ F2090 Food Safety: An Educational Video for Institutional Food Service Workers Food Safety for Food Service Series I
- ❒ F2095 Now You're Cooking
- ❒ F2100 Tape 1 – Food Safety for Food Service: Cross Contamination
- ❒ F2101 Tape 2 – Food Safety for Food Service: HACCP
- ❒ F2102 Tape 3 – Food Safety for Food Service: Personal Hygiene
- ❒ F2103 Tape 4 – Food Safety for Food Service: Time and Temperature Controls Food Safety for Food Service Series II
- ❒ F2104 Tape 1 – Basic Microbiology and Foodborne Illness
- ❒ F2105 Tape 2 – Handling Knives, Cuts, and Burns
- ❒ F2106 Tape 3 – Working Safely to Prevent Injury
- ❒ F2107 Tape 4 – Sanitation
- ❒ F2110 Food Safety is No Mystery
- ❒ F2111 Controlling *Salmonella*: Strategies That Work
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- ❒ F2126 Tape 2 – Food Safety Zone: Cross Contamination
- ❒ F2127 Tape 3 – Food Safety Zone: Personal Hygiene
- ❒ F2128 Tape 4 – Food Safety Zone: Sanitation
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- ❒ F2130 Food Safety: You Make the Difference
- ❒ F2131 Fruits, Vegetables, and Food Safety: Health and Hygiene on the Farm
- ❒ F2133 Food Safety First
- ❒ F2134 Food Safety: Fish and Shellfish Safety
- ❒ F2136 GLP Basics: Safety in the Food Micro Lab
- ❒ F2137 GMP Basics: Avoiding Microbial Cross-Contamination
- ❒ F2140 GMP Basics: Employee Hygiene Practices
- ❒ F2143 GMP Basics: Guidelines for Maintenance Personnel
- ❒ F2147 GMP Basics: Process Control Practices
- ❒ F2148 GMP – GSP Employee
- ❒ F2150 GMP: Personal Hygiene and Practices in Food Manufacturing GMP Food Safety Video Series
- ❒ F2151 Tape 1 – Definitions
- ❒ F2152 Tape 2 – Personnel and Personnel Facilities
- ❒ F2153 Tape 3 – Building and Facilities
- ❒ F2154 Tape 4 – Equipment and Utensils
- ❒ F2155 Tape 5 – Production and Process Controls
- ❒ F2160 GMP: Sources and Control of Contamination during Processing GMPs for Food Plant Employees
- ❒ F2161 Tape 1 – Definitions
- ❒ F2162 Tape 2 – Personnel and Personnel Practices
- ❒ F2163 Tape 3 – Building and Facilities
- ❒ F2164 Tape 4 – Equipment and Utensils
- ❒ F2165 Tape 5 – Production/Process Controls
- ❒ F2168 HACCP Advantage – Good Manufacturing Practices
- ❒ F2169 HACCP: Training for Employees – USDA Awareness
- ❒ F2170 The Heart of HACCP
- ❒ F2172 HACCP: Training for Managers
- ❒ F2173 Inside HACCP: Principles, Practices and Results
- ❒ F2180 HACCP: Safe Food Handling Techniques
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- ❒ F2230 Purely Coincidental
- ❒ F2250 On the Line
- ❒ F2260 100 Degrees of Doom…The Time and Temperature Caper
- ❒ F2265 A Day in the Deli: Service, Selection, and Good Safety
- ❒ F2266 HACCP: A Basic Understanding
- ❒ F2271 Preventing Foodborne Illness
- ❒ F2280 Principles of Warehouse Sanitation
- ❒ F2290 Product Safety and Shelf Life
- ❒ F2320 Safe Handwashing
- ❒ F2321 All Hands on Deck
- ❒ F2322 The Why, The When, and The How Video
- ❒ F2325 Safe Practices for Sausage Production
- ❒ F2340 Sanitizing for Safety
- ❒ F2342 Seafood HACCP Alliance Internet Training Course
- ❒ F2350 ServSafe Steps to Food Safety
- ❒ F2350-1 Step One: Starting Out with Food Safety
- ❒ F2350-2 Step Two: Ensuring Proper Personal Hygiene
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- ❒ F2505 Manager Guide to Worker Health and Hygiene Your Company's Success May Depend on It!
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- ❒ F2600 Food Industry Security Awareness: The First Line of Defense

OTHER

- ❒ M4030 Ice: The Forgotten Food
- ❒ M4050 Personal Hygiene and Sanitation for Food Processing Employees
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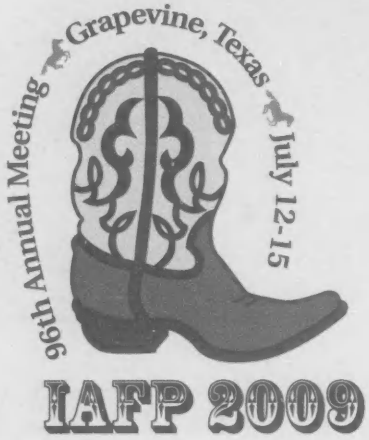

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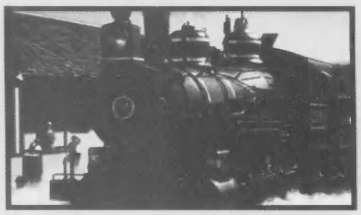

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