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DAIRY, FOOD AND ENVIRONMENTAL

Sanitation

A PUBLICATION OF THE INTERNATIONAL ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, INC. NOVEMBER 1998

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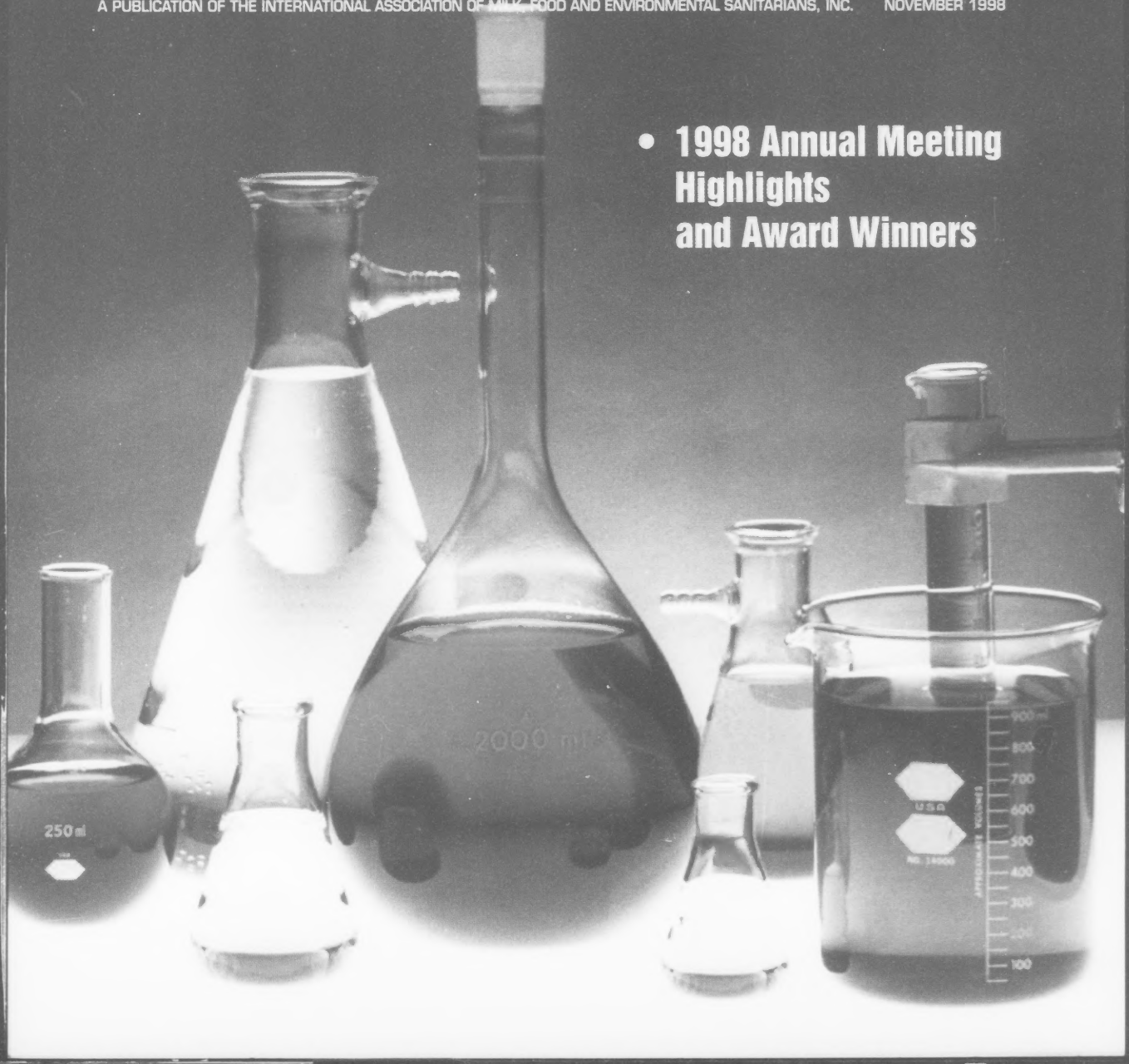

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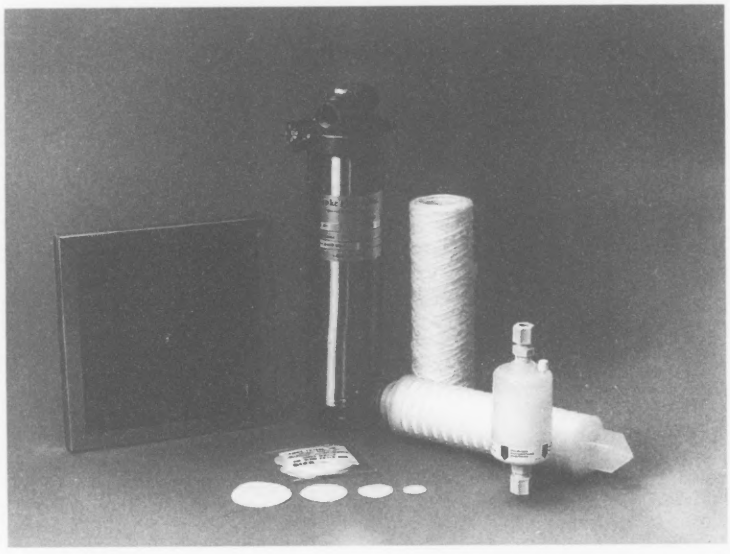

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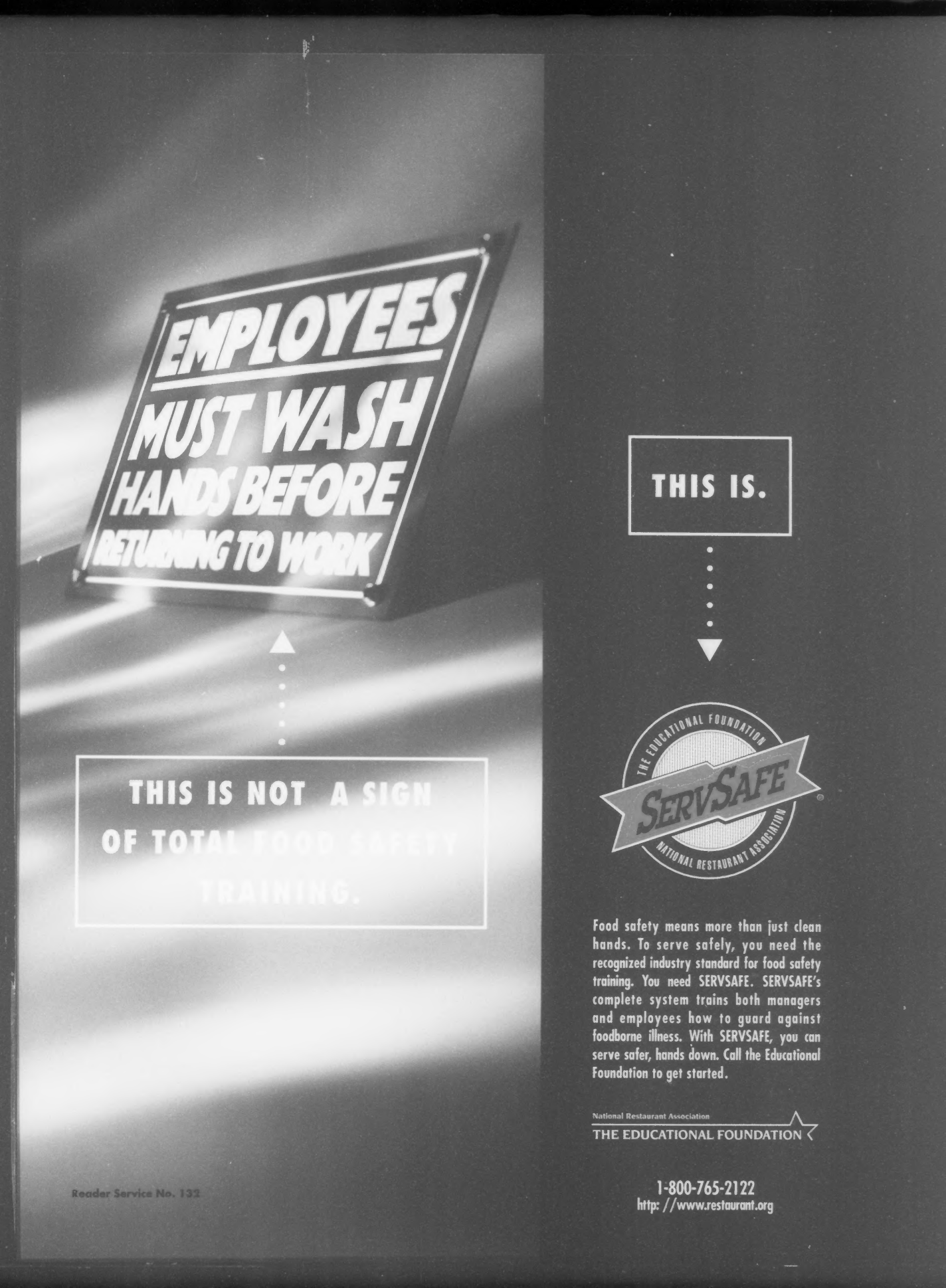
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VIEWS

FROM YOUR PRESIDENT

By ROBERT E. BRACKETT
IAMFES President

"The success of this year's Meeting can be summarized in one word... **NEW**"

In case you haven't already noticed, a main topic featured in this issue of *DFES* is the 1998 Annual Meeting in Nashville. As I mentioned in my September column, this year's Annual Meeting was a success beyond our most optimistic expectations. For those of you who were unable to attend, this issue will give you at least a glimpse of what you missed and perhaps why we think the Meeting was such a success. Some of the reasons for the success of our Annual Meeting are the same as those that make all Meetings a success: an excellent program, a dedicated and professional IAMFES staff, and, of course, motivated and enthusiastic attendees! However, an additional factor in the success of this year's Meeting can be summarized in one word... **"NEW!"**

The 1998 IAMFES Annual Meeting introduced a number of NEW programs and opportunities that added to the success of the Meeting, will enhance Member participation, and strengthen the Association. I'd like to share just a few of these NEW programs with you.

IAMFES is expanding into NEW areas of interest. Concern over the safety of fresh produce has increased in recent years. In response to this concern, Members with an interest in fresh produce formed a NEW Fruit & Vegetable Safety and Quality Professional Development Group during the past year. This PDG organized a well-attended and excellent NEW symposium on Fresh-cut Produce for the 1998 Annual Meeting, even before they held their first formal PDG meeting. Their first PDG meeting mirrored the success of the overall Meeting, with at least 21 participants (several of which were NEW IAMFES Members) representing industry, government, and education were present.

IAMFES introduced NEW awards. The IAMFES Fellows Award was developed to recognize long-time Members who have given noteworthy service or brought esteem to the Association. This prestigious NEW award will be presented annually during the Opening Session ceremonies in years to come. The National Food Processors Association (NFPA) selected IAMFES as the host organization for the introduction of another NEW award, the NFPA Food Safety Award. This award will be an annual award presented to individuals or organizations who have made significant contributions to food safety.

IAMFES provided NEW opportunities to contribute to the Association. The 1998 Annual Meeting marked the introduction of the NEW IAMFES Foundation Fund Silent Auction. The purpose of the auction is to help raise monies for the IAMFES Foundation Fund, which supports such popular IAMFES programs as the Audio-Visual Lending Library. The Foundation Fund Committee has set a goal of raising $100,000 by the year 2000. The Silent Auction provides an alternative to direct solicitation for contributions by serving as an entertaining and enjoyable means for IAMFES Members to contribute to the IAMFES Foundation Fund.

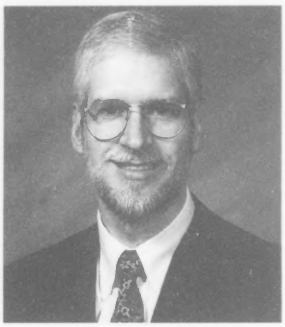
IAMFES is providing NEW services to its Members. Last year IAMFES developed the IAMFES Web site www.iamfes.org as an additional means of communicating with its Members. The presence of the IAMFES Web site has been extremely popular, increasing from approximately 100 hits per day after its introduction in 1997 to 500 hits in mid-1998. The popularity of electronic communications has prompted IAMFES to provide an additional NEW way for IAMFES Committee and Professional Development Group members to communicate: E-mail, discussion groups, or listservs. The listservs will allow PDG and Committee members to communicate via E-mail with other members of their groups much like a teleconference works with telephones. We anticipate that the availability of the listserv will enable PDGs and committees to be more active and continue discussions throughout the year, rather than relying on convening only at the Annual Meeting. This valuable new service is available to all PDGs and Committees upon request. If your group is interested, contact the IAMFES office.

Finally, the 1998 Annual Meeting has provided NEW Members. This year's Annual Meeting not only broke all records for attendance, but provided for NEW growth in our overall Membership. As of the end of September, IAMFES Membership increased to 2,927 Members, an increase of over 200 NEW Members from the previous year. These NEW Members will bring with them NEW ideas, NEW leaders, and NEW friends to IAMFES Members.

As you can probably tell, I am enthused about IAMFES and its future. I believe that a NEW name, NEW growth, and our NEW vision for the Association portends only more success in the coming NEW millennium.

COMMENTARY

FROM THE EXECUTIVE DIRECTOR



By DAVID W. THARP
IAMFES Executive Director

"We have many people to thank for the success of the Annual Meeting"

Wow! That is the response I have when looking back over the 85th IAMFES Annual Meeting. Who would have ever expected our attendance to increase by 120 attendees over 1997's Meeting? By the way, we were certainly pleased with 1997's attendance. We also gained 170 new IAMFES Members, which was more than twice the number of new Members gained during any previous Annual Meeting. We want to take this opportunity to welcome all new IAMFES Members and all first time attendees to the Association. This year we had 1,152 actively involved attendees at The Meeting for food safety professionals.

In actuality, we were expecting great things this year. We tried some new promotional efforts to attract attendees from new pools of interested people. We used a nicely designed logo on all of our materials, we ran ads in three journals and we mailed promotional brochures to potential attendees that we had not solicited in previous years. In addition to our promotional efforts, the program was excellent from all reviews. We received so many positive comments about the program content, we lost count! Many of our first time attendees commented about how nice it was to have access to our presenters; to be able to ask questions, generate discussion and get answers so quickly. I was pleased to hear them say they had attended other, larger conferences, but they enjoyed the IAMFES Annual Meeting so much, they will definitely return next year!

We have many people to thank for the success of the Annual Meeting, I hesitate to begin for fear of leaving someone out, but I will attempt anyway! First I want to thank Ann Draughon, Ruth Fuqua, and the entire Tennessee Association of Milk, Water and Food Protection for the excellent work they did in supporting the operations of our Meeting. It was a pleasure to work with such an enthusiastic group of professionals. Another group that puts forth a great effort is the Program Committee. Susan Sumner led this year's Program Committee and did they ever deliver an excellent, well-rounded, educational program! These two groups contributed so much more than what can be described in words. Our gratitude to all of you for your assistance.

A great addition this year was the many supporters for our exhibit hall events. Qualicon, Warren Analytical, NSF International, and S.C. Johnson Professional/Prism all assisted by providing funding for social events or coffee and pastries. The International Life Sciences Institute, IAMFES Foundation Fund, International Fresh-cut Produce Association, and S.C. Johnson Professional/Prism provided support to allow speakers to attend the Meeting and present their information. We also had a great group of exhibitors whose presence added a different dimension to the Annual Meeting by displaying new products and technology for our attendees. There were many other companies that contributed

resources to enable our Annual Meeting to be successful and we want to thank them as well!

Let's be sure to include the numerous speakers, presenters, convenors, and organizers who spent endless hours preparing and organizing information for this meeting. Thank you. Other groups to offer thanks to are our Committees, Professional Development Groups (PDG), Task Forces and Support Groups. Thanks to everyone involved with these groups. They have generated a long list of recommendations for the Executive Board to consider. The PDGs were actively meeting and proposed 20 symposia for the 1999 IAMFES Annual Meeting.

The Renaissance Nashville Hotel and the Nashville Convention Center provided great facilities for our Meeting and were so very easy to work with. We enjoyed the opportunity to use both facilities and work with their friendly staff. That reminds me of one other group that deserves thanks for their efforts and that is the IAMFES staff! My opinion may be a little biased, but I feel that the IAMFES staff really out did themselves on this Annual Meeting. I can tell you from first hand experience, that we have the hardest working staff of any association our size. Sure we have a little fun along the way, but when it comes to serving our Members, giving professional service is our utmost goal.

We hope as you review the report on the 1998 Annual Meeting in this issue that you reflect on the things you learned in Nashville; then commit to attending the 1999 Meeting. If you were unable to attend the 1998 Meeting, we hope that you'll see something in the pictures or text that sparks your interest and drives you to attend next year's Annual Meeting in Dearborn, Michigan to help us set new records for attendance and Member satisfaction.

Dairy, Food and Environmental Sanitation, Vol. 18, No. 10, Pages 726-731

pH Characterization of Dairy Wastewater Related to Cleaning and Processing Operations

Valente B. Alvarez,[3] Fehmi Yazici,[1] Aloisio Jose Antunes,[2] and Sherri Michalac[1]

SUMMARY

The objective of this study was to identify the effect of cleaning and processing operations on wastewater pH in a fluid milk processing plant. pH was monitored every 2 min for 72 h in three processing plant locations: milk receiving, ice cream/novelty, and cottage cheese and the overall plant. Milk receiving had an average pH of 7.5, ranging from 2.0 to 12.1. Acidic pH values occurred for a short period of time and were not a problem in this area. pH values greater than 9.0 were due to CIP cleaning of HTST pasteurizers. The average pH value for the ice cream/novelty area was 6.9, ranging from 1.0 to 11.3; fluctuation was due to equipment cleaning or product spills. Wastewater from the cottage cheese area had an average pH of 6.9, ranging from 1.3 to 13.0. Values higher than 9.0 were caused by manual and CIP cleaning of cheese equipment, while values less than 5.0 were due to whey drainage. Overall, the average pH of the dairy plant was 7.6, ranging from 2.0 to 12.5. In many instances, both acidic and alkaline pH values were borderline with regard to legal limits (pH 5-9).

INTRODUCTION

All food processing plants generate significant amounts of waste. In the past, plants often discharged wastewater into the sewer without any pretreatment. However, in 1972 the Federal Water Pollution Control Act, PL 92-500, set the most restrictive pollution control in the United States. The 1996 publication on protection of environment in the Code of Federal Regulations No. 40 describes the current guidelines and regulations *(3)*. Under this Act, plants are classified into two groups: user industry, a plant that discharges wastewater effluent to a public waste water treatment facility, and direct discharger, a plant that discharges its wastewater effluent to a river. Both groups are required to comply with wastewater standards. The Environmental Protection Agency (EPA) sets guidelines for wastewater discharges, including total suspended solids (TSS), biological oxygen demand (BOD), and pH. Standards vary depending on volume, size and location of each plant. Maximum effluent limitations for a fluid products plant receiving more than 250,000 lb/day of milk equivalent (more than 25,900 lb/day of BOD_5 input) as pounds per 100 lb of BOD_5 input are 0.338 BOD_5,

TABLE 1. Sources of waste in dairy plants

Number	Description of source
1.	The washing and cleaning out of raduct remaining in tank trucks, cans, piping, tanks, and ather equipment (perfarmed routinely after every pracessing cycle)
2.	Spillage praduced by leaks, averflaw, freezing-an, bailing-over, equipment malfunctian, or careless handling
3.	Processing lasses, including:
	(a) sludge discharges from CIP clarifiers,
	(b) praduct wasted during HTST pasteurizer start-up, shut-dawn, and product change-over,
	(c) evaporator entertainment,
	(d) discharges from battle and case washers,
	(e) splashing and cantainer breakage in autamatic packaging equipment, and,
	(f) product change-over in filling machines.
4.	Wastage af spailed praducts, returned products, ar bypraducts such as whey
5.	Detergents and other compounds used in the washing and sanitizing solutions that are discharged as waste
6.	Entrainment af lubricants from conveyors, stackers and ather equipment in the wastewater fram cleaning aperatians
7.	Routine operatian af tailets, washraams, and restaurant facilities at the plant
8.	Waste constituents that may be in the raw water that ultimately goes ta waste

0.551 TSS, and a pH range of 5 to 9 *(3)*. However, local and state standards may be different.

Waste-producing operations in dairy plants are listed in Table 1. There are eight groups of plant operations related to waste production: cleaning and sanitizing of equipment, product spills, processing losses, spoiled products, detergents and chemicals, lubricants, toilets and washroom wastes, and raw water *(2)*. Overall, dairy waste has slightly alkaline pH values of 7.0-8.8. Bhalerao and Mulmuley *(5)*, reported wastewater pH from different equipment and operations. Receiving and pasteurization, cheese wastewater and butter wastewater had average pH levels of 8.2, 6.7, and 7. 1, respectively.

Chemicals used in the dairy industry for cleaning applications contribute significantly to wastewater pH. They can be categorized as detergents, disinfectants, surfactants, and water treatments *(7)*. Several different detergent formulations can be used depending upon the type of soil to be removed. Formulations may combine various chemicals, including surface-active agents (sulfated alcohols, alkyl aryl sulfonates), chelating agents (sodium polyphosphate, ethylenediamine tetraacetic acid, nitrilotriacetic acid), and either alkaline reagents (caustic soda, sodium metasilicate, trisodium phosphate), or acid chemicals (nitric, phosphoric, and sulfamic acid) *(7, 8)*. Surfactants are used to provide rapid wettability, penetration, emulsification of fat and oil, and dispersion and suspension of soil particles. Alkali chemicals, with a pH range of 10.5-14, effectively saponify fats and oils and hydrolize carbohydrates and proteins *(4)*. Acids and chelating agents, with a pH ranging from 1.5-6.0, provide water softening, mineral control and soil displacement *(1, 4)*. After equipment is thoroughly cleaned, the remaining bacterial load can be destroyed with proper sanitation. Commonly used chemicals for sanitation include chlorine compounds, iodophors, quaternary ammonium compounds, and acid-anionic surfactants *(8)*.

Cleaning in place (CIP) systems have several cleaning cycles, including pre-rinse, wash, postrinse, acid rinse and sanitize. Commercial alkaline washing solutions used for CIP, such as chlorine, are prepared to contain 0.5-1.0% active ingredient and have a pH value between 7 and 9. Acid solutions, such as nitric acid and phosphoric acid, and some sanitizers have a pH of 1 to 3; therefore, CIP operations can significantly affect dairy wastewater *(1, 6)*.

This study was conducted to identify possible contributions of cleaning and sanitizing solutions and processing operations on wastewater pH in a fluid milk plant. The plant evaluated in this study produced fluid milk, cottage cheese, ice cream, popsicles, and juice drinks.

MATERIALS AND METHODS

Plant description and pH sampling stations

The dairy plant processes about 70,000 gallons of raw milk per day, seven days a week. Products that are manufactured include a full line of fluid milk products, cottage cheese, sour cream, dips, buttermilk, fat free dips, yogurt, ice cream and novelties. Three manholes in the plant were selected and adapted to measure and record wastewater pH from the processing areas listed below. An additional manhole was monitored to measure pH of combined wastewater representing the overall plant.

TABLE 2. pH of CIP compounds used in the dairy plant

CIP cycle and solution	Active Ingredient	pH at specific concentrations
Alkaline		
A	Nonionic surfactant and proteolytic enzyme	100% = 8.0
B	Potassium carbonate	100% = 12.3
C	Potassium hydroxide and potassium hypochlorite	1.0% = 12.4
D	Sodium hydroxide	1.0% = 12.5
Acidic		
A	Phosphoric acid and nitric acid	1.0% = 1.9
Sanitizing		
A	Acetic acid, hydrogen peroxide, and peracetic acid	1.0% = 2.5
B	Phosphoric acid	1.0% = 2.0

pH measurement

A pH meter, Jenco Electronics (Model 6091), equipped with a Cole Palmer industrial pH electrode (Model: 27003-00) and a temperature probe (Model 6000A) was calibrated to pH 4 and 7 using standard buffer solutions (Fisher Scientific). Each manhole was adapted so that the pH meter could be placed inside, and readings were automatically printed. Electrodes were positioned in the wastewater at the center of the sewer line, one centimeter from the bottom. Wastewater pH was measured every two min for 72 h in each manhole. Wastewater pH-related processing operations and activities occurring in the plant during the times of pH measurements were identified and recorded.

Waste sources

Milk receiving area: Waste originates from truck washing, product batching, raw milk processing, packaging and raw milk storage silos. The main sources of waste in this area are milk solids from the truck washing room, sludge from the cream separator, and high temperature short time pasteurizer (HTST) startup, and product change-overs. Additionally, broken product packages and conveyor lubricants also contribute to waste in the milk receiving area. In this area, three CIP systems are used to clean and sanitize equipment, tanks and silos, the HTST system, raw milk receiving lines, and milk tankers.

Ice cream/novelty area: The waste from this processing area is generated through product losses resulting from broken packages, spilled products and product change-overs. Other waste sources include cleaning and rinsing of ice cream bar molds and cleaning and sanitizing of floors, equipment, and utensils. This processing area has one CIP unit used to clean mix and water-ice tanks, water-ice lines, freezing circuits, and water-ice flavor vats.

Cheese processing area: The main waste source in this area is whey. Other waste is generated from the cleaning and sanitizing of milk lines, cream lines, tanks, and cheese vats, as well as fillers and waste from overfilled and broken packages. Additional waste is produced from the CIP unit, cheese processing room, culture vat room, and cheese packaging section.

CIP systems: CIP systems use commercial alkaline, acidic, and sanitizing solutions. These compounds contribute to alkaline or acid pH depending on their active ingredient (Table 2). All CIP solutions are diluted to the proper strength before use, based on type of equipment and soil load. Average pH of alkaline, acidic and sanitizing solutions after dilution were 12.45, 1.9 and 2.25, respectively.

RESULTS AND DISCUSSION

Overall, the dairy plant produced an effluent with an average pH of 7.6 and a range of 2.0-12.5. In most cases it was not possible to associate acidic or alkaline pH with a specific plant activity because of the complexity of activities occurring simultaneously. In many instances, both acidic and alkaline pH values were borderline with regard to legal pH range limits of 5 to 9 (indicated by dotted lines in Fig. 1 to 4). Extreme pH values (pH<5 or pH>9) occurred for only specific, short periods of time. Extreme pH values were associated with different activities in the plant and lasted 2 to 15 min in most cases. Acidic pH was due mainly to CIP cleaning and cottage cheese whey. Alkaline pH resulted from CIP cleaning and caustic cleaning of HTST systems.

Milk receiving area

Average wastewater pH was 7.52, ranging from 2.00 to 12.10 (Fig. 1). Extremely acidic pH values (pH<5) was not a problem in this area during the three-day evaluation. pH remained in the acidic range for 14 min, compared with 347 min in the alkaline range. On day 1, average pH was 8.09, with a range of 2.00 to 12.10. pH remained in the alkaline range (pH 9.00 to 12.10) for 182 min, compared with 3 min in the acidic range (pH 2.00 to 4.37) (Fig. 1A). The first 5 alkaline peaks were associated with CIP alkaline washing of milk receiving tankers. The solution used had a pH value higher than 9. The only other time that pH exceeded 9 was when 3 or more CIP units were running, regardless of the cycle. On day 2, pH measurements were different from those on day 1 (Fig. 1B).

Figure 1. Wastewater pH in Milk Receiving Area measured during 24 hours an three different days. Dotted lines indicate pH regulatary limits (pH 5-9)

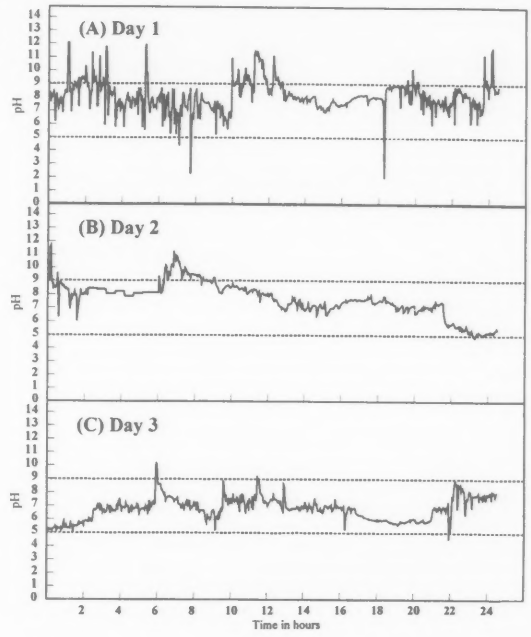
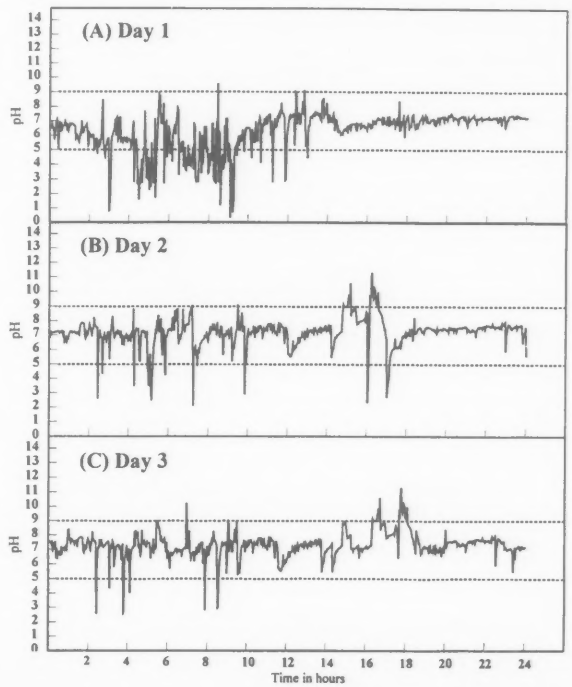


Figure 2. Wastewater pH in Ice Cream/Novelty area measured during 24 hours an three different days. Datted lines indicate pH regulatary limits (pH 5-9)



Average pH was 7.73 and extremely alkaline pH values lasted for 144 min. These higher pH values may have been induced by the operation of at least three CIP units, the caustic cleaning of HTST pasteurizers, and alkaline washing of milk receiving tankers. On day 3, pH measurements averaged 6.74. Few pH peaks deviated from legal limits (pH 5-9) (Fig. 1C). Acidic pH (4.51-4.95) occurred for only 4 minutes. Washing solutions from a CIP system were associated with this pH. Alkaline pH values (10.06 to 10.12) that lasted for 2 minutes were caused by rinsing, and by washing solutions from three milk receiving tank CIP units.

Ice cream/novelty area

Wastewater pH from the ice cream/novelty area frequently deviated from the legal limits of 5 to 9 (Fig. 2). Average pH during the 72 h monitoring period was 6.94 (range 1.0 to 11.27). Extreme pH values (<5 or >9) occurred each day and lasted up to 45 min. Low pH was the most frequently encountered problem in this area. On day 1, there were approximately twenty extreme acidic peaks (Fig. 2A), which lasted 2 to 46 min. Peaks of acidity occurred when the CIP unit in this area was running. Product spills from sherbets, ice pops, and fruit concentrate, along with floor cleaning, also could have contributed to the low pH readings. During production, pH of the wastewater was within the legal range. This observation suggests that extreme pH values are related to cleaning activities. Day 2 and 3 pH patterns were similar to that of day 1 (Figs. 2B and 2C). Acidic peaks were associated with CIP cleaning solution containing phosphoric acid and/or nitric acid. Alkaline pH was caused by commercial alkaline solutions (pH>9) used during manual cleaning of stick machines.

Cottage cheese processing area

The pH of wastewater from the cottage cheese processing area was either extremely low or extremely high, depending on the different production activities. Average pH for three days was 6.94, ranging from

Figure 3. Wastewater pH in Cheese Processing Area meosured during 24 hours on three different doys. Dotted lines indicate pH regulatory limits (pH 5-9)
*indicote whey droinoge ond/or COP cleaning chemicols
indicate monual and COP cleaning chemicols

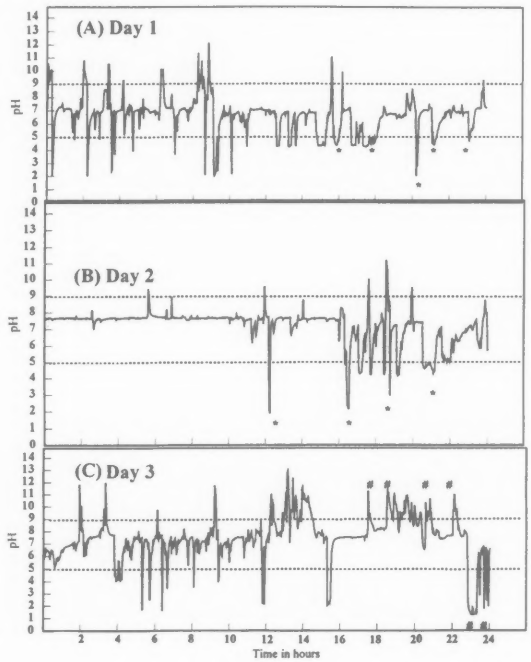
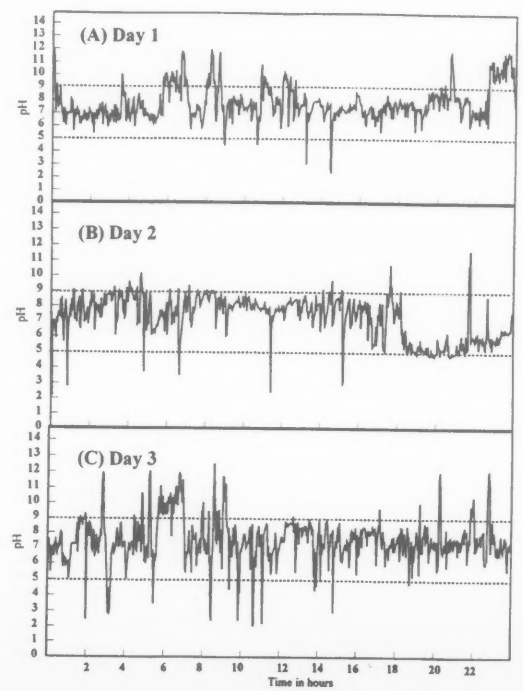


Figure 4. pH of Combined Wastewater measured during 24 hours an three different doys. Dotted lines indicate pH regulatary limits (pH 5-9)



1.25 to 13.00 (Fig. 3). On day 1, pH values remained primarily in the acidic range (Fig. 3A). Average pH was 6.60, ranging from 2.00 to 12.14. About thirty-two extreme peaks, nine of them acidic, lasted for a total of 220 min. CIP cleaning was the main cause of both acidic and alkaline extremely low pH values (<5 or >9). All extremely high pH values (>9) occurred when the CIP system was in operation. In addition to whey drainage, CIP cleaning contributed to extremely low pH values (<5). These peaks associated with whey drainage and cleaning chemicals are indicated (*) on Fig. 3. pH changes during day 2 were significantly different from those of day 1 (Fig. 3B). Average pH was 7.20, with a range of 1.85 to 11. pH was in the legal range of 5 to 9 for approximately 12 hours, when no cheese processing was occurring. When cheese processing started, there were three alkaline and eight acidic peaks. The longest acidic peak lasted four min, compared with 35 min for the alkaline peak. Alkaline peaks were caused by CIP, whereas acidic peaks were due to a combination of CIP operations and drainage of cottage cheese whey. The pH profile of day 3 was significantly different from the profiles of previous days (Fig. 3C). Average pH was 7.47, ranging from 1.25 to 13.00. No cheese manufacturing took place on this day; thus, CIP units were the main cause of extreme pH values in this area. Extreme alkaline peaks (#) in Fig. 3 were caused by chemicals from manual cleaning of the walls, cleaning out of place systems (COP) cleaning of cheese vats and other equipment.

Overall pH of the plant

Combined wastewater pH showed both extreme acidic (<5) and extreme alkaline (>9) pH values (Fig. 4). Average pH for three days from the main manhole station was 7.56, ranging from 2.03 to 12.50. Day I average pH was 7.83 (Fig. 4A), with a range of 2.60 to 4.54. Acidic peaks (pH<5) occurred four times and each lasted for about 2 minutes. Low pH (<5.0) was caused by acid solutions

used in CIP cleaning of ice cream mix lines, butter milk tanks, pasteurized milk tanks, raw milk receiving lines, and two HTST systems. Alkaline peaks (pH>9) occurred several times, totaling 204 min. The longest individual alkaline peak lasted 70 min. Alkaline pH (>9) occurred when three or more CIP units were operating. These higher pH values were due to alkaline washing or caustic cleaning. Day 2 pH measurements (Fig. 4B) were different from those of day 1. Several CIP systems were operating simultaneously, and pH rarely remained outside legal limits (pH 5-9). Acid and alkaline solutions generated from different CIP systems may have had an equalizing effect on the pH of combined wastewater. A significant contributor to deviations of pH wastewater from legal limits during this period was the HTST cleaning process. Day 3 pH measurements are shown in Figure 4C. Average pH was 7.57, ranging from 2.03 to 12.50. Although there were about twelve acidic peaks, the longest lasted 10 min. Alkaline peaks lasted a total of 135 min. Running two or more CIP systems at the same time caused extremes of either acidic or alkaline pH values. Wastewater from only one CIP unit failed to bring pH values out of the legal range, i.e., <5 or >9.

CONCLUSIONS

Wastewater pH varied from day to day based on plant activity. Wastewater from the overall plant had an average pH of 7.56. In most instances, wastewater pH from each area was within legal limits. However, each area generated both extreme acidic (pH<5) and extreme alkaline (pH>9) pH values caused by specific plant operations. Ice cream/novelty, cottage cheese, and milk receiving areas had average pH values of 6.64, 6.64, and 7.52, respectively. The ice cream/novelty and cottage cheese areas had more acidic pH values, in contrast to the milk receiving area, which produced more alkaline pH values. CIP systems were the main cause of extreme pH values in each area. Other causes for acidic pH were mostly related to processing activities, such as whey drainage from cottage cheese and product spills from sherbets, ice pops, and fruit concentrate. Factors contributing to alkaline pH were more related to cleaning than to processing. Because a significant number of extreme pH values were borderline to legal limits, a simple equalization system may be useful to reduce the pH problem in this plant. Chemical recovery from dairy effluent using membrane filtration techniques would be another way to reduce the pH extremes. The elimination of pH problems in dairy wastewater will provide environmental and economic benefits to the plant operation. It will contribute to improvement of the environment by meeting the local and state wastewater standards for pH. In this specific plant, there will be an economic benefit in that charges associated with wastewater pH violations would be eliminated.

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Barrier Teat Dip Application During Cold, Windy Conditions: *Staphylococcus aureus* Colonization and Teat Skin Health

Lawrence K. Fox[1] and J. E. Burmeister[2]

SUMMARY

The use of post-milking teat dip barrier products in reducing *Staphylococcus aureus* counts on teat skin and in milk, and their effect on teat skin health, was studied during a period of cold, windy conditions. Eight cows at the Washington State University Dairy Center were artificially chapped by use of 1 N NaOH solution for 1.5 days. Teats of all cows were immersed in a broth culture of *Staphylococcus aureus* after two consecutive milkings. Post-milking teat treatments included two commercial barrier teat dips (a lactic acid and sodium chloride barrier and an iodine based barrier) and one commercial iodophor dip. Treatments were randomly applied such that each teat of each cow received one of the three treatments and the fourth teat served as a control. Cows were penned under open conditions and exposed to wind generated by a fan for 25 minutes/day. Mean daily high and low temperatures were 1.7°C and -2.0°C. *Staphylococcus aureus* counts tended to be highest in milk and from skin from teats receiving the iodine based products, paralleling the higher teat condition scores associated with these treatments. These results suggest that barriers do not uniformly provide protection for the teat skin during cold, windy conditions. Moreover, iodine based products may not be associated with the most rapid healing of chapped teats during cold, windy conditions.

INTRODUCTION

Application of disinfectant solutions on the teats of dairy cows after milking (teat dipping) has long been advocated as an effective method to control contagious mastitis *(9)*. However, teat dipping during periods of inclement conditions can lead to teat chapping, which could predispose the cow to intramammary infection by contagious mastitis pathogens. Indeed, the incidence of intramammary infections by *Staphylococcus aureus* was found to be greatest during a period of exceptionally cold weather *(4)*. To control *S. aureus* intramammary infections during these periods of intense cold, dairy managers have tried a number of post-milking teat treatments, such as use of a teat salve, a powdered teat dip, or a liquid teat dip followed by blot drying prior to cow turnout *(8)*. Results of trials examining the application of salve *(3, 6)* or a powder *(7)* as a post-milking treatment of teats during the winter did not demonstrate effectiveness in reducing *S. aureus* teat skin colonization or in reducing *S. aureus* intramammary infection. The practice of dip and

TABLE 1. Geometric mean[1] ± SD concentration of *Staphylococcus aureus* in milk and teat skin swabbing solutions, and teat skin scores, by treatment[2]

Measurement	Treatment 1	Treatment 2	Treatment 3	Control
Skin *S. aureus* counts (Log CFU/ml)	0.36^{b} (0.72)	0.68^{a} (0.95)	0.85^{a} (1.21)	0.71^{a} (1.05)
Milk *S. aureus* counts (Log CFU/ml)	0.30^{c} (0.70)	0.89^{b} (1.33)	1.25^{a} (1.51)	0.76^{b} (1.16)
Teat skin score	2.6^{a} (0.8)	2.8^{b} (0.7)	2.8^{b} (0.7)	2.5^{a} (0.8)

[1] Means within a row not sharing a common superscript were significantly different, $P < 0.05$.

[2] Treatment 1: a 0.64% sodium chloride, 0.64% lactic acid, polymer gel post-dip barrier;

Treatment 2: a 1.0% iodine, 10% glycerin, 2% polyethylene post-dip barrier;

Treatment 3: a 0.1% iodophor solution post-dip; and Treatment 4: no-dip control.

blot drying before cow turnout appears to be the most effective means to control *S. aureus* during periods of cold and inclement weather *(6)*. However, this practice of dip and blot drying adds extra time to the milking regimen and therefore is not favored by many dairy managers. The need for a better management practice to maintain both teat skin health and reduction of *S. aureus* colonization during cold weather is needed. Intuitively, it would be expected that use of barrier teat dips would provide a level of protection for the teat skin against inclement conditions. Water soluble barrier dips have been shown to control *S. aureus* intramammary infections *(1)*. Thus, we hypothesized that application of a barrier teat dip would control *S. aureus* colonization and maintain teat skin health during inclement conditions.

METHODS AND MATERIALS

Eight Holstein cows in late lactation were used to study the effect of barrier post-milking teat dips in preventing teat skin chapping and *S. aureus* colonization. Cows that were free of intramammary and extramammary *S. aureus* infections, as determined by aseptic collection of samples and culture by standard procedures *(5)*, were split evenly into two groups. All teats of all cows were used in the trial. Cows were milked twice daily at 12-hour intervals in a double five herringbone parlor. Cows were penned in covered free stalls that were open and exposed to ambient conditions. The trial was conducted during January and February of 1997, in an effort to expose cows to the coldest climatic conditions. Normal pre- and post-milking teat asepsis was terminated prior to the start of the experiment. Teats were immersed in a 1 N NaOH solution immediately following a milking, for three consecutive milkings, to achieve a visual teat chapping score of 4. A score of 4 signified teat skin that was grossly chapped with numerous ulcerative lesions, inflamed, and sensitive to touch. A score of 1 indicated a normal, healthy, pliable teat skin, and scores of 2 and 3 were equal gradations of chapping between scores of 1 and 4 *(5)*. Teats were immersed in a broth culture of *S. aureus* after the two milkings that followed the NaOH application. The broth culture contained 5×10^{6} CFU/ml of *S. aureus* ATCC 29740 *(5)*. Treatments were applied at the milking following the last broth application and for 11 days thereafter. Treatments were post-milking application of teat dip solutions: Treatment 1, 0.64% sodium chloride and 0.64% lactic acid in a polymer gel (Uddergold®, Alcide Corp., Redmond, WA); Treatment 2, 1.0% iodine, 10% glycerin, and 2% polyethylene glycol (Blockade™, West Agro®, Inc., Kansas City, MO); Treatment 3, 0.1% iodophor and 2% glycerin (Quartermate®, West Agro, Inc., Kansas City, MO); and Treatment 4, no-dip control.

Treatments 1 and 2 are considered barrier teat dips. Treatments were randomly assigned. Each quarter of each cow received a different treatment. Immediately following application of treatments at the afternoon milking, cows were led from the milking parlor to an uncovered area of their pen and the head was restrained. Some lateral movement of the cow was possible. A household box fan was placed at a distance such that, when set on the level indicated "high," it produced an air velocity that was measured at 152.4 meters per minute at the rear of the mammary gland. Cows were exposed to this wind for 25 minutes.

Prior to treatment application, collection of teat skin swabbing solutions, aseptic collection of milk samples, and teat skin condition scoring were done. Swabbing solutions and milk samples were stored frozen at -5°C until analysis, when they were thawed and warmed to ambient laboratory temperature just prior to bacteriological culture. The concentration of *S. aureus* per ml of

sample was determined using standard methods *(5)*. Briefly, milk was serially diluted in phosphate buffered saline solution (0.01 M $NaPO_4$, pH 7.4). Aliquots of the original sample and dilutions were plated on both blood agar and modified Baird-Parker agars. Colonies of *S. aureus* were counted. Statistical analysis used the general linear models procedure *(10)* with contrast of geometric mean values of *S. aureus* concentrations. The effects of cow, day, and treatment were considered independent variables. Duncan's multiple range test was used to contrast means between treatments. Mean daily high and low ambient temperatures were recorded.

RESULTS

The mean (standard deviation) daily high and low temperatures (°C) during the trials were 1.7° (2.3 SD) and -2.0° (2.6 SD). Results of skin and milk *S. aureus* counts and teat condition scores for the entire trial are summarized in Table 1. Teat skin *S. aureus* counts from swabbing solutions of Treatment 1 teats were lowest, and those from Treatment 3 quarters were highest. *Staphylococcus aureus* counts in milk were lowest for Treatment 1 teats, highest for Treatment 3 teats, and similar for Treatment 2 and 4. Teat condition scores were highest for Treatment 2 and 3 teats and lowest for Treatments 1 and 4.

DISCUSSION

We hypothesized that the barrier dips would form a physical covering and thereby protect the teat against any harsh climatic effects. However, barrier dips did not uniformly protect or enhance healing of the skin. The teat skin score was significantly greater for the Treatment 2 barrier treated teats than for Treatment 1 group teats. Paralleling these differences in skin scores between barrier treated teats were differences in *S. aureus* counts on skin and in milk. *Staphylococcus aureus* counts were greater in mammary quarters receiving Treatment 2 as opposed to Treatment 1. The greatest *S. aureus* counts on teat skin and milk were from mammary quarters receiving Treatment 3 post-dip. Both Treatments 2 and 3 have iodine as the active ingredient, which might suggest the iodine could potentiate the negative effects of inclement conditions on teat skin healing and thus health. The 1% iodine barrier post-dip tested in this trial was also associated with poorer teat condition in another trial *(2)*. Teats not receiving a post-milking treatment, the controls, had the lowest teat skin score, but the *S. aureus* counts of milk and from teat skin was greater for control mammary quarters than for Treatment 1 group teats. These results are similar to those reported by others *(6, 7)*. Goldberg and coworkers *(7)* reported that IMI by *S. aureus* during the winter months was greatest for mammary quarters whose teats received post-milking treatments without a bactericidal ingredient. Fox and Norell *(6)* found that *S. aureus* teat skin colonization was greatest on teats that received no post-milking teat treatment during cold and windy conditions. Yet in both studies *(6, 7)*, teat skin health was better, as determined by teat condition scores, on teats not treated with a germicidal agent.

In conclusion, it does not appear that barrier teat dips might uniformly protect teat skin against harsh weather conditions. The results from this trial suggest that the iodine disinfectant in teat dips could negatively interact with chapped teat skin so as to retard the healing process. Thus the relative positive effects on teat skin health and reduced *Staphylococcus aureus* counts associated with Treatment 1 dip might be a result of its barrier properties, its ingredients, or a combination of both factors. In contrast to results of a previous study *(6)*, the Treatment 1 barrier post-milking teat dip might be equivalent to employing a strategy of dipping and then blotting the teat dry before cow turn-out, during periods of inclement weather.

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Consumer Perceptions of HACCP and the Price of Meat

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SUMMARY

Foodborne disease outbreaks caused by *E. coli* O157:H7 bacteria in ground beef have caused increased consumer concerns about the safety of red meats. This study was undertaken to: (1) assess consumers' perceptions of meat quality and safety, (2) determine consumers' perceptions of HACCP, and (3) assess the monetary value consumers would place on ground beef processed with a HACCP system in place compared with ground beef processed without a HACCP system. Four consumer focus groups were conducted in Manhattan, KS. Each focus group session lasted 1.5 h. Potential participants were screened to be sure they consumed red meat at least once a week. At the start of the focus group sessions, selected panelists completed a questionnaire to assess their overall food safety knowledge prior to participating in the discussion. Then the trained moderator, using a moderator guide, asked questions about meat quality and safety. The panelists were given a handout depicting the required meat safety label and were asked their perceptions of the information provided on the label. Panelists then viewed a 12-minute video on HACCP. After viewing the video, they completed a willingness-to-pay exercise in which they chose between ground beef processed with a HACCP system in place or ground beef processed without a HACCP system and then discussed their reactions to HACCP and to the price of meat. Eighty-three percent of the panelists had read the meat safety label previously. Reactions to the label, however, were both positive and negative. Comments indicated they thought the labels were vaguely worded. For example, the word "thoroughly" can mean many things and does not provide clear directions for cooking. The panelists reacted positively to the concept of HACCP and felt it would convey a higher level of assurance of safety in meat products. Eighty percent of the panelists were willing to pay more for HACCP-processed ground beef than the non-HACCP processed beef. In fact, 22 percent were willing to pay as much as $.45 more per pound. In the follow-up discussion, however, panelists expressed mixed reactions; some felt they should not have to pay more for safety, which should already be part of the processing procedure.

INTRODUCTION

Food safety has become a prominent issue for consumers and influences their purchasing decisions. According to the Food Marketing Institute Trends Survey in 1996, only 20 percent of the consumers surveyed were completely confident that our nation's food supply is safe *(1)*. Another influence on consumer buying decisions is the media and the way they have portrayed the safety of our nation's food supply. Media stories in 1993 following the *E. coli* O157:H7 contamination of hamburgers served in Jack-in-the-Box restaurants made consumers aware of the potential dangers in the meat supply. This event changed the way Americans think about meat.

In an effort to alleviate public fear about food safety, the Food Safety and Inspection Service (FSIS) proposed a broad, long-term, science-based strategy to establish "systematic preventive measures to eliminate and reduce the presence of pathogenic microorganisms in meat products" *(12)*. The final rule was announced on July 25, 1996. The new regulations will change the way the federal government inspects meat products. Meat processing plants are to implement a Hazard Analysis of Critical Control Points (HACCP) system. The HACCP system is designed to identify and prevent any potential hazards that could develop in the processing of meat products. This includes an overall plan designed to reduce the likelihood of problems occurring during processing that are related specifically to the safety and integrity of the product *(10)*.

The public has learned through various media about the weaknesses of the outmoded inspection system. Public education is needed to increase consumers' knowledge of the application of HACCP in the new inspection system. Consumers must be willing to accept the change as one that potentially will make our nation's meat supply safer. Consumers who are knowledgeable about HACCP will appreciate the efforts of meat processors to provide safe meat. An effective HACCP system can increase consumer confidence in meat products and provide a marketing advantage for promoting safe meat products to consumers.

Recent studies have assessed consumers' overall knowledge of and public concern about food safety *(2)*. Prior studies have assessed the public's perception of food safety risks *(5)*. Our study also assessed food safety knowledge and perceptions, but in addition provided education on HACCP principles to focus-group participants.

The objectives of our study were to (1) ascertain consumers' overall perceptions of meat quality and safety, (2) determine consumers' perceptions of HACCP after receiving educational information, and (3) assess the monetary value consumers would place on ground beef processed under a HACCP system. This research addressed two critical issues: (1) Do consumers believe that HACCP has a positive impact on the overall safety of our nation's meat supply? (2) Will consumers place a monetary value on food safety? Answers to these questions are important for determining whether new food safety regulations will alleviate consumers' concerns and for providing insight on how to reach consumers with information on safe handling of meat products.

One means of accomplishing these objectives is to solicit consumer reactions to food safety issues through consumer focus group sessions. Focus group methodology has been developed to obtain objective interpretation of qualitative results *(11)*. Consumer focus groups have been used previously to study perceptions regarding pesticide use in food production *(3)* and to assess consumer knowledge and concern about biotechnology and food safety *(14)*.

THE CONSUMER FOCUS GROUPS

Upon approval from the Institutional Review Board for Research Involving Human Subjects, thirty-six subjects participated in four consumer focus groups of 5 to 12 participants. Each subject was selected randomly from the Manhattan, Kansas, telephone directory. Each individual was contacted initially by phone and was asked six screening questions to determine whether that individual purchased and consumed red meat. If the respondent consumed red meat, we then asked questions about red meat consumption patterns, diet, household size and composition, whether a member of the household had a medically diagnosed case of foodborne illness, and occupation. Individuals who indicated they were employed in the meat, food processing, or health industries; individuals who consumed red meat less than once a week; and individuals who had a medically diagnosed case of foodborne illness were eliminated as focus group participants. We believed that individuals with these backgrounds might unduly influence the responses of other focus group participants.

The focus group sessions were conducted in Manhattan, Kansas, in a room designed for such research. All sessions were conducted by a trained moderator who used a predeveloped set of questions and protocols. Each session was audiotaped and videotaped. The audiotapes were transcribed for use in the analysis. Videotapes were used to determine overall group interaction. Prior to the beginning of each focus group session, the participants were asked to complete a consent form and a three-page questionnaire designed to measure overall knowledge and perceptions of food safety. Specifically, participants were asked about the importance of various quality attributes when purchasing meat items and about their knowledge of food safety. Some of the questions were adapted from the Food Marketing Institute Consumer Trends Survey *(1)*. The last part of our questionnaire included demographic questions. After completing the questionnaire, each participant was given $5.00 for use in a willingness-to-pay exercise.

The focus group discussions were conducted in three stages. At the beginning of each session, par-

TABLE 1. Demographic profile of focus group participants in HACCP study, Manhattan, KS

	%
Age:	
18-24	36.1
25-35	25.0
36-49	25.0
50-64	8.3
65 & Over	5.6
Household size:	
1	13.9
2	50.0
3	8.3
4	19.4
5+	8.4
Educational level:	
High school or G.E.D.	8.3
Some college, technical, or vocational	58.3
Bachelor's degree	25.0
Graduate or professional degree	8.3
Income:	
$15,000 or less	33.3
$15,001 - $25,000	13.9
$25,001 - $35,000	25.0
$35,001 - $50,000	11.1
$50,001 - $75,000	13.9
$75,001 or more	2.8
Employment status:	
Full-time	47.2
Part-time	22.2
Homemaker	11.1
Unemployed	13.9
Retired	5.6
Total grocery expenditures per week:	
$25 or less	11.1
$26-$50	47.2
$51-$100	27.8
$101 or more	13.9

ticipants were given a brief orientation, with the moderator asking very general questions about meat quality and safety. These questions were designed to stimulate discussion. A handout then was provided depicting the safety label currently used on fresh meat products. Questions on the handout asked for the participants' perceptions of the labeling information.

In the second part of each session, participants were shown a 12-minute video segment on the HACCP food safety system in a processing environment *(9)*. A handout summarizing the seven principles of HACCP was provided. After the video, the panelists were asked to participate in a willingness-to-pay exercise. Each panelist was given a bidding form and then asked to choose between purchasing a pound of ground beef that was processed without a HACCP system and purchasing a pound of ground beef labeled, "This meat was processed under new federal inspection guidelines with a HACCP system in place." Participants were told that the non-HACCP ground beef cost $1.55 per pound, and if they wanted to purchase the HACCP ground beef they had to pay more than $1.55. Each participant then purchased either a pound of the HACCP ground beef for the price of their bid or a pound of the non-HACCP ground beef with the $5.00 they had been given previously.

In the third part of the session, focus group members were asked to react to the willingness-to-pay exercise and to explain how they felt about placing a value on a product produced under a new food safety system. The willingness-to-pay exercise was based on measuring utility by soliciting a single response from each participant. This method provided an estimate of the utility to the participant of consuming a safer ground beef product by determining the amount of money each participant was willing to spend *(4)*.

The transcripts of the four focus group sessions were analyzed qualitatively according to the original outline of the moderator's questions and followed established methodologies *(7,13)*. Frequencies of responses and mean scores were computed for all variables. Specific comments of individuals were noted.

RESULTS

Demographics and consumption patterns of participants

Table1 summarizes the demographic characteristics of the focus group participants. The 36 participants ranged in age from 18 to 76. Half of them were between the ages of 25 and 49; 86 percent were female. Most were well educated, with 58 percent having received some college, technical, or vocational education. A quarter of the participants had

TABLE 2. Consumer ranking of meat attributes by focus group participants, HACCP study, Manhattan, KS

Meat attributes	%
Safety	33.3
Leanness	13.9
Convenience	11.1
Color	11.1
Grade	11.1
Price	8.3
Age	8.3
Taste	5.6
Labeling	5.6
Brand	2.8

n=36

earned a bachelor's degree. Many of the participants (50 percent) lived in two-person households; 19 percent lived in four-person households. More than 70 percent had a yearly household income of $35,000 or less, and 47 percent had full-time jobs. Just under half (47 percent) of the consumer focus group members spent between $26-$50 on household groceries each week, and 52 percent spent between $10 and $20 on meat products each week. These demographics indicate that the focus group participants were similar to the average ground beef shopper at Manhattan supermarkets *(8)*.

Participants' perceptions of quality

In the survey, participants were asked to rank 10 meat quality attributes from the most to least important (Table 2). Safety was ranked as the most important quality attribute by 33 percent of the participants. The second highest ranked attribute was leanness, with almost 14 percent ranking it as most important. Labeling and brand name were ranked as the least important quality attributes.

The focus group members were asked during the sessions to describe what they thought were the characteristics of a high-quality meat product. Color was mentioned frequently as a determining factor of quality. Typical statements about color included the following: "Color is usually a good indication of how long the meat has been there." "If the red meat is brown, I just won't buy it. I am not sure why, except that it just does not look appetizing to me." Price also was mentioned frequently as an important concern. Some participants mentioned that seeing meat on sale deterred them from purchasing it. For example, one participant said, "If it is on sale, sometimes I worry why is it on sale. Has it been sitting there for a while?" Other focus group members focused on meat safety as an indication of quality. One participant stated, "When you go to the store, you want the nicest looking meat, but then of course you are just naturally thinking it is safe when you are buying it, but if you actually had the choice between what looks good and what was safe to eat I am sure you would choose the safe meat."

Participants' attitudes toward food safety

The participants were asked if they knew of any chemical, physical, or microbiological contaminants that could come into contact with meat during processing that might be harmful. Although 75 percent of the participants indicated that they knew of such contaminants, only 58 percent could actually name a potential hazard. The most frequently mentioned contaminant was *E. coli*. Other contaminants mentioned included *Salmonella*, dirt, and *Trichinella*.

During the focus group sessions, the moderator asked the participants to talk about health hazards associated with red meat. This elicited a wide variety of responses. Many participants brought up the association between the fat content of meat and heart disease and some types of cancers. Other participants were concerned about the way cattle are raised. "Whatever they feed the cattle, hormones or antibiotics," said one participant. But the majority of focus group members identified foodborne illnesses as a major health hazard of meat products. One participant stated, "I remember the Jack-in-the-Box incident. After that I started cooking my hamburgers real good." Another participant agreed: "After that, now I am much more apt to check the center and make sure it is not red before eating it." Other issues of concern were storage and handling of meat products by the supermarkets. As one participant explained, "If you see ice particles on it, you wonder if it was actually frozen or if they thawed it, and then what happens if you take it home and refreeze it?"

Participants' interpretations of meat safety labels

In our survey, 83 percent of the participants said that they read the label on meat products. During the focus group sessions, each participant was given a copy of the federally required meat safety label. Reactions to the safety label were both positive and negative. Positive responses including the following: "I think it is great, I think a lot of the

TABLE 3. Willingness of focus group participants to pay for HACCP meat, Manhattan, KS

	Price per Pound	#	%
Non-HACCP	$1.55	7	19.6
HACCP	$1.56 -$16.0	5	14
	$1.61 -$1.70	7	19.6
	$1.71 -$1.80	3	8.4
	$1.81 -$1.90	2	5.6
	$1.91 -$2.00	5	14
	More than $2.00	8	22.4

n=36

general public isn't even aware of some of these basic instructions." "I think it is a good idea. It is thinking ahead and showing that someone is caring what they are sending out for people to eat." The majority of the negative reactions were of the following type: "They have put vague descriptions on there to cover themselves. They can say well, if you didn't cook it thoroughly enough, that's your fault." "I think a lot of people's idea of what 'thoroughly' means is based on their personal preference of how they like their meat. If they like it medium rare, it is cooked thoroughly to them." "What is missing is the temperature it should reach. If they put it on there, then you would know what cooking thoroughly means." Other reactions were more neutral: "I think it would be nice if they provided an 800 number so people could get more information." "I think of it as general knowledge, and I remember seeing it and not paying any attention to it or reading it. It is kind of like the Surgeon General's warning on a pack of cigarettes."

Participant confidence in the safety of the meat supply

The participants were asked what impact government has on the safety, quality, and availability of the meat supply. Only 36 percent of the focus group members felt the government had a very significant impact on the safety of meat products, and only 22 percent of the participants thought the government had a very significant impact on quality. During the focus group sessions, the participants were asked to comment on how much confidence they had in the safety of meat they purchase in the supermarket. Many of the participants felt that consumers are ultimately responsible for the safety of the meat they purchase. One participant stated, "I feel that if I cook it so that it is not pink anymore I feel like it is pretty safe, and hopefully I cooked out whatever contamination could be in there." Another focus group member said, "I look at it this way. Let's say there is a 95 percent chance that everything is okay with the meat and the rest is up to you. You have to cook it right." Perhaps the overall feelings of participants about the safety of the meat supply can be summed up by this comment: "I guess I don't have a choice. I like meat, and I guess I am going to take that risk. I just feel like when you get it home you just try to make sure that you handle it properly. But before I leave the store I do check to make sure it is packaged properly and check out to see what the workers are wearing, and I look to see if all the workers are wearing bloody aprons and if the place is clean or not." This comment raised another issue during the discussion on consumer confidence in meat safety. Several participants talked about the importance of being able to see behind the meat counter at the supermarket. They felt more confident if they could see meat products being prepared. Here are two typical comments: "I really like the idea of having windows where you can see them packaging the meat." "It makes me feel more confident if I can stand and watch what they are doing back there. When I go into a store and I can't see what is going on back there, I am a little more leery."

Participants' reactions to HACCP

After being shown the brief video on the HACCP concept and then participating in the willingness-to-pay exercise, the participants discussed their reactions to HACCP. Their responses included the following: "I think it [HACCP] is a really good idea, and it keeps workers very conscientious." "I don't know that it would be safer, but it is going to give me a little bit more reassurance because these guys are following the guidelines. They are keeping the paperwork and having somebody else check on them." "That little sticker (the one we used in our willingness-to-pay exercise) is saying that they are confident with what they are doing. It tells you that they are taking this extra step and are having somebody check what they are doing, and they want you [consumers] to know about it." "I think there are people that are concerned with safety issues as far as the meat handling goes, especially with everything in the media. I think anything that the meat processor can do to take preventive action is good."

Participants' willingness to pay more for meat processed under HACCP

Of the participants surveyed, 80 percent were willing to pay more than $1.55 per pound for ground beef processed with a HACCP system in place (HACCP) (Table 3). The other twenty percent were not willing to pay more (non-HACCP). Participants were asked to describe their reactions to potentially having to pay more for meat processed under HACCP. Many

wanted to know how HACCP was different from what currently was being done to provide safe meat to consumers. Here are some of the responses: "I think I must question what the motives are because for them to be able to charge more money for meat processed under HACCP is ridiculous. This kind of thing they should be doing anyway. They should want to make sure that the meat is safe, and that should not give them a reason to charge more money for it." "I would be willing to pay more. But I don't think it is right. But I guess because you are presenting a quality product, this is safer for the public, and they are going to want to buy it." "I think that if you had somebody in a local area that had been sick from meat, then you might be more likely to pay more for HACCP; but if not, then it is not too important to you." "I think it is justified because it is a safety issue, and I think the consumer should pick up some of the cost."

Toward the end of the discussion, the participants were asked who they thought should pay for the implementation of HACCP. The following comments are typical of their responses: "It doesn't matter if you initially say industry is going to pay, the consumer will end up paying. They will just slap it on to the price of the meat." "I think it should be the company. It all goes back to who has a better product, and if you can get a better product for the same price, then everybody is going to start buying that product. The competition is going to go away so you are making money and it is not necessary to raise prices. Because it is a quality issue, people are going to buy more of your product. The cost may go up initially to cover the new procedures, but if it sells they should be able to get back what they put in and then be able to lower the price back down."

Implications

Food safety is a product attribute that must be accepted on the basis of trust by consumers. In order to build trust among consumers, we must identify through consumer focus groups and other means the knowledge and concerns consumers have about food safety. Once identified, these insights can be used to develop educational materials, programs, and effective safe handling labels. The safety of a particular food item is almost impossible for the consumer to determine. As a result, consumers rely upon food processors and government regulators to provide food that is safe when they receive it.

From the results of this study, we can identify issues of concern consumers have about the safety of meat products. Our first objective was to ascertain the consumer participants' overall perceptions of meat. The majority of participants felt that the safety of the product was the most important attribute. Three-fourths of the panelists were aware of the potential for meat contamination, but only slightly more than half could actually name a contaminant. McIntosh et al. *(6)* reported that half of the respondents in their study said they were aware of a danger associated with cooking ground beef, but less than one-fourth could actually name a danger. The results of our study support McIntosh's findings and indicate the need to educate consumers about meat safety. Consumers who have an understanding of food safety will be more likely to respond positively to changes in federal inspection rules and subsequent price increases that may occur.

The focus group discussions showed very clearly that the participants paid attention to the safety label currently being used on meat packages. A positive result of our study is the awareness of participants that ground beef should be cooked throughly, but more educational effort is needed to instruct consumers on exactly what that term means. The majority of them indicated that the label could be made less ambiguous. Participants generally agreed that the label could be more prominent and that more information could be added, such as cooking temperatures and a toll-free 800 number. Most participants were not able to identity proper cooking temperatures and stated they did not use a thermometer during cooking. Participants realized the need to wash cooking utensils and surfaces with hot, soapy water and to refrigerate purchased ground beef and leftovers promptly. However, most of the participants did not understand the difference between cleaning and sanitizing kitchen surfaces.

Our second objective was to determine participants' perceptions of HACCP after they had received brief educational information about the new regulation. Respondents generally reacted positively to the new regulations. Many were surprised that HACCP is part of a new regulation, because they were under the impression that meat processors were already implementing the HACCP principles. Generally, participants indicated that they were not sure that HACCP would provide safer meat products, but they liked the concept and the fact that meat handlers would be required to follow a set of guidelines that could be monitored by government inspectors.

Therefore, participants indicated a strong implicit support for enforcement of meat product standards by setting safety guidelines through HACCP. To this end, the majority of participants (80 percent) were willing to pay more for the meat processed under an HACCP system. However, they had mixed reactions regarding who ultimately should have to pay for implementing the system. Some participants felt that meat processors should absorb the costs of implementing HACCP, because they expect processors to provide safe meat products. Others felt that consumers ultimately would pay the cost, and a few thought that prices might increase slightly at first as HACCP regulations are implemented but then over time decrease because better monitoring would result in less product waste and better quality.

The results emphasize the need for continuing research on consumer education related to food safety and the role that government should play to ensure meat safety. The intent of this research was to gather preliminary data that might be used in the design of an effective message that educates consumers about HACCP and the role it plays in providing safer meat products. Additional studies with a nationwide population sample might provide a more accurate reflec-

tion of overall consumer attitudes toward the safety of our nation's meat supply.

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Presented at the IAMFES Annual Meeting Opening Session

IVAN PARKIN LECTURE: COMMUNICATING FOOD SAFETY TO THE CONSUMER

Christine M. Bruhn

INTRODUCTION

Communicating to the consumer about food safety is our responsibility. When consumers fail to handle food properly, when they misunderstand directions, when they don't recognize the added safety of pasteurized milk, pasteurized juice, or pasteurized meat and poultry, we bare some of the responsibility. We need to speak out more often, and share information more effectively. I will review consumer concerns, practices, and sources of information then suggest how we as a professional society can increase our effectiveness.

Consumers recognize the importance of microbiological food safety. Past studies have shown high consumer concern about pesticide residues. This concern remains, but is not the most prominent today. When consumers are asked to volunteer areas of food safety concern, those identifying microbiological concerns has increased from 36% in 1989 to 69% in 1997 *(1)*. When food safety concerns are specifically identified, 82% classified bacteria or germs as a serious hazard.

Consumers are recognizing that food safety is a shared responsibility. When permitted to provide multiple responses to the question, who is responsible that the food you purchase is safe, 46% of consumers said they were personally responsible, with manufacturers and retailers identified by 28% each and the government at 26% *(2)*. This means about half of the U.S. public don't recognize the role they can play in protecting the safety of their food.

Although consumers express concern about microbiological hazards, many are not aware of safe handling and they make critical errors. New York consumers failed to rapidly cool cooked food with 29% indicated they would let roasted chicken sit on the counter until it cooled completely before refrigerating *(11)*. Only 32% indicated they would use small shallow containers to refrigerate leftovers. Only 54% indicating they would wash a cutting board with soap and water between using it to cut raw meat and chop vegetables.

In California 63% indicated they clean food preparation area with soap and water. The importance of temperature control is not fully understood with 50% indicating they refrigerate leftovers in large containers. Of particular concern, over half of consumers always or sometimes taste leftovers to check if they are still safe *(4)*.

Even consumers who know they are being watched and evaluated, make mistakes. An audit of consumer handling practices among 106 U.S. and Canadian households found 96% had at least one critical violation. Households average of 2.8 critical and 5.8 major violations per household *(6)*. A critical violation is defined as one that, by itself, can potentially lead to a foodborne illness. Major violations are unlikely to cause foodborne illness but are frequently cited as contributing factors.

People use mass media to obtain food safety information. Television, newspapers, and magazines are frequently cited at the primary information source. People also rely on food labels, cook book, and other people *(5, 9, 10)*.

People place the greatest trust in sources that are knowledgeable, concerned about public welfare, truthful and have a good track record *(7)*. Low credibility is accorded to those who exaggerate or distort information or who are believed to have a vested interest. United States studies which have investigated credibility indicate professional health groups are believed by the greatest number of persons, followed by regulatory agencies *(8)*. Material produced by special interest groups are credible to the fewest people.

Consumers indicate they consider several criteria in deciding what to believe *(3)*. They determine if the message makes sense to them personally. This suggests consumers need an information base so they can evaluate message content. They consider the credibility of the message source, and how frequently they hear it. Consumers indicate they are more likely to believe a message if they hear the same information from multiple channels and messengers

This information suggests that a multiple channels should be used to reach the public, with special emphasis on the media because it is the conduit through which consumers receive much of their information.

Imagine with me what a professional society like IAMFES can do and where we can go in the future.

School

Schools reach young people as well as their parents. Even pre-school is not too young to teach safe food handling. IAMFES may chose to work individually or with other professional societies to develop fun, informative units which develop critical thinking skills. Alternatively, local affiliates could support increased availability of material already developed and validated for effectiveness. For example, the Lawrence Hall of Science at the University of California has developed sets of curriculum for elementary, middle/junior high schools and high school that use food as examples to teach risks and benefits. IAMFES affiliates could fund teacher training and program kits for their state.

Local Fairs, Markets, Museums

Fairs and other local events offer an opportunity to present a message in an interesting way to the public. Sample topics could include "The Hows and Whys of Washing Hands," or "How Pasteurization Works." Successful exhibits could be duplicated and shared with other sections.

Expert List for Media Contacts

Since the media is a primary source of information for the public, efforts should be made to connect reporters with scientists. The Institute of Food Technologists Food Science Communicators can serve as a model. Members affiliated with academic institutions who have demonstrated expertise in communication receive media training and subject matter updates. A Guide to Food Science Communicators indexed by subject matter and geographic region is sent to major media contacts. Several IFT Communicators are IAMFES Members. Perhaps IAMFES could develop an expert list built around the current trained membership and expanded to include expertise in a range of fields. IAMFES staff could direct media calls to the appropriate expert resource.

BUILD SCIENTIFIC ALLIANCES

The voice of professional societies can be increased by working with others of similar interest. The Food and Nutrition Science Alliance, FANSA, is an example of such an arrangement. Composed of the American Dietetic Association, American Association for Clinical Nutrition, American Association of Nutritional Sciences, and the Institute of Food Technologists, FANSA's objectives are two fold: foster inter-society communication to advance the acquisition of scientific and technological information, and use the communication and scientific expertise of the organizations to disseminate accurate, timely, consistent information to the public, media, and members.

A representative from each society, society president, and staff person meet via phone every other month to plan and implement programs. A committee consisting of members from each society is assigned a topic to develop consistent with organization objectives.

"The 10 Red Flags of Junk Science," an early production, was widely distributed to the media and society communicators. Their purpose is to help reporters and the public evaluate press releases and dietary recommendations. The red flags are:

1. Recommendations that promise a quick fix.
2. Dire warnings of danger from a single product or regimen.
3. Claims that sound too good to be true.
4. Simplistic conclusions drawn from a complex study.
5. Recommendations based on a single study.
6. Statements refuted by reputable scientific organizations.
7. Lists of "good" and "bad" foods.
8. Recommendations made to help sell a product.
9. Recommendations based on studies not peer reviewed.
10. Recommendations from studies that ignore differences among individuals or groups.

Other FANSA statements include:

"What Does the Public Need to Know About Dietary Supplements"; "Making Sense of Scientific Research About Diet and Health"; and "Making Sense of Risks Associated with Foods".

A food safety alliance could provide a unified, effective voice on food safety issues. It could include professional societies of microbiology, toxicology and public health. The Institute of Food Technologists would also be an appropriate partner.

An organization's name can help or hinder communication. A name can indicate the area of expertise or an organization's goals. Consider for example, World Health Organization, Consumers Union. Contrast these names with that of our organization: The International Association of Milk, Food and Environmental Sanitarians. Is this the most effective name to communicate to a non-member audience? If this association's focus is food safety, another name, such as the International Association for Food Protection, may communicate more effectively. Since an allied goal of our society is to protect food quality, this concept is also included.

IAMFES Members possess the expertise to reach consumers with important information on food safety. Consumers make reasonable decisions, based upon the information they receive. We must increase our efforts to provide that information.

ABOUT THE AUTHOR

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• Scenes from the IAMFES 85th Annual Meeting •

The 1998 IAMFES Annual Meeting by all reports was a resounding success! A record 1,152 attendees participated in numerous presentations, committee meetings, and special events. Much of this success in Music City U.S.A. (Nashville, Tennessee) was due to the dedicated planning of the Tennessee Association of Milk, Water & Food Protection and their Local Arrangement's Co-Chairpersons, F. Ann Draughon and Ruth Fuqua. Thanks to all from TAMWFP who helped!

Committees, PDGs, and Task Forces

Sunday morning began bright and early with the Affiliate Council meeting. The rest of the day was filled with the hustle and bustle of numerous other Committee, Professional Development Group, and Task Force meetings. Annual Meeting provides a perfect opportunity for these groups to meet face to face and make plans for the upcoming year. It is also a great means for new and interested Members to network with other food safety professionals. The minutes of these meetings can be found on page 758.

Opening Session

The official opening of the IAMFES 85th Annual Meeting featured the first inductees as IAMFES Fellows. IAMFES recognized seven long-time IAMFES Members for their service to the Association. The Fellows are: Larry R. Beuchat, Frank L. Bryan, Lloyd B. Bullerman, Michael P. Doyle, Harry Haverland, Elmer H. Marth and Edmund A. Zottola. Congratulations to all recipients.

The session was highlighted with a thought provoking presentation from Ivan Parkin Lecturer, Christine M. Bruhn, Ph.D. entitled, *Communicating Food Safety to the Consumer*. Upon conclusion, attendees visited the exhibit hall for the Cheese and Wine Reception.

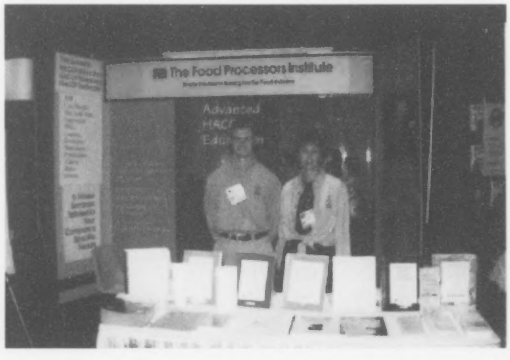
Program

The Meeting program included presentations from around the world on topics ranging from Fresh-Cut Produce: Sanitation, Packaging, Microbiology, Control, Programs, and Regulations to Current Perspectives on the Use of Antibiotics in Animal Production Systems. Other topics included Food Safety Education, Seafood HACCP: Reflections after Implementation, The Leading Edge of Foodborne Disease Surveillance, and a Basic Dairy Field workshop session.

Each year IAMFES is fortunate to be associated with many organizations who lend support to our program through sponsorship of presenters. We wish to extend our appreciation to the International Life Sciences Institute, IAMFES Foundation Fund, International Fresh-cut Produce Association, and SC Johnson Professional/PRISM. Without the continued support of these organizations, IAMFES would not be able to bring such quality presentations to the Annual Meeting.

General Session and Business Meeting

On Tuesday afternoon, the General Session convened to address: *Life in a Fish Bowl: Essentials for Communications During a Food Safety Crisis*. Presentations included: *Science, Not Scares: Communicating Food Safety Risks to Hazard Weary Consumers*, Susan Conely, USDA-FSIS; *Trade Association Risk Communication: Learning to be Proactive*, Jenny Scott, National Food Processors Association; and *Components of a Publicity Credible Crisis Communications Plan*, Douglas Powell, University of Guelph.



Following the General Session was the IAMFES Annual Business Meeting. The Business Meeting included reports from President, Gale Prince; Executive Director, David Tharp; Director of Finance and Administration, Lisa Hovey; and Committee Chairpersons. Harry Haverland, Chairperson of IAMFES Foundation Fund, announced that the first Annual IAMFES Foundation Fund Silent Auction raised over $2,000 for the Foundation Fund. With a goal of a $100,000 by 2000, you can be assured the Silent Auction will return next year.

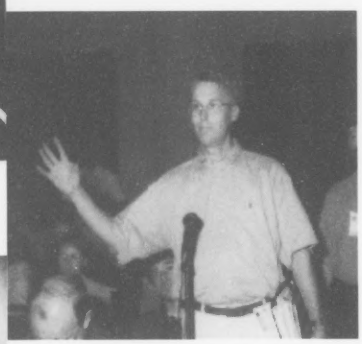
Social Events

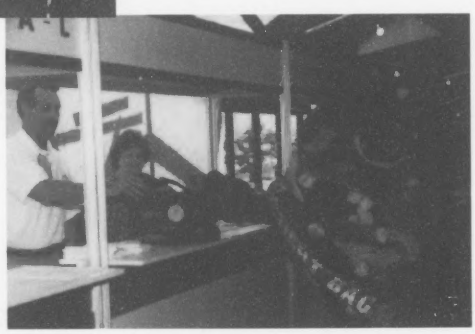
Every Annual Meeting is complemented by the social events planned for attendees and guests. This year was no exception. The Monday Evening Social included a night of good barbecue, two-stepping and hot country music. Fun was had by all who attended. Other events included the traditional Cheese and Wine Reception on Sunday evening in the exhibit hall as well as a new Exhibit Hall Reception on Monday, which was sponsored in part by Qualicon, Inc.

Spouse and Companion day tours included a trip around Music City U.S.A.; a visit to the Historic Hermitage, Home of President Andrew Jackson; and a visit to the Jack Daniel's Distillery. The 1998 Annual Meeting provided something for everyone. Thanks to all who participated in making the Meeting a great success! See you next year in Dearborn, Michigan!

The IAMFES 85th Annual Meeting was held in Nashville, Tennessee August 16-19, 1998

More Annual Meeting Scenes





• IAMFES 1998 Award Winners •

Black Pearl Award — Kraft Foods, Inc.

The Black Pearl Award is presented in recognition of a company's achievement in corporate excellence in food safety and quality. This year's recipient has been noted as "an example" of what should be done to meet the highest standards of safety and quality.

Kraft Foods, Inc. was founded in the 1800s by J. L. Kraft, who devised a method for producing high quality pasteurized cheese products that were highly successful both as military rations and, later, to the general public. Today, Kraft Foods, Inc., is the largest food company in North America and has a great investment in ensuring that their customers have the utmost confidence in the quality and safety of Kraft's food products. Kraft truly believes that food safety requires the commitment of all participants in the "farm to fork continuum." Kraft actively supports partnerships with many stakeholders involved in food safety, notably regulatory agencies, academia, educational associations, trade organizations, suppliers, manufacturers, and distributors. Kraft's driving force is its fundamental belief that sharing knowledge is the basis for ensuring safe and wholesome food. Company-sponsored research is actively pursued at numerous universities and has led to fundamental understandings of control of *Clostridium botulinum*, *Listeria monocytogenes*, and *Escherichia coli* O157:H7 in a variety of products including ready-to-eat meats, processed cheese, and salad dressings.

Kraft actively supports basic food safety research and publication at universities through contracts awarded by the International Life Sciences Institute's Technical Committee on Food Microbiology. Kraft was a leader in establishing this industry-led committee in the 1980s and has since been the leading company contributing both in funding and committee participation. At the urging of Kraft, the ILSI Technical Committee on Food Microbiology initiated sponsorship of microbiological food safety targeted symposia at the IAMFES Annual Meeting to enable a wider distribution of the technical information derived from the research grant program.

Wilbur Feagan (left) of F & H Food Equipment Company and IAMFES Past President Michael Brodsky (right) pose with Joan Menke-Schaenzer and Paul Hall of Kraft Foods, Inc., the 1998 recipient of the Black Pearl Award.

Other support of IAMFES includes Kraft's support of employee memberships in IAMFES. Kraft members participate in many IAMFES groups. This includes the Program Advisory Committee, the Applied Laboratories PDG, and Meat and Poultry PDG. Other involvement includes operating board membership for the Food Research Institute at the University of Wisconsin-Madison; the Center for Food Safety and Quality Enhancement at the University of Georgia-Griffin; The Minnesota-South Dakota Dairy Research Center, and the National Center for Food Safety and Technology in Illinois. Additional Association involvement includes National Food Processors Association, Grocery Manufactures of America, American Meat Institute, and American Frozen Foods Institute.

Participation with regulatory agencies also reflects Kraft's commitment to food safety. Kraft employees, through its Oscar Mayer representatives, worked closely with the USDA in developing model HACCP plans for meat processors. Others worked extensively with the Pasteurized Milk Ordinances and Interstate Milk Shippers rules, and others have been closely involved with AOAC to help ensure reliable test methods for the industry.

Honorary Life Membership — Henry V. Atherton

Honorary Life Membership is bestowed upon long-time Members with dedication to the high ideals of IAMFES and its mission. One of this year's recipients is Henry Atherton.

Mr. Atherton has been an active Member of IAMFES since 1958. Mr. Atherton has attended numerous Annual Meetings and has been instrumental in guiding the organization. Mr. Atherton served as IAMFES President in 1977 and served on the Strategic Planning Committee in 1993. Through his long association with IBA, IAMFES was able to receive sponsorship for the Educator Award for many years. In 1981 he received the Citation Award for his dedication to IAMFES.

Mr. Atherton remains active in IAMFES through his continued attendance at the Annual Meeting and serving on the Past Presidents' Advisory Committee and various other committees.

IAMFES President, Gale Prince (right) presents the Honorary Life Membership Awards to long-time IAMFES Members Henry Atherton (left) and David Fry.

Honorary Life Membership — David D. Fry

Honorary Life Membership is bestowed upon long-time Members with dedication to the high ideals of IAMFES and its mission. One of this year's recipients is David Fry.

Mr. Fry has been an active IAMFES Member since first joining the Association in 1955. He has served on numerous committees, helped plan Annual Meetings, and served on the Local Arrangements Committee for the 1993 Annual Meeting in Atlanta and the 1997 Annual Meeting in Orlando. He is also serving on the Local Arrangements Committee for the 2000 Annual Meeting in Atlanta. In 1978 he served as IAMFES President and has been active with the Past Presidents' Advisory Committee ever since. In 1993 Mr. Fry was the recipient of the Harold Barnum Industry Award.

As a member of the Georgia and Florida Affiliates, he has been instrumental in these organizations. He has helped organize and has presented at numerous Affiliate Meetings and despite his retirement, remains committed to these organizations as well as IAMFES.

Harry Haverland (left) and Bill Boylan (right) representing DiverseyLever/U.S. Food Group present Anna Lammerding with the 1998 Harry Haverland Citation Award.

Harry Haverland Citation Award — Anna M. Lammerding

Harry Haverland is an Honorary Life Member of IAMFES who has always promoted the high ideals of IAMFES and its mission to provide a forum for the exchange of information for food safety professionals worldwide. It is because of his dedication that IAMFES chose to honor Mr. Haverland by naming this award in his honor.

With this tribute in mind, Anna M. Lammerding, Ph.D. was chosen as the 1998 recipient of the Harry Haverland Citation Award. Dr. Lammerding's association with IAMFES began as a student including participation in the Developing Scientist Competition. Since that time she has held positions of increasing responsibility with Agriculture and Agri-Food Canada. Since 1993 she has served as Chief, Microbial Food Safety Risk Assessment Unit, Health Protection Branch, Health Canada.

Dr. Lammerding has shown her dedication to IAMFES in numerous ways. She served on the Editorial Board for *Journal of Food Protection* from 1993 to 1995; coordinated and led the 1995 workshop on Microbial Risk Assessment; organized symposia for six Annual Meetings; and arranged sponsorship for several of the symposia. Other involvement includes Chair of the *Journal of Food Protection* Management Committee, 1996 to 1998; member of the *Journal of Food Protection* Management Committee, 1994 to1998; member of the Nominations Committee, 1994 to 1997; member of the Program Advisory Committee, 1990 to 1993, and was instrumental in the development of the Microbial Risk Assessment PDG. She has served with various other Committees, Task Forces and PDGs.

Additional involvement through her local affiliate organization includes serving on the Local Arrangements Committee for the 1992 Annual Meeting in Toronto, Canada; submitting year-end reports of Ontario Food Protection Association for the Shogren Award; and contributing as well as serving on the editorial board of OFPA's newsletter.

Educator Award — Ronald H. Schmidt

The IAMFES Educator Award is presented to an IAMFES Member for outstanding service to the public and IAMFES through work in the education field of food safety. Ronald H. Schmidt, Ph.D. is this year's recipient of the Educator Award.

Dr. Schmidt has been a dedicated educator since beginning his career in 1974 at the University of Florida. He initiated the first offering of Introductory Food Science. He also initiated the first offerings of Food Safety and Sanitation and a graduate level course of Issues in Food Regulations. His extension programs have included involvement in a state-wide high school teacher-training effort in food safety and microbiology; launching a cooperative involvement with the Florida Gift Fruit Shippers Association and the Florida Department of Citrus in developing training and model HACCP plans for fresh squeezed citrus juices; and authored and co-authored extension publications and updates. Research programs have included elucidating the role of peptidases in lactic acid bacteria in bitter peptide accumulation and degradation in ripened cheese and the first laboratory to demonstrate and provide a mechanism for growth stimulation of *Listeria monocytogenes* by *Pseudomonas* spoilage microorganisms in milk.

Dr. Schmidt first joined IAMFES in 1986. He has been an active Member through committee involvement, including serving as academic representative on the Committee on Sanitary Practices for 3-A Sanitary Standards and serving on various other committees. He also serves on the *DFES* Editorial Board.

IAMFES President-Elect, Robert Brackett (left) and Fritz Buss from Nelson-Jameson (right) present Ronald Schmidt with the 1998 Educator Award.

A term on the Executive Board as Affiliate Council Chair shows his active membership in the Florida Affiliate. He also served on the Local Arrangements Committee for the 1988 Annual Meeting, served as FAMFES President for two terms, and assists with the educational conferences.

IAMFES Vice President, Jack Guzewich (left) presents Terry Musson with the 1998 Sanitarian Award sponsored by Ecolab, Inc., Food and Beverage Division.

Sanitarian Award — Terry B. Musson

The IAMFES Sanitarian Award is presented to an IAMFES Member for outstanding service to the public, IAMFES, and the profession of the Sanitarian. Terry B. Musson is this year's recipient of the Sanitarian Award.

Mr. Musson has over twelve years in the FDA milk program which includes his current position of Executive Vice President, The Dairy Practices Council. In this position he has been instrumental in the development, planning and implementation of a two-week training session to update regional milk specialists on Dry Milk Ordinance in cooperation with the Milk Safety Branch of FDA. He also worked with industry to evaluate new systems being installed in plants for compliance with current regulations. Mr. Musson was instrumental in the FDA's recommended corrective actions to resolve the sulfamethazine problem on farms being accepted by industry and regulatory.

Other accomplishments include being the only Regional Milk Specialist assigned to two Interstate Milk Shipments Committees. One is the Single Service Committee which rewrote Standards for the Fabrication of Single Service Containers and Closures for Milk and Milk Products; and the other is the Methods Committee which helped write requirements for evaluating "Appendix N" and rewrote the Farm Inspection Score Sheet.

Memberships in numerous organizations and active participation are additional achievements of Mr. Musson. These include membership in the New York State Association of Milk & Food Sanitarians; Dairy Practices Council; Vermont Dairymen & Industry Association; IMS Resolution & Oversight Committee; Metropolitan Dairy Technology; and Long Island Sanitarians Association. He has also been a Member of IAMFES since 1983 and has served as Affiliate Delegate since 1989 attending numerous Annual Meetings. Organizing dairy and food symposia has also been among his contributions to IAMFES.

Developing Scientist Awards

Oral Presentation Award Winners

First Place — Peter J. Taormina, Graduate Research Assistant, University of Georgia

Second Place — Brian Shofran, Student, Oklahoma State University

Third Place — Amanda E. Whitfield, Student, University of Guelph

Poster Presentation Award Winners

First Place — Aysegul Eyigor, Graduate Student, University of Kentucky

Second Place — Ronald D. Smiley, Graduate Research Assistant, University of Tennessee-Knoxville

Third Place — Jianming Ye, Graduate Student, University of Rhode Island

Developing Scientist Awards Competition Chairperson, Kathleen Glass (left) poses with Developing Scientist Winners (left to right) Peter Taormina, Aysegul Eyigor, Brian Shofran, and Amanda Whitfield. (Not pictured Ronald Smiley and Jianming Ye)

National Food Processors Association's Food Safety Award — Food Research Institute at the University of Wisconsin-Madison

IAMFES Secretary, Jenny Scott (left) and Dane Bernard from NFPA (right), present The Food Research Institute at the University of Wisconsin-Madison representatives Michael Foster (left center) and Michael Pariza (right center) with the first NFPA Food Safety Award.

The Food Research Institute (FRI), based at the University of Wisconsin in Madison, Wisconsin, is the first recipient of the National Food Processors Association's (NFPA) Food Safety Award, which honors an individual, group, or organization for preeminence in, and outstanding contributions to, the field of food safety.

For more than 50 years, FRI has been involved in food safety research, first at the University of Chicago, and since 1966 at the University of Wisconsin. FRI is active in various training activities, but also has trained numerous pre-doctoral and post-doctoral students who have gone on to work in the field of food safety. FRI is recognized internationally for its work on *Clostridium botulinum*, *Listeria monocytogenes*, *E. coli* O157:H7, mycotoxins, food allergens, and anticarcinogens.

Each year the Institute has a two-day annual meeting for about 100 representatives of supporting companies, foundations, trade associations and governmental agencies.

Work on foodborne illness done at the Institute and elsewhere is regularly discussed at this meeting. The Institute also prepares an annual report, which summarizes results of the previous year's research efforts. In addition, a book, *Food Safety*, which has been published by Marcel Dekker, was prepared annually for some years with the last edition appearing in 1996. The book summarized results of research on food safety published in thousands of papers that appear annually in hundreds of journals.

The dedicated efforts of the Institute's leaders have enabled the scientists in the Institute to establish themselves as internationally renowned authorities on foodborne illness while solving problems for Wisconsin, the nation, and the world. All these efforts have made FRI an excellent recipient of the NFPA's Food Safety Award.

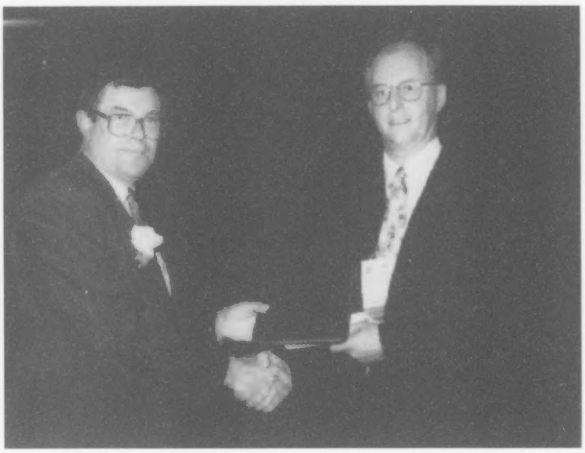
IAMFES Past President, Michael Brodsky (left) representing the Crumbine Award Jury presents (left to right) Daniel Maxson, Mary Hahn, Clare Schmutz, and Patricia Rowely from Clark County Health District, Las Vegas, Nevada with the Samuel J. Crumbine Medallions.

The Crumbine Award

The Crumbine Award recognizes excellence and continued improvement in a comprehensive program of food protection at the local level. Award sponsors include: IAMFES, The Conference for Food Protection, The Association of Food and Drug Officials, The Foodservice Packaging Institute, Inc., The Industry Council on Food Safety, The National Environmental Health Association, NSF International, Public Health Foundation Enterprises, Inc., and Underwriters Laboratories, Inc.

• IAMFES 1998 Affiliate Award Winners •

IAMFES Affiliate Council Chairperson, Lawrence Roth (left) presents Bill Boylan of the Ontario Food Protection Association with the Shogren Award.



C. B. Shogren Award

The Shogren Award is given annually to the affiliate chapter demonstrating exceptional overall achievement as an affiliate of IAMFES based on educational conferences, annual meetings, and quality of communications distributed.

Affiliate Council Chairperson, Lawrence Roth, (left) and Affiliate Council Secretary, Beth Johnson (right) present awards to the following affiliate representatives: (left to right) Randy Daggs, Wisconsin Affiliate; Judith True, Kentucky Affiliate; Bill Boylan, Ontario Affiliate; and Gary Timmons, California Affiliate. (Not pictured: Alabama Affiliate and New York Affiliate.)

Membership Achievement Award for Affiliates

(Highest Percentage Increase)

Awarded to: Alabama Association of Milk, Food & Environmental Sanitarians

Membership Achievement Award for Affiliates

(Highest Number Increase)

Awarded to: California Association of Dairy & Milk Sanitarians

Best Communications Materials for Affiliates Award

Awarded to: New York Association of Milk & Food Sanitarians

Best Educational Conference for Affiliates Award

Awarded to: Wisconsin Association of Milk & Food Sanitarians

Best Annual Meeting for Affiliates Award

Awarded to: Kentucky Association of Milk, Food & Environmental Sanitarians, Inc.

• A Message from the Past President •

By GALE PRINCE
IAMFES Past President

"The Association moves forward with a lot of positive elements in place to better serve the Membership"

As the dust settles from the Annual Meeting in Nashville it is time to say THANK YOU for your support and help in a successful year for IAMFES.

The mission of IAMFES *To provide food safety professionals worldwide with a forum to exchange information on protecting the food supply* certainly was demonstrated at the Meeting in Nashville. This year, attendees from 21 nations met in Nashville to discuss and share information on food safety. Most of the information was on cutting edge technology in addressing food safety concerns beyond the borders of a single country. When watching attendees exchange information, I am convinced that the IAMFES mission statement is right on target for the Association. IAMFES demonstrates how working together provides synergism for solving problems.

My thanks to so many of you who came up to me at the Annual Meeting to express your support of a name change. I certainly appreciated your comments and the opportunity to discuss the subject with you. The proposed name, International Association for Food Protection, is being reviewed by our legal counsel to ensure its availability for our use. A short survey is being prepared for mailing to a representative sample of our Membership to gather your input for the name change. If you receive a survey, please complete and return it promptly to the IAMFES office. We will keep you informed of the progress on changing the name of IAMFES through announcements in *Dairy, Food and Environmental Sanitation*, so be watching your copy! A vote will be taken at the 1999 Annual Meeting to change the Constitution and Bylaws and the name of our Association. If this passes, a full Membership ballot vote will be taken via mail. With the Membership approval, our new name, the International Association for Food Protection, will be in place for the new millennium.

IAMFES publications continue to be premier food safety publications. The number of pages continued to increase in the past year. We have been able to improve our copy editing capabilities through contracted services. In this day and age leading edge research must be in the hands of food safety decision makers now and not delayed. Our goal is to better serve our "customers" – the researcher who has information to publish and the publication reader who has a need for the information. I believe we have made improvements in this area and can continue to look at better ways to enhance these products.

In the past year, we have looked at more efficient ways in process management within the IAMFES office through computer modernization, compatibility, E-mail, and the communications link with the outside world through the IAMFES Web site. The Web site is certainly a tool to disseminate information to interested parties in a timely and efficient manner. We plan to add further enhancements as time and financial resources permit.

Hats off to the IAMFES Fellows who were recognized for their contributions to IAMFES and IAMFES Members over the years. The Fellows Award is to honor individuals who are not only outstanding in their respective field but also have contributed extensively to the success of your Association. The first class of IAMFES Fellows included Larry R. Beuchat, Lloyd B. Bullerman, Frank L. Bryan, Michael P. Doyle, Harry Haverland, Elmer H. Marth and Edmund A. Zottola.

Congratulations to each of our recipients and thanks for your contributions to the Association on behalf of all IAMFES Members!

It has been an exciting year as your President. The Association moves forward with a lot of positive elements in place to better serve the Membership. While I'm now the senior citizen of the IAMFES Executive Board, you can still let me know your thoughts about the Association. Your input is important to your Executive Board.

MINUTES

of the IAMFES 85th Annual Business Meeting

August 18, 1998
Nashville, Tennessee

President-Elect Robert Brackett welcomed attendees and introduced President Gale Prince.

President's Report: President Prince reported on programs and activities of IAMFES over the past year. He cited numerous accomplishments and advancements made during his Presidency. President Prince encouraged member involvement and recognized the dedication of members of the Executive Board. He thanked all members who served on Committees, Professional Development Groups and Task Forces during the last year and also thanked the IAMFES staff for their work on behalf of the Association.

Call to Order: The Annual Business Meeting of the International Association of Milk, Food and Environmental Sanitarians was called to order by President Gale Prince at 4:14 p.m. at the Renaissance Nashville Hotel in Nashville, Tennessee. A quorum, as defined by the IAMFES Constitution, was determined to be present.

Moment of Silence: President Prince asked those present to observe a moment of silence in memory of departed colleagues.

Minutes: Minutes from the IAMFES 84th Annual Business Meeting appeared in the October 1997 *Dairy, Food and Environmental Sanitation*; therefore, it was agreed to forego reading the minutes of the 84th IAMFES Annual Business Meeting. The minutes were approved as published, on a motion made by Richard Brazis and seconded by Harry Haverland.

Teller's Report: Robert Gravani reported results of the election of Jim Dickson for Secretary during the 1998-99 year. Authorization to destroy all ballots was approved on a motion made by Earl Wright and seconded by O.D. (Pete) Cook.

Executive Director's Report: David Tharp reported on IAMFES office operations and plans for the next year. Lisa Hovey, Director of Finance and Administration, distributed a Statement of Activity for the General Fund showing results for the year ending August 31, 1997. A five-year trend for revenue and expense was also distributed and discussed.

***JFP* Management Committee Report:** Anna Lammerding, Chair of the *Journal of Food Protection* Management Committee reported on advances made during the last year. She also summarized recommendations to the Executive Board.

***DFES* Management Committee Report:** O.D. (Pete) Cook, Chair of the *Dairy, Food and Environmental Sanitation* Management Committee reported on advances made during the last year. A summary of recommendations to the Executive Board was presented.

Foundation Fund Report: Harry Haverland reported on programs supported by the IAMFES Foundation. He thanked Members and Sustaining Members for their support of the Foundation and this year's silent auction.

Affiliate Council Report: Lawrence Roth reported on this year's Affiliate Council Meeting. Beth Johnson is the Incoming Affiliate Council Chair and Randy Daggs will serve as Affiliate Council Secretary.

Old Business: There was no old business to be discussed.

New Business: There was a motion made to revise the Bylaws to reflect a name change for the Program Advisory Committee to Program Committee. The motion was made by Bob Sanders, seconded by David Fry and was passed.

Adjournment: President Prince adjourned the meeting at 5:20 p.m. on a motion by Richard Brazis, seconded by Bob Sanders.

Respectfully Submitted,

Jenny Scott, Secretary

HIGHLIGHTS

of the Executive Board Meetings

August 14-20, 1998
Nashville, Tennessee

Following is an unofficial summary of Executive Board actions from the IAMFES Executive Board Meeting:

Approved the following:

- Minutes of May 17-18, 1998 Executive Board Meeting.
- Minutes of May 17 Executive Session.
- Discontinuing distribution of the Procedures to Implement the HACCP System until revision is complete.
- Establishing sales price for the Procedures to Investigate Foodborne Illness manual at $8 for Members and governmental agencies and $16 for nonmembers.
- Exhibiting at the NSF Food Safety Conference.
- Signing a MOU with the Conference for Food Protection's Professional Association Advisory Committee.

Discussed the following:

- Executive Board's schedule of time commitments during the Annual Meeting.
- *Journal of Food Protection* Manuscript #97-68.
- Advertising sales and new leads for business.
- Membership update – increase of 50 in comparison to 1997, subscribers equal to 1997, lapel pins to be distributed to Members at Annual Meeting, tiered Sustaining Membership Program.
- *Journal of Food Protection* copyediting backlog caught up.
- Series on HACCP training models from *Dairy, Food and Environmental Sanitation* were bound and offered for sale.
- Progress on revising the *Procedures to Investigate Foodborne Illness* manual.
- ISAL distribution of journals to International members and subscribers for faster delivery.
- Scheduled attendance of Executive Board Members at IAMFES Affiliate meetings.
- Ideas for the fall Affiliate Newsletter.
- IAMFES Members to serve as chairpersons of Committees, Professional Development Groups, Task Forces and Support Groups for 1998-1999.
- Reports received from chairpersons of each Committee, Professional Development Group, Task Force and Support Group.
- Implementation of short-term and long-term disability coverage for IAMFES employees.
- Proposed investment policy for IAMFES.
- Issues for changing the name of IAMFES to the International Association for Food Protection.
- Membership fees for unemployed Members.
- Workshops – dairy training, risk assessment; other co-sponsorship opportunities.
- 1998 IAMFES Annual Meeting Workshops.
- 1998 IAMFES Annual Meeting.
- Planning for 1999, 2000, 2001, 2002 and 2003 IAMFES Annual Meetings.
- ILSI National Food Safety Initiative Microbial Data Conference.
- Council for Agricultural Science and Technology – membership.
- Discount for International *Journal of Food Microbiology* for IAMFES Members.
- Declined offer to cosponsor NSF Indoor Air Conference.
- IAFIS MOU on 3-A Sanitary Standards.
- "Stop and Think" education program.
- Commercialism policy relating to journals and Annual Meeting.
- Fellows Award recognition program.
- Future Board meeting schedule.

Next Executive Board meeting: October 31 – November 2, 1998 in Des Moines, Iowa.

MINUTES

IAMFES 85TH Annual Meeting
August 16-19, 1998

Held at the Nashville Renaissance Hotel
Nashville, Tennessee

STANDING COMMITTEES:

Dairy, Food and Environmental Sanitation Management Committee

Members Present: John Bruhn, Christine Bruhn, Pete Cook, Thomas Gilmore, William LaGrange, Robert B. Gravani, Anna Lammerding, Chris Newcomer, and Bob Sanders

Members Absent: P. C. Vasavada, William Coleman II, Daryl Paulson, and Linda Harris

Board Members/ IAMFES Staff Present: Jack Guzewich, Bob Brackett, David Tharp, Carol Mouchka, and Donna Bahun

Others Present: (Incoming Members: Catherine Nnoka, Rob Byrne, Fred Weber), Larry Seamans, Linda Seamans, Harold Bengsch, and Cary Frye

Meeting Called to Order: 1:30 p.m.

Recording Secretary of Minutes: Robert B. Gravani

Old Business:

1. J. Bruhn moved to approve minutes for last year's meeting, R. Gravani second.

New Business:

1. Bill LaGrange, Scientific Editor Report.
2. Discussion about backlog from 1997.
3. Expanded review board to speed review process.
4. At the present time, Scientific Editor does not have a deadline in his letter to reviewers or authors. Carol Mouchka in IAMFES office calls authors after 1 month saying that the paper needs to be revised in 2 months. Some new computer enhancements should help with the process of manuscripts.
5. Authors sometime not timely in returning reviewed articles, set 2 months for reviews to be due and 3 months for author revisions. Want to standardize procedures to have similar deadlines as *JFP*. All 1997 backlogged articles will be published by the end of 1998.
6. Compliments to Bill LaGrange, Carol Mouchka, and Donna Bahun for an excellent job in handling materials and for expanding the review board.
7. Tom Gilmore asked about plans for expanding the journal, and inquired about a contingency plan for future expansion and growth. The average journal is 60-80 pages.

Summary of Activities and Action Taken:

1. Carol Mouchka thanked her staff and Bill LaGrange for the way things have been moving. She saw no immediate changes for *DFES*, will improve the review process and saw no huge expansion at the present time. Carol told the committee that Doug Powell has agreed to become a Scientific News Reviewer for *DFES*.
2. Pete Cook stated since 1994 in San Antonio, *DFES* has come along way in the overall quality and appearance of the journal. He thanked Carol Mouchka, Donna Bahun, and the Executive Board.
3. Pete Cook discussed the rotation plan for new committee members. However, the Executive Board has made some additional new recommendations. J. Guzewich reported the Board will ask the Constitution and Bylaws Committee to address the committee rotation changes. B. Gravani moved that the Chairperson and Vice Chairperson of the Committee met with the Executive Board to determine the committee members, new committee members, etc. Pete Cook and Tom Gilmore second. Motion carried.
4. There was discussion about the Back Page column and the need for additional subjects and authors. Bob Gravani accepted being the Sub-Chairperson along with Christine Bruhn, Pete Cook, Rob Byrne, and Chris Newcomer.
5. The cover photos of *DFES* were discussed. There should be no picutre use of commercial value and equipment. Fred Weber will give some photo information to Donna Bahun for the cover of *DFES*.
6. Christine Bruhn, moved Instructions for Authors should provide the Commercialism Policy that is used at the Annual Meeting. Chris Newcomer second. Motion carried.

7. Two articles have been published from the Food Safety Network, and also two Back Page articles which ran in the July and August issues.
8. The development of a business plan was discussed. Tom Gilmore moved to begin a business plan to be in place for the year 2000 and to have Carol Mouchka and IAMFES staff work with Pete Cook, Tom Gilmore, Christine Bruhn and other committee members in completing the plan.
9. Consensus of committee felt that IAMFES staff should develop contingency plans for the future expansion and growth of *DFES* as part of the business plan.

Recommendations to IAMFES Board:

1. Have Carol Mouchka, and Donna Bahun work with Pete Cook, Tom Gilmore, and Christine Bruhn to develop a business plan for *DFES*.
2. Have the IAMFES staff develop a contingency plan for future expansion and growth of *DFES*.
3. Have Carol Mouchka work with the committee to revise Instructions for Authors to include a Commercialism Policy similar to the one used for the Annual Meeting.
4. *DFES* Committee is recommending that reviewers must return their reviews within two months, and authors must return their revisions within three months to have a similar policy like *JFP*.
5. The Chairperson, Pete Cook and Vice Chairperson, Tom Gilmore meet with the Executive Board to discuss the rotation of committee members.
6. No cover photos of commercial value are to be used.

Next Meeting Date: 1999 IAMFES Annual Meeting, Dearborn, MI.

Meeting Adjourned: 3:00 p.m.

Chairperson: Pete Cook

Journal of Food Protection Management Committee

Members Present: Larry Beuchat, John Sofos, Don Schaffner, Isabel Walls, Pete Cook, Don Conner, Joe Frank, Ewen Todd, Anna Lammerding (Chair). (Incoming Members) Paul Hall, Lynda Kelley, Roberta Morales, Jeff Rhodehamel, Jinru Chen, and Roger Cook

Members Absent (Incoming): Martin Cole, Mansel Griffiths, Dick Whiting, and Lee-Ann Jaykus

Board Members/IAMFES Staff Present: Jenny Scott, Bob Brackett, Jack Guzewich, Carol Mouchka, Bev Corron, and David Tharp

Meeting Called to Order: 3:15 p.m.

Recording Secretary of Minutes: Isabel Walls

Old Business:

1. 1997 minutes approved and accepted. Action on 1997 *JFP* Committee recommendations to the Executive Board were all approved, with minor revisions.

Report from IAMFES Office:

1. David Tharp gave report from IAMFES office. He stated that 1997 had been a good year for IAMFES, especially for their publications. A record number of pages were published and good progress was made on processing manuscripts. A revision has been made to mailing of journals outside of North America. Journals will be sent via airlift to their destination country and by surface mail within that country. This will shorten the time it takes for members to receive journals and will hopefully stimulate the growth of the journals internationally. This may lead to increases in our international membership. Tharp stated that a change has been completed to our computer systems, from Macintosh to Windows 95. A plan has been put in place to replace computer equipment after 3 years. This has allowed us to add membership database software to our network which will help us to keep our records up-to-date. Tharp stated that this year there will be a record attendance at the meeting, currently over 1,100 people are registered.
2. Tharp noted that NIH contacted IAMFES requesting that JFP become part of "Index Medicus." This was approved by the Board. It will cover journals from January 1998. Larry Beuchat noted that Dr. Robert Tauxe from CDC wrote to NIH requesting this addition.

Co-Editors' Report:

Scientific Co-Editors Larry Beuchat and John Sofos presented the 1997-98 *JFP* Report to the Committee. Size of each issue still increasing. Published more papers to date than at this time last year. Reduced number of advertisements since last year. Mouchka noted that the cost of publishing was offset by page charges. Almost 50% of articles published in 1997 were from researchers outside of the U.S. Todd recommended that the report be amended to state that Editorial Board members can be reappointed beyond their initial 3-year term. Lammerding thanked the editors for their hard work.

Managing Editors Report:

Carol Mouchka introduced Bev Corron as the new publications assistant. She stated that we are now looking at a 6-month turnaround time from submission to publication of manuscripts. The November issue of *JFP* will have a supplement containing the ILSI symposia presented at the 1997 IAMFES Annual Meeting. IAMFES raised subscription rates for 1998, but the journal page charges remain the same as last

year. Reprint prices were raised only to offset the increases IAMFES received from our printer. Mouchka is considering offering *JFP* on CD-ROM and the Internet. Guzewich thanked Mouchka and her team on behalf of the Board.

New Business:

1. The *JFP* Management Committee has been increased in number, and structure. The Committee will now consist of four representatives from each of academia, industry and government, with a staggered 3-year rotation schedule. The Constitution & Bylaws Committee will be reviewing committee procedures to clarify how meetings will be run, and how appointments will be made. Discussion was held on commercialism in articles published in *JFP* (and *DFES*). A policy on commercialism exists for presentations at the Annual Meeting, but not for the journals. A motion was made to revise the current IAMFES Annual Meeting Commercialism Policy, as appropriate for both *JFP* and *DFES*, to review the draft with legal counsel, revise if necessary, distribute to Committee Members for comment, and present a final document to the Executive Board. This motion was approved. Secondly, a motion was made to consult with the JAOAC regarding policies on commercialism. Approved. Third, a motion was made to distribute the commercialism policy in Instructions for Authors, and to members of the Editorial Board.
2. Tharp reviewed the controversy which arose surrounding a paper published in the April 1998 issue of *JFP*, which resulted in a "Letter-to-the-Editor" and a response from the authors of the original paper. After some discussion, it was agreed by all Committee members that the issue had been handled appropriately by the editors.
3. There was discussion of the need for additional expertise on the Editorial Board, in the areas of epidemiology and risk assessment. Beuchat invited people to submit names of suggested reviewers.
4. It was proposed for discussion to consider increasing the number of volumes from one to two per year. The Committee decided that there should be no change at this time.
5. A motion was made to recommend that the IAMFES office investigate the costs associated with including an information overwrap to be mailed to authors along with reviewer's comments. The overwrap would be printed with information about IAMFES events and a membership application form.
6. Lammerding summarized the meeting, thanked outgoing Committee members, Schaffner, Conner, Frank, and Todd.

Summary of Activities and Action Taken:

1. Call to order and introductions. Appointment of Recording Secretary. Approval of 1997 meeting minutes. Report of Scientific Co-Editors, (Larry Beuchat & John Sofos) accepted. Report of Managing Editor, (Carol Mouchka) accepted. All recommendations to the Board unanimously approved.

Recommendations to IAMFES Executive Board:

1. The committee recommends that the IAMFES staff, together with *JFP* Scientific Co-Editors, and legal counsel, revise the Annual Meeting Policy on Commercialism for adoption as a policy for the *Journal of Food Protection*. Furthermore, it is recommended that the policy, if adopted, be distributed to all members of the editorial board, and included with the Instructions for Authors.
2. The committee recommends that the IAMFES staff investigate cost estimates for an ovewrap to include in mailings.

Next meeting date: IAMFES meeting in Dearborn, MI, August 1999.

Meeting adjourned: 4:45 p.m.

Chairperson: Anna Lammerding

Past Presidents' Advisory

Members Present: Earl Wright, David Fry, William Arledge, Henry Atherton, Harry Haverland, Robert Marshall, A. Richard Brazis, Archie Holliday, Robert Gravani, Ron Case, Bob Sanders, and Harold Bengsch

Members Absent (Comments Submitted): Howard Hutchings, Sid Barnard, and Mike Doyle

Board Members/ IAMFES Staff Present: Gale Prince

Meeting Called to Order: 3:05 p.m.

Recording Secretary of Minutes: Michael Brodsky

Old Business:

None

New Business:

1. Membership retention/addition.
2. Name change.
3. Continued role for Past Presidents' Advisory Committee.
4. Past Presidents' Advisory Committee dinner–retain or eliminate.

Recommendations to IAMFES Board:

1. Ribbons at Annual Meeting in 5 year increments after 20 years, i.e., 25, 30, 35, 40, 45, 50 etc.
2. Ribbons designated as "New Member" issued at Annual Meeting.
3. "IAMFES Member" – Ribbons provided for affiliate meetings.

4. IAMFES lapel pins to all IAMFES Members.
5. Establish an "International Lounge" for International Members at Annual Meeting.
6. Establish a "New Member Reception" for New Members, Past Presidents, Committee/PDG/ Task Force Chairs at Annual Meeting.
7. Maintain and strengthen liaisons with other organizations.
8. Proceed with name change, but revise vision statements to reflect scope of Association, i.e., recognize dairy industry, environmental sanitarians, food quality, as well as food safety, etc.
9. Retain Past Presidents' Advisory Committee as advisory to Executive Board on specific issues to be specified by meeting agenda i.e., Past Presidents' Advisory Committee meeting should be "agenda driven" not simply scheduled routinely.
10. Mail copy of "summary of board actions" to all Past Presidents.
11. Eliminate Past Presidents' Dinner if cost is a consideration, otherwise retain as a "token of recognition."

Meeting Adjourned: 4:15 p.m.

Chairperson: Michael Brodsky

Program Committee

Members Present: Jeff Farber, David Golden, Mike Cirigliano, Don Breiner, Paul Hall, and Ann Marie McNamara

Members absent: John Bruhn, Stan Bailey, Tom Schwarz, Donna Garren, Don Conner, and Alex Castillo

Board Members and IAMFES Staff Present: Bob Brackett, Jack Guzewich, Carol Mouchka, and Bev Corron

Meeting Called to Order: 12:35 p.m.

Recording Secretary of Minutes: David Golden

New Business: Accepted topics for symposia and workshops for 1999 meeting; discussed other business and made a recommendation to the Board.

Proposed symposium topics:

Resistance:

1. Pathogen Resistance to Traditional Processing
2. Development of Resistance to Antimicrobials

HACCP:

1. HACCP Implementation – Where Have We Been; Where are We Going
2. HACCP in Retail Operations
3. PR/HACCP Final Rule – 2 1/2 Years On; Presentation of Country Systems, Regulations, and Impact on Industry

Produce:

1. Risk Management Issues Associated with Fresh Fruits and Vegetables
2. Manure and Water: Produce Safety Implications

Environmental:

1. Animal Waste Management and Its Relationship to Food Safety

Dairy:

1. A Dairy Plant HACCP Program
2. Basic Dairy Plant Workshop
3. Risk Assessment Issues of Unpasteurized Dairy Products
4. Current Issues in Dairy Plant Regulations

Bacterial Pathogens:

1. *Campylobacter*
2. Update on *Campylobacter* and Food Safety
3. New Emerging Pathogens – *Mycobacterium* and *Helicobacter*

Sanitizers, Drug Residues:

1. Chlorine Dioxide – Application in the Food Industry
2. Current FDA Approved Drug Residue Tests

Viruses:

1. Small Round Structured Virus Outbreak Control Strategies
2. Practical Methods for the Detection of Infectious Viruses in Foods

Others:

1. Microbiological Safety of Thermally Processed Foods
2. Worldwide Food Safety and General Environmental Protection Programs for Major Events and Special Groups
3. Chronic Sequelae Linked to Foodborne Illness
4. Quantitative Risk Assessment Models for Primary Meat Processing and How They Have Been Applied
5. Globalization of Foodborne Disease
6. Science-Based Criteria for Harmonizing Food Safety Regulations

Summary: 17 accepted for further development; will leave one slot open for "Breaking Issues."

Workshops Proposed:

1. Writing and Implementing a Retail Food Operation HACCP-TQM Manual
2. Risk Assessment
3. Crisis Management
4. Rapid Methods Workshop

Other Business:

1. Some commercialism problems arose during the poster session. This will be dealt with.
2. Suggestion to make available "handout summaries" of poster sessions.

Recommendations to the Board:

It is recommended that those appointed to the program committee be attending the Annual Meeting, so they can attend the Wednesday meeting and be up to speed for the January meeting.

Next meeting date: January, 1999

Adjourned: 3:15 p.m.

Chairperson: Jeff Farber

SPECIAL COMMITTEES

Committee on Sanitary Procedures

Members Present: Dan Erickson, Ron Schmidt, and Charles Price. Observers: Joe Schlesser, Don Kimball, Joe Hall, and Randall Daggs

Members Absent: Sherry Roberts, Richard Gleason, Gary Newton, Helen Piotter, John Ringsrud, Dale Chilton, Mike Ely, Jon Lauer, Stanley Welch, Don Wilding, and Phillip Wolff

Board Members/ IAMFES Staff Present: Gale Prince

Meeting Called to Order: 10:15 a.m.

Recording Secretary of Minutes: Dan Erickson

Old Business:

Approved CSP Annual Report as amended.

New Business:

1. Membership request referred to 3-A Executive Secretary, Dr. Tom Gilmore.
2. Discussion on recommending protocols for equipment materials (material types and finishes), and cleanibility (Committee to prepare recommendations to 3-A Steering Committee).
3. Extension of committee chair term beyond 1999.

Summary of Activities and Action Taken:

As noted in CSP Annual Report.

Recommendations to IAMFES Board:

Accept establishment of E-mail discussion group.

Next Meeting Date: 3-A Standards Annual Meeting, May 17-21, 1999, Milwaukee

Meeting Adjourned: 11:30 a.m.

Chairperson: Dan Erickson

PROFESSIONAL DEVELOPMENT GROUPS

Applied Laboratory Methods Professional Development Group

Members Present: Donna Christensen, Beth Johnson, Lee Jensen, Michael Brodsky, and Claire Lee

Members Absent: Musa Dahdal, James Dickson, Lee-Ann Jaykus, Shelagh McDonagh, Doug McDougal, Bob Marshall, Mary Robart, and Lawrence Roth

Board Members/ IAMFES Staff Present: Michael Brodsky

Meeting Called to Order: 10:20 a.m.

Recording Secretary of Minutes: Beth Johnson

Old Business:

1. To help increase participation, Lee Jensen will encourage members of NCIMS Laboratory Committee to attend meetings.
2. Review of goals and objectives.

New Business:

1. Discussed possibility of having Rapid Methods Workshop instead of meeting.
2. Michael Brodsky will explore link with AOAC on subject of reducing hazardous waste and reagants in laboratory procedures.

Next Meeting Date: 1999 IAMFES Annual Meeting, Dearborn, MI

Meeting Adjourned: 11:15 a.m.

Chairperson: Beth Johnson

Audio Visual Library Professional Development Group

Members Present: Tom Gilmore, Chairperson; Tom McCaskey, Co-Chairperson; Harry Haverland, and Ronald Schmidt

Members Absent: Debbie Cherney, John Christy, Alice Haverland, Howard Malberg, David McSwane, Marsha Robbins, Robert Sanders, and P. C. Vasavada

Board Members/ IAMFES Staff Present: Gale Prince, Lisa Hovey, and David Tharp

Meeting Called to Order: 10:00 a.m.

Recording Secretary of Minutes: Linda Gilmore

Agenda was approved as modified.

Old Business:

Minutes of 1997 meeting were approved. Harry Haverland made the motion and Tom McCaskey seconded. Motion carried.

IAFIS Foundation $9,000.00 grant proposal for the AV Library materials acquisition was discussed. Staff noted the following concerns:

1. Increased library use by members of IAFIS and the impact of this use on staff resources.
2. Identification of eligible IAFIS members (IAFIS will provide membership list, addresses and contact person).
3. Continuation of the grant from year to year.

Committee Recommendation:

1. IAMFES Board decide whether they can accept the restricted $9,000.00 grant.
2. IAMFES Board should develop a written agreement by October 1 for review of IAFIS staff to be presented to IAFIS Foundation Board in November concerning the use of the AV Library and an Annual Review of Benefits by both organizations.

Staff Reports

1. No progress made on copying and donating materials to international members. Discussion of pros and cons of providing this service. Staff will investigate getting copyright releases on all new materials and those most requested by overseas members. Motion by Ron Schmidt. Seconded by Harry Haverland, Carried.
2. Staff will contact all U.S. Land Grant Universities, USDA-FDA, and EPA, and other government agencies for lists of appropriate materials.
3. T. McCaskey and Ron Schmidt to assist staff in identifying universities. T. Gilmore to assist staff in identifying government agencies. Print article in journals asking for materials donated.

New Business

1. Current Holdings
2. Usage report
3. New acquisitions for FY 1998 were distributed and reviewed.

Committee Recommendations:

1. Staff revise usage report and provide information on categories of members using materials (international, domestic, universities, gov't., etc.) Are there repeat users?
2. Recommend the budget proposed by staff for board acceptance.
3. Chair and Vice Chair to remain the same: Tom Gilmore, Chair and Tom McCaskey, Vice Chair.

Summary of Activities and Action Taken:

1. Request IAMFES Board of Directors review IAFIS Foundation Grant offer and prepare an agreement accepting the grant before Oct. 1, 1998.
2. Staff will investigate copyright release for international use.
3. Staff will contact universities and government for sources of AV materials.
4. Staff will revise AV Library Usage Report to include more information.
5. Staff will mail membership recruitment letter before November 1, 1998.
6. All committee members will personally recruit one new member before the next meeting.
7. Staff will prepare journal article to recruit new committee members.

Recommendations to IAMFES Board:

1. Increase Library staff person from 15 to 20 hours a week. The cost of additional time is to be borne by the IAMFES Membership, not the IAMFES Foundation.
2. Library users to pay S/H cost of $3.00 per tape for domestic mailing and $6.00 per tape for international mailing. Payment shall be made with each request. Nature of payment shall be determined by staff.
3. Audio or visual tapes shall be made of symposia and workshops for sale to IAMFES Members and non-members. Net proceeds will be given to AV Library.
4. Staff will develop a plan by next meeting for total AV Library staff cost to be covered by IAMFES Membership funds, not the IAMFES Foundation funds. Foundations funds can be used for materials, acquisitions, and expanded services.
5. Staffing issues – Committee recommendations to Executive Board:

   Increase staff time to 20 hours a week
6. Postage costs: Committee recommendations:
   – AV Library users pay S/H fee.
7. Produce audio and/or video recordings of sessions and workshops to be sold by the AV Library to Members and non-members with net proceeds to go to the library for new materials.

Challenges:

PDG Membership AV Library PDG

Membership is at a crisis level because of low participation. Recommendations:

1. Committee to review letter prepared by staff for new member recruitment. Names of potential committee members to include, but not limited to *DFES* and *JFP* editors and top 10 (heaviest) users of the AV Library will be sent letters. Committee members to supply other suggestions and to do personal recruitment.
2. Request in journals asking for volunteers for the committee.
3. Staff prepare article about committees and need for active members.

Next Meeting Date: 1999 IAMFES Annual Meeting, Hyatt Regency, Dearborn, MI

Meeting Adjourned: 12:00 p.m.

Chairperson: Tom Gilmore

Dairy Quality and Safety Professional Development Group

Members Present: Randy Daggs, Charles Price, Helene Uhlman, Chris Newcomer, Rob Byrne, Jim Howie, Cary Frye, Wally Jackson, Terry Musson, Ron Schmidt, Don Kimball, Don Breiner, Gene Frey, Kook Hee Kang, Deog-Hwan Oh, Clyde H. Treffeisen, and Gaylord Smith

Board Members/ IAMFES Staff Present: Jim Dickson and Rick McAtee

Meeting Called to Order: 3:00 p.m.

Recording Secretary of Minutes: Don Kimball

Due to a time conflict with the meeting of the Program Committee, the 1999 symposium was considered first on the agenda. There was brainstorming to develop subject matter for the symposium. The proposed developed symposiums are as follows: Current Issues in Dairy Plant Regulations overview of agencies and jurisdiction: FDA, USDA, OSHA, EPA, State/NICMS, Codex/International, Dairy Plant HACCP, PM, QC, Implementation, Plant Design, NCIMS, and Prerequisites.

Old Business:

Moved and seconded to accept the minutes of the last meeting as submitted. There was discussion regarding the fieldman's pocket guide presented by C. Price. There was a draft copy distributed to committee members present. Committee members should send comments to C. Price by Oct. 1, 1998. Price will submit the final draft to the IAMFES Executive Board by January 1, 1999 for consideration. Last year's suggestions to the Executive Board were discussed. It is proposed that three symposium be submitted: (1) Basic Dairy Workshop, Plant Regulations & Inspections, Employee GMPs, Plant QC, Dairy Microbiology, Net Contents Control, Sanitation Verification, Ingredient Control (Allergens), and Sanitary Equipment Design.

New Business:

1. President-Elect Guzewich's letter to the Committee Chairperson was discussed item by item. It was the committee's consensus that the items in the letter were already being addressed.
2. Mr. Daggs discussed the "Wisconsin Handbook for the Dairy Farm Sanitarian" that was handed out for review.
3. Ms. Frye reported that IDFA filed a petition with FDA to allow health claims for low fat dairy foods that may be okay for heart problems. She also, advised that PEP will have a booth at the exhibit hall to take Member pictures with a milk mustache.
4. Mr. Bryne reported that the safe/tolerance level for tetracyclines level will be raised by FDA in the very near future.

Next Meeting Date: August 1999, Dearborn, MI

Meeting Adjourned: 4:45 p.m.

Chairperson: Gaylord Smith

Food Safety Network Professional Development Group

Members Present: Linda Harris, Past Chair, Doug Powell, and Chair Gisele LaPointe

New Members: Ron Case, and Larry Wallace

Members Absent: Jeff Farber, Brian Himelbloom, Bruce Langlois, Lynn McMullen, Maria Nazarowec-White, and Frank Wana

Board Members/IAMFES Staff Present: Jim Dickson, Bob Brackett, and Rick McAtee

Meeting Called to Order: 10:00 a.m.

Recording Secretary of Minutes: Gisele LaPointe

Old Business:

1. L. Harris outlined the mission statement, role and objectives of the Food Safety Network (FSN) PDG for the benefit of new members. L. Harris outlined the specific objectives and achievements for 1997-1998:
   a. To publish quarterly papers in *DFES* on topics related to computer-based tools. Published: Becoming electronic: Take me to your E-mail. Douglas A Powell and Linda J. Harris's, December 1997. Electronic mailing lists: Information exchange forums. Reem K. Barakat, March 1998.

      Promised: The use of CD ROM's for food safety education. Dr. Bob Gravani Computer-based tools for analysis of molecular data. Dr. Reem Barakat.
   b. To organize a symposium for the 1998 Annual Meeting. Co-chairs, Doug Powell and Lynn McMullen, Cancelled.

New Business:

1. Quarterly Papers – the group decided to reduce publication to two per year, considering response to requests for papers. Suggestions for future topics:

   Searching the Web

   Courses on the Web

   L. Harris and D. Powell volunteered to continue requesting papers and contacting potential authors.

2. Symposium – The members decided to use a listserv to start discussion on possible symposium ideas. No suggestions at present.
3. Improving Web Page services to Members: G. LaPointe volunteered to coordinate a Membership evaluation of the IAMFES Web Page through E-mail and the new listserv. Recommendations will be passed to Rick McAtee for implementation.
4. G. LaPointe volunteered for Vice Chair position.

Summary of Activities and Action Taken:

Mission Statement: "To provide IAMFES Members with information on computer-based tools useful for protecting the food supply."

Broad Objectives:

1. To make recommendations to the IAMFES Executive Board regarding computer-based tools useful for protecting the food supply.
2. To provide IAMFES Members with informational resources regarding computer-based tools.
3. To sponsor symposia on computer-based tools at Annual Meetings on a bi-annual basis.

Recommendations to the IAMFES Board 1997-1998.

1. Establish a Web Home Page as soon as possible. This activity should be adequately funded, as it is important, for the association visibility. This has been done.
2. Include Educational CD-ROMs in the Video Library. Status unknown.

Specific Goals of the Food Safety Network for 1997-1998

To publish quarterly papers in *DFES* on topics related to computer-based tools. Published: Becoming electronic: Take me to your E-mail. Douglas A. Powell and Linda J. Harris, December 1997 Electronic mailing lists: Information exchange forums. Reem K. Barakat, March 1998 Promised: The use of CD ROMs for food safety education. Dr. Bob Gravani Computer-based tools for analysis of molecular data. Dr. Reem Barakat.

Specific Goals of the Food Safety Network for 1998-1999

Publish two papers in *Dairy, Food and Environmental Sanitation.* To organize a symposium for the 1999 IAMFES Conference Conduct an evaluation of the IAMFES Web page.

Recommendations to IAMFES Executive Board:

1. Identify the most significant issue(s) of professional concern or priority relative to our PDG. To improve communication among members by implementing Listservs for PDGs and IAMFES.
2. Develop a summary of actions that our group proposes to take to address these issues. D. Powell will submit a summary to the board and will implement and monitor the first Listserv for the FSN PDG.
3. Prepare a periodic (2 per year) report of our groups activities and accomplishments for publication in *DFES*. D. Powell will prepare the report.
4. Submit an outline of your committee's goals, activities and accomplishments at the IAMFES Annual Meeting. D. Powell will present the outline at the IAMFES Annual Meeting.
5. Address issues of organizational concern and offer possible solutions during an open forum at the Committee breakfast meeting. D. Powell will attend the committee breakfast meeting.

Meeting Adjourned: 11:00 a.m.

Chairperson: Linda Harris

Food Sanitation Professional Development Group

Members Present: Alex Von Holy, Bob Tiffin, Gerald Barns, Greig Warner, Gloria Swick, Frank Yiannis, LeeAnne Jackson, Tom Schwarz, Pete Snyder, and Susan Ciani

Members Absent: Harry Haverland, Alice Haverland, and Howard Malberg

Board Members/ IAMFES Staff Present: Gale Prince, David Tharp, and Tami Schafroth

Meeting Called to Order: 1:30 p.m.

Recording Secretary of Minutes: Alex Von Holy

New Business:

1. Document the plan for industry self-control HACCP focus on the food handler as the CCP and develop/ validate how to do food handling tasks simply that assure safety.
2. There is research needed to find the simplest ways to do some food handling tasks safely. Coordinate a program through IAMFES to see if we can set up a fund from suppliers to support research something like ILSI.
3. As we develop documentation for industry self-control HACCP put model HACCP-TQM pages on the IAMFES Web site for restaurants to download and use in their manual.
4. A suggestion was made to change the name of the PDG to "Retail Food Process Professional Development Group." This is in keeping with the broadened scope of sanitation.

Summary of Activities and Action Taken:

1. Two symposia were developed and submitted for approval.
2. Begin an E-mail communications network with members and circulate a proposed self-control HACCP plan for comments. Develop standardized documentation and circulate it for comment.
3. Work with IAMFES staff to see how our PDG can get a Web page and a communications group E-mail box.
4. Gather PDG members input on a name change and submit a document to the IAMFES office.

Next Meeting Date: 1999 IAMFES Annual Meeting, Dearborn, MI

Meeting Adjourned: 3:05 p.m.

Chairperson: Pete Snyder

Addendum to Food Sanitation Professional Development Group Minutes:

Tom Schwarz distributed copies of the FDA's 69-page document titled, "Managing Food Safety: A HACCP Principles Guide for Operators of Food Service, Retail Food Stores, and Other Food Establishments at the Retail Level." A short discussion took place with Tom explaining the amount of effort that had been done towards a national effort on HACCP at retail.

Fruit and Vegetable Safety and Quality Professional Development Group

Members Present: Linda Harris, Jeff Farber, Nancy Nagle, Edith Garrett, Laura Lindabery, Jena Roberts, Philip Blagoyevich, Randy Worobo, Ring Chang Wu, Deog-Hwan Oh, Kook Hae Kang, Frances Pabrua, Janell Percy, Alan Hathcox, Larry Beuchat, Susan Sumner, LeeAnn Jackson, Dianne Peters, Judy Harrison, Fred Breidt, and Lawrence Roth

Board Members/ IAMFES Staff Present: Robert Brackett

Meeting Called to Order: 1:30 p.m.

Recording Secretary of Minutes: Jeff Farber

New Business:

1. Introduced all members.
2. Went over role of professional development group.
3. Discussed name of group.
4. Went over mission statement.
5. Discussed specific goals of the group.
6. Discussed possibility of IAMFES reviewing existing industry and governement guidelines on produce safety and quality.
7. Talked about the possibility of organizing an industry sponsored graduate student competition.
8. Industry members also wanted to have some way of influencing students to go into the business of fresh produce and in addition, looking to IAMFES when seeking employees to work in QA field.
9. Some industry members wanted this group to be a clearing house of information available to industry on issues such as Good Agricultural Practices (GAPs). This information would have to be available in a user friendly format.

Recommendations to IAMFES Board:

1. Accept establishment of E-mail discussion group.
2. Look into feasibility of accepting proposal to establish a graduate student competition paper specfically in the applied produce area.

Next Meeting Date: August 1999

Meeting Adjourned: 3:00 p.m.

Chairperson: Jeff Farber

Meat and Poultry Safety and Quality Professional Development Group

Members Present: Carla Abbatemarco, Don Conner, Ann Marie McNamara, Stan Bailey, Ivan Linjacki, Brian Sheldon, Isabel Walls, Eric Line, Margaret Hardin, John Rice, John Cerveny, Kathy Glass, Lynn McMullen, Larry Wallace, D. Wayne Sprung, Patrick Dodsworth, Robert Charlebois, Tom Ross, Norman Stern, Charles Papa, Lance Bolton, Leora Shelef, and Ron Weiss.

Members Absent: Jean Allen, Neal Apple, Dane Barnard, Bill Boylan, Jackie Caplinger, Warren Charminski, Lori Cole, Jerry Erdmann, Thippareddi Harshavardhan, Frances Nattress, Joseph Huseman, Anna Lammerding, Veronica Letelier, Mike May, Thomas McCaskey, Tom McMeekin, Larry Mendes, Joseph Meyer, Arthur Miller, Brendan Murphy, Christopher Newcomer, Laurentina Pedrosa, James Price, Jenny Scott, Don Splittstoesser, Coleen Stevens, Susan Sumner, Francine VanRossen, A. L. Waldroup, Connie Zagrosh, Nelson Cox, Hillary Fagen, and Charles Page.

Board Members/IAMFES Staff Present: Jim Dickson

Meeting Called to Order: 1:35 p.m.

Recording Secretary of Minutes: Don Conner, and Ivan Linjacki

New Business:

Meeting called to order by Brian Sheldon (Co-Chairperson) at 1:35 p.m. Sheldon reviewed changes in the PDG and the reasons for combining meat and poultry groups. The charge of PDG's was presented. Introductions of attendees were made. Agenda adopted:

USDA Update:

Ann Marie McNamara indicated that the microbiology group within USDA-FSIS has been decentralized akin to a FDA model. The PDG discussed the FSIS Volunteer Model Plant Inspection Program and some concern was expressed that the evaluation period of 4-5 months was too short to generate the needed data. HACCP Implementation was discussed. A Canadian volunteer in-plant inspection program was described. Major HACCP issues discussed included the use of antimicrobials in processing, excessive H_2O use, pilot-testing of additional processing steps. Stan Bailey reviewed recent public meeting (forum) by USDA, where potential antimicrobials were discussed. It was indicated that the on-line reprocessing of fecal-contaminated poultry should be approved soon. John Rice indicated that USDA will likely sponsor an "industry" training program for small plants in November, and this will be very useful for the industry. Margaret Hardin indicated that the House Ag Committee will hold hearings in September (24-25) to discuss science vs. regulatory based m/p inspection. *Campylobacter* was discussed. Ann Marie McNamara indicated that campy will be a future performance study, and FSIS are working with ARS to develop enumeration methods to be used for campy risk assessment. Data will be collected soon to establish baseline values. Eric Line (ARS) gave an overview of the campy enumeration method that will be used. Ann Marie McNamara indicated that **Risk Assessment** will be a new unit within USDA. A *Salmonella enteritidis* Risk Assessment model is completed, and an *E. coli* O157:H7 "Farm-to-Fork" model will be the next project. "No" discussion on egg cooling. It was indicated that egg se contamination rate estimates by the USDA have been lowered (to 1/20,000), and cases of SE Human Disease is lower. **Food Safety Initiatives** were briefly discussed. The exact funding picture is uncertain for these initiatives.

Live Production Interventions:

Briefly discussed "pre-empt" and other CE treatments. Conclusion was that CE cultures should be carefully evaluated, but can be useful tools. Bailey indicated that ARS is now working on CE treatments for swine.

USDA Lab Accredidation

Ann Marie McNamara briefly reviewed "FLAWG" and stated USDA working with AOAC on lab accrediation for their labs.

Symposium Topics put Forth

1. *Campylobacter* – Eric Line, Chairperson

Possible subtopics: methods

- Criteria for implementation of performance standards
- Baseline data
- Intervention strategies
- Overview
- Pros/con of standard

2. HACCP Implementation – Margaret Hardin, Chairperson

Possible Subtopics: Antimicrobials as CCP's

- Small Plant Implementation
- H_2O use
- Costs of HACCP
- Lessons learned from large plants

New Officers

Norman Stern, USDA-ARS, Appointed Vice-Chair for '98-2000, Don Conner, Auburn University, will serve as Chairperson '98-2000.

Summary of Activities and Action Taken:

1. Issues identified
   a. HACCP Implementation Report Card: Symposium being developed for 1999 meeting headed by Margaret Harding of National Pork Producers (awaiting Advisory Committee approval).
   b. *Campylobacter* Overview: Symposium being developed for 1999 meeting headed by Eric Line of USDA-ARS.
   c. Possible restrictions in conducting pathogen research should Class III laboratory certification be required in the future for all laboratories (discussion only).
   d. Future impact of "Animal Rights Groups" on animal production/processing (discussion only).
   e. Lack of trained food microbiologists to fill current and future market demands (academia, industry, government).
2. IAMFES should develop incentives to attract students to this field (membership fee reduction or waivers, travel grants, student programs at Annual Meeting, employment recruitment opportunities etc).
   f. Develop a listserve for the group.

Recommendations to IAMFES Board:

None

Next Meeting Date: 1999 Annual Meeting, Dearborn, MI

Meeting Adjourned: 3:40 p.m.

Chairperson: Brian Sheldon

Microbial Food Safety Risk Assessment Professional Development Group

Mission: To facilitate the development and application of risk assessment of foodborne hazards to human health.

Members Present: Michael Cassin, Trish Desmarcheilier, Aamir Fazil, Allan Hogue, Anna Lammerding, Michael McElvaine, Barry Michaels, Roberta Morales, Chris Newcomer, Greg Paoli, Dianne Peters, Tom Ross, Don Schaffner, Pete Snyder, Susan Sumner, Ewen Todd, and Frank Yiannas

Board Members/IAMFES Staff Present: Jenny Scott

Meeting Called to Order: 11:04 a.m. by Allan Hogue

Recording Secretary of Minutes: Don Schaffner

Old Business:

At the Meeting last year the Microbial Food Safety Risk Assessment Group proposed that IAMFES offer a workshop entitled: An Inside Look at the Risk Assessment Process for *Salmonella enteritidis* in Eggs and Egg Products. IAMFES approved the workshop. A committee headed by Don Schaffner is organizing the workshop to be conducted in February 1999 in Washington, D.C. Don's committee will develop a time line and agenda for the workshop and coordinate their efforts with Carol Mouchka. The workshop will be a hands-on training experience using programs and computer simulations to demonstrate models for *Salmonella enteritidis* in eggs. The focus is to compare and contrast the approach taken by Health Canada and the Food Safety and Inspection Service in assessing the risk from *Salmonella enteritidis* in eggs.

New Business:

1. The MFSRAG developed two symposia proposals:

   Risk assessment of dairy products – Overview of international issues with regard to unpasteurized milk and cheese made from unpasteurized milk. Topics presented could include risk assessments from *Listeria monocytogenes*, EHEC, and *Salmonella* in cheese made from unpasteurized milk.

   Risk assessment of fruits and vegetables – topics could include foreign vs. domestic sources of fruits and vegetables, unpasteurized juices, *Clostridia botulinum*, organically grown fruits and vegetables and cabbage and lettuce.

2. The MFSRAG developed two issues from continued work during the coming year.

   The use of fault trees in planning HACCP programs and mitigating the risk from foodborne pathogens at retail. Pete Synder and Don Schaffner will prepare a draft document for comment within the PDG. The use of risk assessment at retail needs more attention in order to complete the farm-to-table continuum.

   The group discussed the use of experimentally derived D-values for decision making in the pasteurization of liquid egg. Combining data from experimental studies on egg products produces a high level of uncertainty about the final value. Allan Hogue will develop a paper and for discussion within the PDG about the reasons why the level of uncertainty in D-values for liquid egg are higher than the levels for milk. The purpose of the document is to inform industry and government regulators about the limitations in the use of experimentally derived D-values and improve decisions made from that information.

Summary of Activities and Action Taken:

1. The Microbial Food Safety Risk Assessment Group elected Don Schaffner Vice Chair to serve a two year term. Allan Hogue is the Out-Going Chair and is replaced by Lee-Ann Jaykus.
2. In the coming year the Mircobial Food Safety Risk Assessment Group will plan and conduct a workshop (an inside look at a risk assessment for *Salmonella enteritidis* in eggs and egg products) and will circulate two papers for comment.

Recommendations to IAMFES Executive Board:

1. The Microbial Food Safety Risk Assessment Group recommends the approval of Don Schaffner as Vice Chair and Lee-Ann Jaykus as Chair for the group.
2. The group also recommends that IAMFES work with Don Schaffner and his committee to produce a workshop on risk assessment in February 1999.

Seafood Safety and Quality Professional Development Group

Members Present: Custy F. Fernandes, June Wetherington, Robert Price, Carlos Abeyta, and Roy Martin

Members Absent: Ann Draughon, Yao-Won Huang, Donn Ward, B. J. Hartog, Ngoc-Lan Dang, Mike Moody, Rantzell Nickelson, and Brian Himelbloom

Board Members/ IAMFES Staff Present: Jenny Scott and Rick McAtee

Meeting Called to Order: 1:38 p.m.

Recording Secretary of Minutes: Carlos Abeyta, Jr.

Old Business:

1. The committee discussed this year's symposium on Seafood HACCP: Reflections After Implementation. There have been last minute changes: (1) Paper on FDA's Reflection on HACCP Implementation given by Don Kraemer, FDA will now be given by Brett Koonze. Paper on SSOP Reflections – Eight Months after Implementation by Debra Devilieyer will be given by Shelly R. Haywood. Paper on HACCP Implementation – Perspectives of a Small Family Owned Business – James Johnson, will be given by Roy Martin.
2. IAMFES has given us the task to identify the most significant issues (5) of professional concern on priority relative to the Seafood Safety and Quality Professional Development Group. The committee discussed significant issues that are pertinent to the Membership. The possible symposia proposals for the 1999 Annual Meeting is to focus on the President's Food Safety Initiative (FSI) issues for this symposium are as follows: Control of Viral and Bacterial Human Pathogens in Seafood; What is the FSI Impact on Seafood Processor; Development of Risk Assessment Clearinghouse; *V. parahaemo-*

lyticus Working Group Update on Outbreaks 1997 and 1998; Impact of Algal Blooms; Histamines in Seafoods; Parasites; Levels of Vibrios in Retail Seafood; Crab-cooking Regulation in Modified Atmosphere; Hazards in Seafoods; and a panel discussion of "How Safe is Safe Concept" building seafood safety margins.

New Business:

Jenny Scott, IAMFES Executive Board and IAMFES staff discussed the role of the Seafood Safety & Quality Professional Development Group during the year. IAMFES staff would like to see our committee take a more active role in communicating our significant issues to the general membership. Suggestions: Prepare a seafood safety/quality paper for publication in *DFES*; use the IAMFES Web site to communicate seafood issues of concern given by Roy Martin.

Summary of Activities and Action Taken:

1. 1999 symposium recommendations.
2. To increase communications to IAMFES Membership on issues related to Seafood Safety and Quality.
3. New Officers for 1998-1999 are Chairperson: Carlos Abeyta, Jr.; Vice Chairperson: Custy Fernandes.

Recommendations to IAMFES Board:

Link the Web site to UC-Davis. Sea Grant content to be IAMFES Web site to Seafood HACCP information to general membership.

Meeting Adjourned: 2:30 p.m.

Chairperson: Carlos Abeyta, Jr.

Viral and Parasitic Foodborne Disease Professional Development Group

Members Present: Daniel Maxson, Vice Chairperson; Thomas Schwarz, and N. Cook

Members Absent: Lee-Ann Jaykus, Chair; Gale Prince, Board Liaison; Tami Schafroth, Staff Liaison; Mosffer Al-Dagal; Bert Bartleson; Dean Cliver; Musa Dahdal; Jack Guzewich; Jim Hartman; Ivan Linjacki; Christine Moe; and Mark Sobsey

Board Members/IAMFES Staff Present: Jenny Scott

Meeting Called To Order: 3:35 p.m.

Recording Secretary of Minutes: Daniel Maxson

Mr. Maxson explained that Chairperson Jaykus was absent due to illness and that she requested he chair the meeting in her absence.

Old Business:

There was no old business to discuss.

New Business:

Thomas Schwarz asked if the PDG would consider putting together a symposium on controlling SRSV outbreaks at next year's IAMFES Meeting. After discussion, it was agreed that a preliminary symposium would be submitted to the Program Committee Chair for review/consideration. A symposium was then put together and submitted to the Program Committee Chair following the meeting.

Next Meeting Date: August 1999, Dearborn, MI

Meeting Adjourned: 4:05 p.m.

Vice Chairperson: Daniel Maxson

TASK FORCES

Constitution and Bylaws Task Force

Members Present: Randall Daggs and Charles Price

Members Absent: Robert Sanders and Allen Sayler

Board Members/IAMFES Staff Present: Michael Brodsky and Jim Dickson

Bob Sanders, Committee Chair was absent; Charles Price, the Senior Committee member, served as Chairman. Meeting to order at 1:50 p.m.

ISSUES

1. Name Change – Program Advisory Committee
   a. Executive Board proposed changing the name of the "Program Advisory Committee" to the "Program Committee";
   b. Rationale of name change based on the fact the Committee has evolved into a leadership role in developing the Annual Meeting Program, and its "advisory" role to the Executive Board is in name only;
   c. Based on that reasoning, in June, 1998 the Executive Board proposed a change in the Committee's name to more truly reflect its active role in planning program agendas;
   d. A change (removal of the word "Advisory") would be made in each of the following places in the Bylaws:
      1. Article II. Section 5., D.
      2. Article V., Section 1
      3. Article V., Section I., A
   e. The Committee voted unanimously to support the proposed name change.
2. Name Change – Proposed Organization (IAMFES) Name change

   1. Michael Brodsky updated the Committee on the Executive Board's proposed name change for IAMFES – "The International Association for Food Protection"; the Board has already begun a legal search to determine if the proposed name conflicts with present ownership of trade names and/or acronyms; should the title search clear, the Board can formally register the new name; this is being done now to allow for a smooth transition to the

new name, pending passage by the delegates at the 1999 Business Meeting and a ballot vote by the delegates at large;

3. **Impact on Constitution & Bylaws.** With input and advice from Michael Brodsky, this Committee determined that an organizational name change would result in a simple "search and replace" effort in the Constitution; the Bylaws document would require a more comprehensive review upon any name change;
4. **Impact on Affiliates.** It was also determined and agreed the Affiliate names can remain the same should a name change for IAMFES occur; the affiliate constitution and bylaws that refer to IAMFES in their text may require a "search and replace" process to remove the old name and insert the new acronym;
5. After discussion on the proposed change, the Committee verbally agreed that the proposed name change be brought forth to the August 19th business meeting;

Meeting Adjourned: 2:45 p.m.

Senior Committee Chairperson: Charles Price

Developing Scientist Award Task Force

1. This year's competition included six entrants in the oral competition and 22 entrants in the poster competition. All six entrants in the oral competition were notified of their status as finalists. The six primary judges reviewed the 22 poster abstracts and chose nine finalists for the poster competition. All entrants in the poster competition were notified of their status by the Task Force chairperson.
2. The Task Force consists of six judges with two alternates. At least three judges review finalists in either the oral or poster competition. Due to scheduling conflicts in 1998 with primary judges, the two alternates also reviewed presentations.
3. Qualifications for entry into the Developing Scientist Award Competition and judging are reviewed in *Dairy, Food and Environmental Sanitation*, September 1997 issue. However, many advisors are unaware that undergraduates are eligible to enter the poster competition, but not eligible to enter the oral competition. To alert advisors that undergraduates are eligible for the competition, we suggest a check-box to show whether the student is in an undergraduate or graduate program. The qualifications of a graduate student was questioned by members of the 1998 Task Force. To clarify questions on eligibility after graduation, provide a blank to indicate month/year for graduation.
4. Concerns regarding the lack of trained food microbiologists in the job force were raised in several committee meetings in Nashville. To promote interest in food microbiology and safety among undergraduate and graduate students, we suggest:
   a. IAMFES should develop a mailing list to university bacteriology and food science professors. Provide flyers defining the mission of IAMFES and inviting students to enter the competition. Mailing list may be provided by the Food Microbiology division of ASM/IFT as well as using IAMFES membership.
   b. Promote the competition by providing travel funds for qualified entrants. Kraft Foods has indicated that they are willing to set up an endowment for these funds.
   c. Undergraduate finalists should also receive additional recognition, such as a certificate of recognition.
5. Traditionally, the chairperson of the Task Force has been a member of the Program Committee. To maintain continuity, provide the Task Force chairperson a list of incoming Program Committee members from which to choose new Task Force members.

Meeting Adjourned: 1:05 p.m.

Chairperson: Kathy Glass

Education Task Force

Members Present: Jennifer Quinlan, Dorothy Wrigley, and Joseph O'Leary

Members Absent: Joseph Andrade, Carl Custer, Marilyn Lee, David McClure, Tora Renner, Peter Snyder, and Margy Woodburn

Board Members/ IAMFES Staff Present: Jack Guzewich

Meeting Called to Order: 10:10 a.m.

Recording Secretary of Minutes: Jennifer Quinlan

Old Business:

1. Discussed best ways to promote Web site to educators and the need to work with individuals involved with the Food Safety initiative to accomplish this.
2. Discussed the need to continue to review resources and add them to the Web page as they are received.
3. Discussed recruitment of IAMFES individuals to serve as resources to teachers within their area.
4. Need to link other food safety Web sites to the IAMFES database.

New Business:

1. Request that the Task Force consider having the Education Task Force Chairperson work with

similar Chairpersons within CFP, AFDO, and NEHA to coordinate review of a broader range of food safety education materials, at the request of the National Agricultural Library.

Summary of Activities and Action Taken:

Goals for the upcoming year include:

1. Continuation of review of K-12 resources and maintenance of database Web site.
2. Promote food safety resources database in educator's publications.
3. Work with Cindy Roberts and NAL to begin coordinating review of broader range of Food Safety Education Resources.
4. Recruit new members to the Task Force who are interested in reviewing food safety education materials.

Recommendations to IAMFES Board:

1. Task Force requests that Web server space be allotted for the "Food Safety Resources for K-12 Educators Database."
2. Board consider making the Task Force a committee if IAMFES involvement in review of educational materials is a long-term interest of the Executive Board.

Next Meeting Date: 1999 IAMFES Annual Meeting, Dearborn, MI

Meeting Adjourned: 12:00 p.m.

Chairperson: Jennifer Quinlan

SUPPORT GROUPS

Affiliate Council

Affiliates Represented: Lawrence Roth, Alberta (Chairperson); John Bruhn, California; Beth Johnson, Carolina's (Secretary); John Chrisman, Florida; David Fry, Georgia; Charles Price, Illinois; Helene Uhlman, Indiana; Randy Hanson, Iowa; Deong Hwan Oh, Korea; Fred Weber, Metropolitan; Ron Holben, Michigan; Paul Nierman, Minnesota; Diane West, Nebraska; Steven Murphy, New York; Gloria Swick, Ohio; Michael Brodsky, Ontario; Eugene Frey, Pennsylvania; Ruth Fuqua, Tennessee; Larry Seamans, Virginia; Marc Bates, Washington; and Randall Daggs, Wisconsin

Guests Present: Gary Timmons, Jack Guzewich, Jenny Scott, Michael Brodsky, Bob Brackett, David Tharp, Tami Schafroth, Rick McAtee, Carol Mouchka, and Lisa Hovey

Members Absent: Satyakam Sen, Connecticut; Mary Glassburner, Kansas; Judy True, Kentucky; Barbara Kulig, Massachusetts; Regina Holland, Mississippi; John Ringsrud, North Dakota; Bill Boylan, Ontario; Darwin Kurtenbach, South Dakota; Ted Hickerson, Texas; and Nola Evans, Wyoming

Meeting Called to Order: 7:15 a.m.

Recording Secretary of Minutes: Beth Johnson

Old Business:

Moved by Paul Nierman, seconded by Ruth Fuqua to approve the minutes of the 1997 Affiliate Council Meeting as printed in the October 1997 *DFES* with the correction to Paul Nierman's name. Motion carried.

New Business:

IAMFES President's Report:

Chairperson, Lawrence Roth introduced IAMFES President, Gale Prince. Gale presented a report which included:

1. Cover of September *DFES* will include the "Fight BAC" symbol in honor of Food Safety Education month.
2. Steps needed to change name of IAMFES by year 2000.
3. Possible partnerships or alliances with other organizations for educational and training purposes.
4. Increase in Membership dues and discount offered for timely renewals.
5. Affiliates asked to consider donations to Foundation to help reach goal of $100,000 by year 2000.

IAMFES Staff Reports:

David Tharp, Executive Director:

1. Change in computer system to network; IMIS software implementation.
2. Mail dates for journals on schedule; new distribution process for international mailings.
3. Backlog of manuscripts for *JFP* eliminated.
4. Exhibits at other functions.
5. Increased registration for Annual Meeting result of increased advertising.

Lisa Hovey, Director of Finance:

Implementation of IMIS enables staff to track Membership and affiliate dues. Staff can provide list of IAMFES Members to affiliates on request.

Rick McAtee, Director of Marketing:

1. Distribution of new Membership cards and certificates.
2. Success of Web page.
3. Possible additions to page.
4. Increase in number of exhibitors.

Carol Mouchka, Director of Communications:

1. Information for publication in *DFES* submitted 60 days in advance.
2. Distributed useful tips on planning meetings.

Tami Schafroth, Affiliate Liaison:

1. Purpose of Affiliate Annual Reports.
2. IAMFES can supply journals, pamphlets, "Member" ribbons, mission statement placard and more for affiliate meetings.
3. Distribution of affiliate newsletter to all Members of affiliate boards.

Affiliate Awards:

Lawrence Roth reviewed the time line for awards and announced the following award winners:

C.B. Shogren Memorial Award – Ontario Food Protection Assn.

Best Affiliate Annual Meeting – Kentucky Assn. of Milk, Food & Environmental Sanitarians

Best Educational Conference – Wisconsin Assn. of Milk & Food Sanitarians

Best Communications Material – New York State Assn. of Milk & Food Sanitarians

Best Achievement (by number) – California Assn. of Dairy & Milk Sanitarians

Membership Achievement (by percentage) – Alabama Assn. of Milk, Food & Environmental Sanitarians

Affiliate Council Secretary:

Randy Daggs nominated. Moved by Charlie Price, seconded by Helene Uhlman that nominations cease and Randy Daggs be accepted as Secretary. Motion carried.

Affiliate Delegate Reports:

1. All affiliate delegates reported on the activities of their affiliates for 1997-98. Lawrence Roth reported affiliate support of students. Fourteen affiliates offered a total of 37 scholarships and prizes.
2. Chairperson Roth presented a gavel to Beth Johnson symbolizing the beginning of her term as Chairperson. Beth expressed appreciation to Lawrence for his service to the Affiliate Council. There being no further business, a motion for adjournment was called. Moved by Helene Uhlman, seconded by David Fry.

Recommendations to IAMFES Board:

1. Continued development of Web site as a way to exchange information among affiliates to include placing newsletter on Web site, links to affiliate Web sites, and posting meeting schedules and announcements.
2. Continue supporting Executive Board as speakers for affiliate meetings.

Next Meeting Date: IAMFES Annual Meeting in Dearborn, MI, August 1999

Meeting Adjourned: 10:15 a.m.

Chairperson: Lawrence Roth

Foundation Fund Support Group

Members Present: Bob Marshall, Jenny Scott, and Earl Wright

Members Absent: Bob Brackett, Dee Clingman, and Jack Guzewich

Board Members/ IAMFES Staff Present: Gale Prince, Michael Brodsky, David Tharp, and Lisa Hovey

Meeting Called to Order: 1:35 p.m.

Recording Secretary of Minutes: Harry Haverland

Old Business:

1. Minutes of the 1997 meeting were approved and accepted. Each of the activities currently supported by the Foundation Fund were reviewed in light of current funding and existing protocols.
2. The Ivan Parkin Lecture: Excellent speakers. The Selection Committee should continue their global efforts to obtain quality speakers on the cutting edge of technology.
3. Audio-Visual Lending Library: The library continues to be a valuable resource for IAMFES Members. Considerable time was utilized in discussing the proposed grant from the International Association of Food Industry Suppliers (IAFIS) to be used in purchasing audio-visuals materials. The $9,000.00 grant would establish a cooperative effort to provide a Lending Library available to IAMFES and IAFIS members. There are several logistic items to be resolved. Great concern was expressed regarding the extra workload on the staff and IAMFES budget. The Foundation Fund Group is in favor of accepting the IAFIS grant on a trial basis, one year, to determine impact on both the Lending Library and Administration. Everyone wants a level playing field for both IAMFES and IAFIS. Information regarding the joint venture should read IAMFES-IAFIS Audio-Visual Lending Library. The Audio-Visual Library Committee should work with the IAMFES office in developing sources for audio-visual materials.
4. Co-sponsorship of the Crumbine Award continue to support activity.
5. Developing Scientist Oral and Poster Competition remains a popular activity.
6. Shipment of volumes of surplus *JFP* and *DFES*. Journals to developing countries through FAO in Rome– continue to support.

7. Recruitment of exceptional speakers for the IAMFES Annual Meetings – continue to support.
8. Silent Auction: Many items have been received for the silent auction. The auction will start Sunday evening and continue through the early pm on Tuesday. A report will be given at the business meeting. The topic of joint or concurrent silent auctions with an affiliate was discussed. It was agreed that an affiliate may have a silent auction on their own at the Annual Meeting, however, the subject auction cannot be held concurrent with the Foundation Fund Silent Auction. Donors to the silent auction and high bidders will be recognized.
9. The visibility given to the Sustaining Members, Donors, Foundation Fund through the various channels has been effective and should be continued.

New Business:

Budget: Year Ending 8-31-99

Revenue:

Interest Income	$4,500.00
Contributions:	
Sustaining	10,000.00
Others	2,500.00
Total Revenue	$17,000.00

Expense:

Postage/Shipping	$ 700.00
Speaker Travel	2,000.00
Awards	2,500.00
Ivan Parkin Lecture	1,800.00
Crumbine Award Support	1,000.00
Lending Library	9,000.00
Total Expense	$17,000.00
Revenue Less Expense	$ -

The IAMFES office will pursue a more aggressive approach toward investments of the Foundation Fund. This is a general approach being employed by IAMFES.

Summary of Activities and Action Taken:
The programs currently being funded will continue at the budgeted levels. The Foundation Fund group is receptive to the grant monies from IAFIS contingent upon working out some details. A more aggressive approach is being implemented regarding funds. The silent auction will be the exclusive right of the Foundation Fund.

Recommendations to IAMFES Board:

1. IAMFES should accept the $9,000.00 grant from IAFIS after resolution of some logistic concerns. This will be a one-year trial. The name of the library will be changed to IAMFES-IAFIS Audio-Visual Lending Library.
2. The Ivan Parkin Lecture: The Selection Committee will continue their global approach for quality speakers.
3. The budget of $17,000.00 be approved. This includes $1,000.00 from the IAMFES restricted fund to support speaker travel.
4. Maintain the silent auction as an exclusive activity of the Foundation Fund. This will not preclude a State Affiliate from having a silent auction at the Annual Meeting. An affiliate cannot have a concurrent auction.
5. The Audio-Visual Library Committee should work with the IAMFES office in developing a list of sources for audio visual materials.
6. Extend the Foundation Fund Group's appreciation and thanks to the IAMFES office staff.

Next Meeting Date: Sunday, August 1, 1999, Hyatt Regency, Dearborn, MI

Meeting Adjourned: 3:05 p.m.

Chairperson: Harry Haverland

• IAMFES 1998 Annual Meeting Exhibitors •

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Awards Nominations

The International Association of Milk, Food and Environmental Sanitarians welcomes your nominations for our Association Awards. Nominate your colleagues for one of the Awards listed below. Only IAMFES Members are eligible to be nominated. *You do not have to be an IAMFES Member to nominate a deserving professional.

To request nomination criteria, contact:

IAMFES
6200 Aurora Avenue, Suite 200W
Des Moines, Iowa 50322-2863

By telephone: 800.369.6337; 515.276.3344; Fax: 515.276.8655 or E-mail: iamfes@iamfes.org.

Nominations deadline is February 19, 1999. You may make multiple nominations. All nominations must be received at the IAMFES office by February 19, 1999.

- *Persons nominated for individual awards must be current IAMFES Members. Black Pearl Award nominees must be a company employing current IAMFES Members. NFPA Food Safety Award nominees do not have to be IAMFES Members.
- Previous award winners are not eligible for the same award.
- Executive Board Members and Awards Committee Members are not eligible for nomination.
- Presentation of awards will be during the Awards Banquet at the IAMFES Annual Meeting in Dearborn, Michigan on August 4, 1999.

Nominations will be accepted for the following Awards:

Black Pearl Award – Award with Black Pearl

Presented in recognition of a company's outstanding achievement in corporate excellence in food safety and quality.

Sponsored by Wilbur Feagan and F&H Food Equipment Company.

Honorary Life Membership Award – Plaque and Lifetime Membership in IAMFES

Presented to Member(s) for their devotion to the high ideals and objectives of IAMFES and for their service to the Association.

Harry Haverland Citation Award – Plaque and $1,000 Honorarium

Presented to an individual for years of devotion to the ideals and objectives of IAMFES.

Sponsored by DiverseyLever/U.S. Food Group.

Harold Barnum Industry Award – Plaque and $1,000 Honorarium

Presented to an individual for outstanding service to the public, IAMFES and the food industry.

Sponsored by NASCO International, Inc.

Educator Award – Plaque and $1,000 Honorarium

Presented to an individual for outstanding service to the public, IAMFES and the arena of education in food safety and food protection.

Sponsored by Nelson-Jameson, Inc.

Sanitarian Award – Plaque and $1,000 Honorarium

Presented to an individual for outstanding service to the public, IAMFES and the profession of the Sanitarian.

Sponsored by Ecolab, Inc., Food and Beverage Division.

NFPA Food Safety Award – Plaque and $3,000 Honorarium

Presented to an individual, group, or organization in recognition of a long history of outstanding contribution to food safety research and education.

Sponsored by National Food Processors Association.

New Members

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Queensland

David C. Richardson
Burns Philp, Sydney, N.S.W.

Julian Yim
Professional Services Associate
Thornleigh, N.S.W.

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Kwanyee Ng
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Forfulam, Hong Kong

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Vic Johnson
Gold Kist Inc., Russellville

Ralphenia Pace
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Ananta PoroboDessai
Tuskegee University
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ARIZONA

Judy Baron
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USDA-ARS-ERRC, Wyndmoor

Paul Kirsch
Consulting Engineers, Inc. , Malvern

Daniel W. Stacey
Dairy Farmers of America
New Wilmington

SOUTH CAROLINA

William E. McCullough
Glory Foods Inc., Effingham

TEXAS

William F. Osborne
Silliker Laboratories of Texas
Grand Prairie

William C. White, III
Silliker Laboratories of Texas
Grand Prairie

WASHINGTON

Mike Sweet
Vitarich Ice Cream, Renton

Russell P. Tagliareni
Darigold Farms, Lynden

WISCONSIN

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Madison

Deborah A. Duschl
Promega Corp., Madison

NewMembers

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Food Spectrum, Brisbane
Queensland

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Vic Johnson
Gold Kist Inc., Russellville

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Frederick W. Smith
M&M/Mars, Albany

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Richard K. Smith, Inc., Lisle

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Evansville

MAINE

Chun-Ming Chen
IDEXX Laboratories
Westbrook

MARYLAND

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IBEN International, Taneytown

MINNESOTA

Arlen Johnson
Nol-Tec Systems Inc.
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MISSOURI

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John Mills
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Hannibal

NEW YORK

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Mineola

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Ecology & Environment Inc.
Lancaster

Jonathan Langer
Paramount Pest Elimination Inc.
Patchogue

OHIO

John Higgs
Dubois Chemical, Cincinnati

Ronald K. Jenkins
Ashland-Fine Ingredients Division
Dublin

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Promega Corp., Madison

UpDates

New Officers of the American Dairy Science Association

The American Dairy Science Association (ADSA) announced a new slate of officers for 1998-1999. Announcement of the newly elected ADSA Board of Directors was made during the 93rd annual meeting of their association.

H. E. Swaisgood, William Neal Reynolds, Professor of Food Science and Biochemistry at North Carolina State University, has been named Vice President. New Directors to the ADSA Board are Phillip S. Tong, Associate Professor of Dairy Science at California State University, representing the Dairy Foods Division, and David K. Beede, C. E. Meadows Endowed Chair Professor in Dairy Management and Nutrition in the Department of Animal Science at Michigan State University, representing the Production Division. H. H. (Jack) Van Horn, Professor, University of Florida, is the new ADSA Treasurer.

Continuing on the Board in new positions are Lawrence D. Muller, Professor of Dairy Science in the Department of Dairy and Animal Science at The Pennsylvania State University, ADSA President, and Charles K. White, Professor and Head of the Department of Food Science and Technology at Mississippi State University, ADSA Past President.

John W. Fuquay, Professor, Department of Animal and Dairy Science, Mississippi State University, continues as Editor, *Journal of Dairy Science*.

Retiring from the Board after this year's meeting are Larry D. Satter, US Dairy Forage Research Center, USDA, ARS, University of Wisconsin, Past President; Robert L. Sellars, Robert L. Sellars & Associates, Inc., ADSA Treasurer; K. M. Farrell, Jr., USDA Eastern Regional Laboratory, Director; and M. F. Hutjens, University of Illinois, Director.

Osmonics Names Vice President Research and Development

Osmonics announced the promotion of Phil Rolchigo to Vice President Research and Development, a new position at the Company. Rolchigo joined Osmonics in early 1998, when the Company acquired Membrex Corp., Fairfield, N.J., a manufacturer of membrane products and fluid treatment systems for industrial customers.

Rolchigo is the principal inventor of advanced vortex flow filtration technology. He twice received *Chemical Processing* magazine's Vaaler Award—for an oily waste treatment system and again the following year for a solid-liquid separations system.

Rolchigo has served as a research affiliate in chemical engineering for MIT, and belongs to numerous industry organizations. He earned his bachelor's degree in chemical engineering from the University of Rochester, and his Ph.D. from the University of Pennsylvania.

Kristie Stapleton Promoted at Fristam Pumps

Fristam Pumps announced the promotion of Kristie Stapleton to the position of Customer Service Representative. In her new assignment, Kristie will be responsible for aiding customers with technical support and customer service. She was a member of Fristam Sales Department for a year prior to her promotion.

Cuevas Joins Bell Laboratories as Technical Sales Representative for Mexico and Southwestern U.S.

Lydia Cuevas joined Bell Laboratories' sales and marketing team recently as a Technical Sales Representative for Mexico, Southern California, and Arizona. Cuevas provides technical support and information on Bell rodent control products to Bell distributors and assists them in the sales and marketing efforts.

A resource to PCOs in her territory, Cuevas works one-on-one with distributors and PCOs in solving rodent control problems and offering recommendations on the best use of Bell products. She also assists with PCO training through state pest control associations and private companies.

Fluent in Spanish, Cuevas works internationally with Bell accounts in Mexico. She also represents Bell's line of rodent control products at national, state, and local pest control association meetings.

Alfa Laval Flow Inc. Appoints President

Alfa Laval Flow Inc., has named Keith Potts President. G&H Products Corp., of Pleasant Prairie, WI; Alfa Laval Pumps, of Kenosha, WI; and Alfa Laval Saunders of Houston, TX, will come together to form Alfa Laval Flow Inc. The new company's headquarters will be at the present location of G&H Products.

Potts, the Past President of G&H Products, began his tenure as Alfa Laval Flow Inc. President on August 1, 1998, the official date of the integration. In addition to overseeing all three Alfa Laval Flow divisions, he will continue to act as General Manager for the G&H Division.

Potts joined G&H Products in 1984 as Warehouse Manager. He was also an Inside Sales Representative, District Sales Manager, Operations Manager and National Sales Manager before becoming President.

Michalec Appointed Groen Sales Manager

Groen, a Dover Industries Company, has announced the appointment of John M. Michalec as Sales Manager for their Process Equipment Group. Michalec will work out of Groen's Elk Grove Village, Illinois' specialty products headquarters.

Before joining Groen, Michalec served as Account Manager for APV Baker Inc. of Grand Rapids, MI. John also was a Sales Engineer for Proctor & Schwartz Inc., selling commercial dehydration equipment; Sales Engineer with Santa Clara, California-based PTE Corporation, selling hydraulic drive systems to the food and beverage industries: and Applications Engineer for the Food Processing Machinery Division of FMC Corporation. Michalec is a graduate of California Polytechnic State University where he earned a bachelor of science degree in industrial engineering.

Michael DuBois Named Universal Flavors President

Universal Foods Corporation has appointed Michael duBois as President of its Universal Flavors division. DuBois, who has over 25 years flavor industry experience, joins Universal Flavors from Bush Boake Allen, Inc. where he was Vice President and General Manager, Seasonings Division.

DuBois has a bachelor's degree from Willamette University, Salem, Oregon and a master's of science degree in food science from Oregon State University.

A & B Appoints C.F.O., Manufacturing Director

A & B Process Systems has appointed John Hermeier to Chief Financial Officer. Hermeier comes to A&B with a storied history of success in areas of corporate finance, accounting, and corporate organizational strategy. A CPA since 1985, Hermeier most recently served as Director of Finance & Administration for The Semling-Menke Company, based in Merril, WI.

In addition, Rick Angerhofer has joined A&B Process Systems as Director of Manufacturing. Angerhofer brings 18 years of successful engineering and stainless steel manufacturing experience with him to A&B. Actively involved in quality improvement and product development in stainless steel tank design and fabrication, Angerhofer comes to A & B Process Systems from Walker Stainless Equipment Company.

Walker Stainless Hires Director of Sales and Marketing for Transportation Products Group

Walker Stainless Equipment Company Inc. recently announced the appointment of Rick Connelly to the newly created position of Director of Sales and Marketing for Walker's Transportation Products Group.

Connelly is a Registered Professional Engineer with a BSBE degree from the University of Wisconsin and has over twenty-eight years of experience in the trailer manufacturing industry. He will be responsible for all sales and marketing functions involving Walker's Transportation Products Group.

Researcher Wins American Egg Board 1998 Research Award

Michael Foods Research and Development Food Scientist Dr. James Schuman has won the 1998 American Egg Board (AEB) Research Award. The award was presented August 5 at the Poultry Science Association's annual meeting in State College, PA, for Dr. Schuman's paper, entitled "Immersion Heat Treatments for Inactivation of *Salmonella enteritidis* Within Intact Eggs," published in the *Journal of Applied Microbiology* in 1997.

"In terms of break-through research, this paper conclusively demonstrates the effectiveness of intact shell egg pasteurization in improving the safety of shell eggs," noted Dr. Hershell Ball, Jr., a co-author of the paper and Vice President of Research & Development for Michael Foods subsidiary M.G. Waldbaum. "The American Egg Board Research Award is a great honor, not only in terms of recognizing significant contributions to egg science research and innovation, but also in validating Michael Foods' refinement of this technology for our intact egg pasteurization process," he added.

"In terms of food safety, we've explored this technology in a very thorough manner," said James Schuman. "This new process gives consumers a tremendous improvement in assuring that any lightly-cooked egg, product will be safe, without significantly changing the egg's flavor, appearance, or consistency."

Research for this paper was conducted as part of Dr. Schuman's doctoral program at North Carolina State University's Department of Food Science in Raleigh and was partially funded by Michael Foods through sponsorship of the NCSU research laboratory. Dr. Schuman received his doctorate in food science in 1996 from NCSU. Other co-authors on the paper include Dr. Brian Sheldon, Department of Poultry Science at NCSU, and Dr. Joseph Vandepopuliere, Department of Animal Science at the University of Missouri.

A native of Ann Arbor, MI, Dr. Schuman holds a master's degree from the University of Minnesota and a bachelor's degree in microbiology from Clemson University. Among his many scientific honors, Dr. Schuman won NCSU's 1996 Max B. Gardner Award for best graduate dissertation in poultry science, and was first-place winner of the 1995 IAMFES (International Association of Milk, Food and Environmental Sanitarians) Developing Scientist Research Poster Competition.

The in-shell pasteurization process was developed in response to growing concerns about the safety of the U.S. food supply. Food safety is a major priority of the U.S. Food & Drug Administration, which for many years has included shell eggs on its list of "potentially hazardous foods." The FDA's Model Food Code specifically recommends that pasteurized egg products, including in-shell eggs, always be used in food establishments serving lightly-cooked egg dishes to "highly susceptible populations." This group, which includes the elderly, pregnant women, and persons with chronic or impaired immunorelated illnesses, now represents 20 percent of the total U.S. population.

Foodservice operators serving Caesar salads, soft-poached or "sunny side up" fried eggs, French toast, meringues, soft custards, gourmet sauces and other lightly-cooked egg dishes now have an additional incentive for using pasteurized egg products. The FDA's 1997 edition of the Food Code recognized pasteurized shell eggs for the first time as a new category of egg products that should be substituted in all uncooked or lightly cooked delicatessen and menu items typically containing raw or undercooked eggs.

Why You Need a Kitchen Thermometer

You've grilled your hamburger until it looks brown in the middle, so it's safe to eat, right? Wrong, says the U.S. Department of Agriculture's Food Safety and Inspection Service. The government bacteria-busters warn that you can't use visual cues, like color or texture, to judge whether ground meat has been cooked thoroughly enough to kill potentially harmful microbes.

The only way to know for sure whether ground beef, or any meat, poultry, or casserole, has been safely cooked is to use a kitchen thermometer. Unfortunately, in a survey conducted by the USDA, only about half of those questioned said they use a thermometer. Considering that dangerous pathogens like *E. coli* O157:H7 can be killed only at high temperatures, that's a lot of people who are putting themselves at unnecessary risk of foodborne illness.

The reason that using your eye to judge a burger's "doneness" won't 'cut it' is that the natural pigment of raw red meat (which can range from purple to red to brown, depending on the age of the animal and whether the meat

was exposed to air) could change to brown before the meat is fully cooked, according to Bessie Berry, Manager of the USDA's Meat and Poultry Hotline. Using marinades can also make a burger appear brown before it has reached a safe internal temperature.

Testing a burger to see whether the juices run clear is an equally faulty method. "What does 'clear' really mean?" challenges Ms. Berry. "Should the juice have no color at all? Or just no evidence of pink? The color you see could change according to the background lighting, the plate you use, and how much juice you squeeze out of the burger."

The meat thermometers that everyone should depend on (instead of their eyes) come in several models, and safe temperatures will differ according to what type of meat, poultry, or casserole you're cooking. When checking a meat's temperature, make sure to put the thermometer in the deepest, thickest part of the roast or patty. You may have to turn chops, chicken breasts, or burgers sideways to get an accurate reading. Make sure your thermometer is properly calibrated (you can do this by taking the temperature of boiling water, which should read 212° Fahrenheit), and always wash in hot, soapy water after each use.

Note: While checking temperatures at the grill or stove may sound cumbersome, some types of thermometers take only 10 seconds or so to get a reading.

Reprinted from Tufts University Health & Nutrition Letter, June, 1998.

HACCP Institute℠ — An Association of Food Safety Experts

Philip Blagoyevich, President of Blagoyevich Consulting Services, recently announced the founding of the HACCP Institute℠, an association of food safety experts. This multidisciplined group of consultants and academicians will provide food safety education, facility audits, training programs and guidance to the food industry internationally. The mission of the Institute is "to provide useful information regarding all aspects of food safety, including regulations and practical applications for farmers and growers, manufacturers, and distributors." Mr. Blagoyevich said there are also plans to form a policy advisory board selected from the food industry and its suppliers. For further information, please contact Philip Blagoyevich by Phone: 925.820.3558; Fax: 925.820.4141; E-mail: blagoyevich@msn.com; or by mail at 2478 Ascension Dr., San Ramon, CA 94583.

1998 Kraft General Foods Teaching Award is Presented to John A. Partridge

John A. Partridge, Associate Professor and Extension Specialist in the Department of Food Science and Human Nutrition at Michigan State University, was named recipient of the 1998 Kraft General Foods Teaching Award because of his excellence in teaching. Partridge was presented the award on July 29th during the awards ceremony of the 93rd Annual Meeting of the American Dairy Science Association, which was held at the Denver Marriott City Center in Denver, CO.

Since 1983, Partridge has supervised the Michigan State University dairy and has coached many successful dairy products evaluation teams. He advises undergraduates in food science and skillfully teaches a variety of food and dairy science courses. His innovations in teaching include comprehensive take-home problem and "5 minute writers," which provide practice in writing while revealing the student's understanding. Partridge has a reputation of being a very interactive professor with positive enthusiasm that helps to make the learning experience enjoyable for his students.

Partridge was born in Newport, VT and grew up working in a dairy plant. After earning his B.S. degree in dairy technology from the University of Vermont, he moved back to Newport where he worked as Assistant Plant Manager for Elmwood Dairies for 3 years. In 1978, Partridge returned to the University of Vermont and earned an M.S. degree. Partridge earned his Ph.D. degree at the Michigan State University in 1983 and joined the faculty there.

Dairy Ingredients Provide Solution to Naturally Preserving Minimally Processed Food

Consumers today are looking for a more "freshlike" product on the grocery shelf and less chemical preservatives on the label. The U.S. food industry is meeting the consumer demand for "freshlike" product with minimally processed foods, products that receive milder processing than traditional canning, pasteurization, salting and smoking methods. However, naturally preserving these products and reducing the use of chemical additives is a challenge to food manufacturers.

According to Joe Warthesen, director of the Minnesota-South Dakota Dairy Foods Research Center at the University of Minnesota, the processing methods used for minimally processed foods are less harsh, milder heat treatments, lower salt levels and reduced acid content, so the products are more susceptible to spoilage and the growth of pathogens.

"The typical food preservation techniques that involve low temperature storage, reduced pH, controlled atmosphere and the use of chemical preservatives would be effective in preventing spoilage

and pathogen growth in minimally processed foods. However, most food manufacturers are reluctant to use chemical preservatives because of negative opinions from consumer groups," says Edmund Zottola, a researcher at the Minnesota-South Dakota Dairy Foods Research Center.

Addressing consumer demand and the food manufacturer's need for natural preservatives, Zottola and his colleagues have developed a fermentation system that produces a natural antimicrobial product from cheese, nonfat dry milk and whey.

Zottola's research, funded by America's dairy farmers and managed by Dairy Management Inc.,™ (DMI) has produced a bacteriocin, which is a protein with potent bactericidal activity, from lactococci cultures, specifically *lactococcus lactis* ssp. *Cremoris* JS102 cultures. This culture can inhibit the growth of spoilage and pathogenic bacteria. Electrophoresis technology indicates that a bacteriocin other than nisin may be produced by this strain, which creates a "new" bacteriocin for the food industry.

"These milk-based ingredients serve to deliver the bacteriocin to food systems without the need to purify and add as a government regulated additive," said Zottola. "Plus, bacteriocin producing starter cultures can be directly added to foods where lactic acid bacteria are typically used, like fermented foods such as cheese and yogurt. The amount of additional processing required to obtain the natural preservative qualities of the bacteriocin is minimal and does not significantly increase costs."

Zottola feels that the use for bacteriocin-containing dairy ingredients in minimally processed foods is limitless.

"For example, bacteriocin-containing whole milk powder in a refrigerated pudding would provide additional flavor and texture as well as serve as a natural preservative," Zottola says. "Institutional products such as ready-to-use mashed potatoes and dressings also could benefit from these dairy ingredients. I'm confident that further development and commercialization of this technology will help satisfy consumer demand for more naturally preserved foods."

Require Prescriptions for High-Risk Pesticides?

What is the feasibility of the U.S. Environmental Protection Agency (EPA) prescribing high-risk pesticides that are needed for certain important minor crops? The Council for Agricultural Science and Technology (CAST).

Chemical exposure has been a major concern of the general public for many years. This concern has resulted in regulation of food additives, drugs, cosmetics, and pesticides. In 1996, Congress enacted the Food Quality Protection Act (FQPA), which established a health-based standard for all pesticide residues in food and from many sources. Under this new law, all existing pesticide tolerances will be reassessed in a process that is scheduled to be completed by August, 2006.

This could result in cancellation of some pesticide registrations important to production of several crops. Some scientists are asking: To be able to continue production of these important crops, would a model similar to that used by the medical profession be applicable? Could relatively low-risk chemicals be self-prescribed and high-risk chemicals be prescribed only by trained and licensed professionals?

"In modern agriculture, pesticides are used to protect animal health and to enhance plant production," states Dr. Harold D. Coble, Professor of Crop Science at North Carolina State University, Raleigh, currently at the CSREES in Washington, D.C., and Chair of the recently released CAST issue paper. *Feasibility of Prescription Pesticide Use in the United States*.

"Unfortunately, the increases in modern agricultural productivity have been accompanied by some unintended social and environmental consequences including documented cases of pest resistance and pesticide induced pest outbreaks and public concern for environmental contamination, human exposure, and residues on food."

Pesticides are legally classified as economic poisons and are defined as substances used for controlling, preventing, destroying, or mitigating any pest. Pesticides include inorganic products like sulfur, natural botanical products like pyrethrum, and biological products such as *Bacillus thuringiensis* and *Trichoderma harzianum*, which occur in nature, but also are produced commercially for pest control. During the 1950s, entomologists working in pest control initiated the concept of integrated control, intended primarily to reconcile the use of insecticides with biological controls. At its highest level today, Integrated Pest Management incorporates knowledge of interactions among pests, the crop, and the environment within the context of a social, political, and economic matrix.

The public seems to have confidence in the regulation and use of pharmaceutical drugs. Medicines posing less risk to consumers are available over-the-counter and can be self-prescribed. In contrast, those posing a greater risk must be prescribed by physicians.

"Implementation of a program that allows for pesticide use by prescription would require the

cooperative and parallel development of efforts within the regulated (users and suppliers) and regulatory (federal and state) communities," Coble says. The CAST authors discuss many of the innovative regulatory implementation methods needed for such a program. They include possible prescribers and their functions, legal issues, public education, program oversight, and potential impacts.

The authors conclude that prescription use could be a mechanism by which certain valuable but high-risk pesticide uses could be maintained while addressing the public's concern for safe use of those products. However, it should be understood that prescription pesticide use will require a new level of infrastructure in terms of personnel qualified to issue prescriptions. Such an infrastructure would take time to put in place and considerable resources to maintain. Careful analysis of the costs of prescription use should made before such a step is taken.

Reprinted from the Council for Agricultural Science and Technology (CAST), August 1998.

Research, Prevention — Not More Inspectors, Need to be Food Safety Focus

We cannot inspect our way to food safety, the Grocery Manufacturers of America (GMA) said at a hearing to consider legislation expanding FDA authority over imported foods. GMA told the Permanent Senate Subcommittee on Investigations that the safety of the U.S. food supply will be enhanced through more research to identify foodborne hazards and more resources directed to prevention programs.

"These steps along with more assertive U.S. leadership in the international standard setting arena will be more effective than merely expanding inspection authority at the Food and Drug Administration," said GMA, in addressing the fourth in a series of hearings (held September 24-25) examining imported food safety.

"We have to identify and fight the true causes of foodborne illness with the right scientific weapons, which can only be discovered through laboratory research and practical testing," said Dr. Stacey Zawel, GMA Director, Scientific and Regulatory Affairs. "Without proper research supporting our food safety system, regulators won't be able to keep pace with today's manufacturing processes. An effective and credible science-based system complementing food manufacturers' own safety assessment programs provide consumers with the greatest assurance possible that their food is safe."

"In addition, the federal agencies overseeing the food supply need appropriate resources that means money for scientists, investigators, state-of-the-art scientific and technological tools, and modern, well-equipped physical facilities." Zawel added the United States must assert strong government leadership in the global arena to stay on course and develop solutions to real food safety problems.

Congress needs to support FDA and USDA efforts to play a more active and influential role in organizations such as Codex Alimentarius, the international body which sets global food safety standards, she said. GMA, which was invited to present the food industry perspective by Subcommittee Chairman, Sen. Susan Collins (R-ME), supports efforts to improve FDA's port-of-entry operations through "better management and resource allocation."

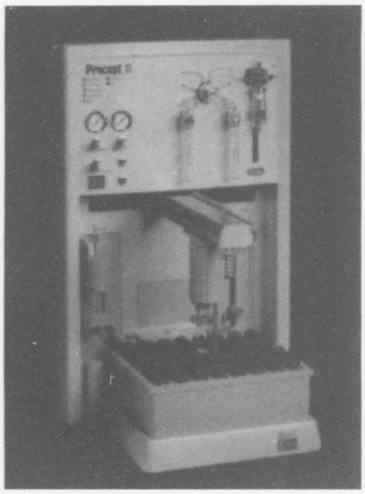
IFT Receives FDA Contract for Scientific Reviews

The Food and Drug Administration awarded The Institute of Food Technologists (IFT) its first-ever government contract on Sept. 30.

In the five-year agreement, IFT will study, evaluate, review and analyze current and emerging knowledge and technology in selected areas of food processing, food safety, and human health. The agency will request IFT reviews in order to evaluate, develop, and promulgate food safety regulations and policies that are based on state-of-the-art knowledge of food science and technology.

The Project Director and an Advisory Board will establish Scientific and Technical Panels of experts with the appropriate expertise to conduct the reviews and analyses. The agency may request from IFT comprehensive, independent scientific reviews and evaluations; rapid analyses and summaries of emerging issues; and evaluation of the scientific merit of research proposals, new research, and food processing and technological developments.

IndustryProducts



Tekmar-Dohrmann

Purge and Trap Autosampler

Tekmar-Dohrmann introduces the Precept II Robotic Vial Autosampler with soil stirring. Precept II with magnetic stirbar mixing provides a solution for EPA Method 5035, the new method for closed-system purge & trap extraction for volatile organics in soil and waste samples. Precept II autosampler offers rugged construction and advanced engineering for truly reliable performance. Fully supported with outstanding technical service, the Precept II autosampler provides complete walk-away automation, high sample throughput and Tekmar's exclusive high pressure OptiRinse™, designed to prevent carryover.

Tekmar-Dohrmann, Cincinnati, OH

Reader Service No. 342

New Quantitative Test for DON

VICAM has introduced a new fluorescence test product for DON (vomitoxin). VICAM prides itself on developing rapid, accurate, easy-to-use tests which give precise numerical results.

Deoxynivalenol (DON), also called vomitoxin, demonstrates its impact on the livestock industry through interference with animal growth and acceptance of feed. DON has been implicated in moldy corn toxicosis of swine and may play a role in the human disease alimentary toxic aleukia. In this disease, impaired immune function, hemorrhage and digestive disorders are among the symptoms. Because of concerns about DON, many customers require levels of less than 2ppm for animal feed and 1 ppm for commodities destined for human consumption. In terms of its incidence, Dr. Kohn explains, "DON is often present along with other mycotoxins and has been isolated from grains and feeds throughout most of the world."

DONtest TAG offers the user the unique benefit of being able to run a variety of samples in either single or multiple batches. Taking approximately 20 minutes after extraction, this new test also lends itself to use in conditions where an immediate result is essential. For example, at a grain elevator, a flour mill, or a malt house, DONtest TAG can run a sample immediately as it comes from a truck or train probe and provides a result before sample is routed to storage. In addition to its speed, sensitivity, and accuracy, this new test for the detection of DON provides a quantitative result using the same equipment as VICAM's other mycotoxin tests.

VICAM, Watertown, MA

Reader Service No. 343

New Product Assures Package Integrity

The InScan® 300 Imaging System from Thermedics Detection provides highly cost effective package integrity information, including the presence or absence of various objects that should be contained in a package. The InScan 300 inspects for objects that should be contained in a packaged product, such as applicators, scoops, instructions and bubble packs. It also identifies unacceptable containers that are damaged or containers which are out of tolerance. The InScan 300 has a small footprint with the fastest detection available, operating speeds up to 2400 containers per minute (520 feet/min or 159 meters/min). The proprietary x-ray detection system inspects for components in every package down to 1 mm^3 in size. It will detect various components in a given package, even if they are of different materials, and will automatically reject all unacceptable packages.

The InScan 300's proprietary detection system captures data both horizontally and vertically, producing a detailed picture of each container. Objects detected include metal, glass and plastic, paper, wood, rubber and more. The unique detection method

allows InScan 300 to make multiple intelligent and accurate decisions on the contents of each container. The automatic rejection system removes unacceptable packages from the filling line with no interruption.

This new InScan 300 system provides high speed, non-contact, nondestructive inspection of 100% of every container on a production line, using low dose x-ray. It boasts a very small footprint, affording convenient positioning on the plant's conveyor line. In addition to its inspection/rejection capabilities, the InScan 300 provides a statistical software package which helps in the timely identification and correction of production problems.

Thermedics Detection Inc., Chelmsford, MA

Reader Service No. 344

Ideal System for Cleaning Limited Access Containers

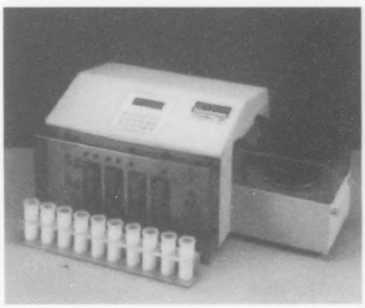
Sellers Cleaning Systems offers thorough and cost-effective cleaning of limited access containers with its Orbi-G3 and G4 tank cleaners. These units, which are made of stainless steel and food grade plastics for corrosion-resistant and sanitary performance, are designed for either portable or CIP applications including IBCs, totes and small tanks up to 30 feet in diameter. These tank cleaners are effective throughout a wide variety of industries including: bulk transport, beverage, chemical processing, food processing, pharmaceutical, dairy and many others.

Specifically designed to fit a 3-inch opening, the Orbi-G3 features dual nozzles which provide 360° cleaning action on two axes. With operating pressures from 75-300 psi, the Orbi-G3 also offers an effective cleaning radius of 10 feet and a flow capacity of 11-27 gpm.

Available in three different nozzle sizes, the Orbi-G4 features a four-nozzle design for thorough, effective cleaning. Designed to fit through a 3 3/4 inch opening, this tank cleaner operates at pressures from 50-300 psi and offers a flow capacity of 11-32 gpm. It provides an effective cleaning radius to 15 feet.

Sellers Cleaning Systems, Piqua, OH

Reader Service No. 345



Bentley Instruments

MUN Testing Instrument Introduced

Bentley Instruments announced the introduction of its ChemSpec 150, a milk urea nitrogen (MUN) testing device capable of testing 150 milk samples per hour at a cost of $0.05 per sample.

While the infrared method continues to be the fastest for MUN testing (450 samples per hour), the ChemSpec 150 realizes five times greater accuracy than the infrared method while offering greater ease of calibration and use. Moreover, the ChemSpec 150 operates as a stand-alone unit facilitating its own internal computer thereby allowing real time data capture through serial port, printer, floppy or zip drive. The product also supports open technology, allowing for the development of other applications on the same unit.

Bentley Instruments, Chaska, MN

Reader Service No. 346

New Sanitizing Wipe Kills Hepatitis-B Virus

All Quality Assurance Products is excited to announce the addition of the first and only EPA approved pre-moistened wipe that kills Hepatits B to its food safety product line. Approved recently, the new sanitizing wipe is also effective against Staph, *Salmonella*, *Pseudomonas aeruginosa*, *Streptococcus salivarius* and *E. coli*. In addition to HBV, it kills HIV-1, Influenza A2 & B, Measles and Herpes Simplex Type 1 & 2.

This wipe is designed for use on most hard, non-porous surfaces and is safe and effective for use in restaurants, hotels and motels and public restrooms. It can be used to sanitize and disinfect tables, counters, carts, furniture, sinks, door knobs and light switches. The new Hep-B wipes will be an integral part of your plan to eliminate cross-contamination occurring from contaminated surfaces.

The Hep-B wipes contain no alcohol and are not considered flammable. Classified as a hard surface disinfectant, they are not designed for use on the body, face or hands.

All Quality Assurance Products, Inc., Gainesville, FL

Reader Service No. 347

New DRI-BC Solves a Myriad of Dry Bulk Container Problems

Spin-Cast Plastics, Inc., a Quixote Corporation Company, has revolutionized dry materials handling with the introduction of the DRI-BC, a dry intermediate bulk container with a removable, seamless polyethylene liner made of FDA-approved material that can be easily cleaned to handle a wide variety of powdered or bulk goods. The new DRI-BC comes standard with a choice of material release valves – iris, sliding gate or iris with a quick-disconnect clamp –

and at a lower price than traditional dry bulk containers.

The most unique of the DRI-BC's standard options is a choice in the material release valves. Traditionally, most dry IBCs come standard with a steel sliding gate valve. Manufacturers who require an upgrade in the style of valve must often pay hundreds of dollars for improvements. Spin-Cast offers the DRI-BC in three different models allowing customers to choose the type of valve that works best for the materials and applications in which it will be used.

The standard model, the DRI-BC Standard, comes complete with the upgraded eight-inch iris valve. While an eight-inch stainless steel gate is available on the DRI-BC Economy model, the DRI-BC E-Z Clean features an eight-inch iris valve with a quick-disconnect clamp. Each of the models is designed with a 60-degree sloped bottom which allows materials to flow freely through the unit. Both the DRI-BC Economy and the DRI-BC Standard have 16-inch lids, while the DRI-BC E-Z Clean has a 22-inch lid.

Translucent for easy viewing of contents, the DRI-BC is a 40-cubic-foot, 1,500-pound capacity container made of a corrosion-resistant frame surrounding the liner made of durable polyethylene. Its unique construction makes it a perfect choice for industries that must meet stringent quality assurance, material handling specifications or FDA requirements such as the food, baking, beverage, agriculture, pharmaceutical, cosmetic, chemical processing and manufacturing industries. The DRI-BC also offers a host of advantages to any industry or manufacturer seeking a better way to store and handle dry materials. Industries as diverse as grain, milling, seed production, masonry, paint, ceramics and glassware manufacturers, to those simply seeking a better way to store salt and de-icer cluttering shipping docks will all benefit from the many features of the DRI-BC.

Spin-Cast Plastics, Inc., South Bend, IN

Reader Service No. 348

E. coli O157 Testing: Rapid Results With Culture Confirmation

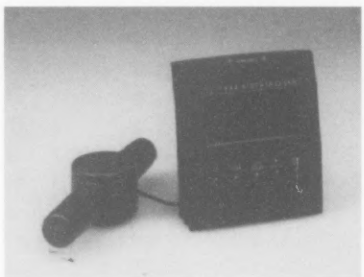
Dynabeads® anti-E. coli O157 is designed for rapid, immunomagnetic selective enrichment of *E. coli* O157 directly from pre-enrichment broths. The rapid and simple protocol results in the isolation of *E. coli* O157 colonies in 24 hours. Thus, saving at least 24 hours of valuable confirmation testing time required in presumptive tests and reducing false positive results.

Dynalbeads® anti-E. coli O157 are uniform, superparamagnetic microspheres (2.8 microns in diameter) with affinity purified antibodies on their surface. When incubated with a sample, Dynabeads® will bind their target bacterium forming a bacterium-magnetic bead complex. This complex is separated from the heterogeneous sample by performing the test in a magnetic test tube rack (Dynal MPC®-M). The isolated and concentrated bacterium:bead complex can then be cultured on any selective culture medium (e.g., SMAC, CT-SMAC).

This highly sensitive system will detect as few as 100 organisms/ml of pre-enriched sample. With isolated colonies at 24 hours, false positive results are eliminated and confirmation can be completed sooner. Other features include simple protocols, shelf stable reagents, no requirement for shakers during pre-incubation or a 42°C incubator, and a significantly lower cost per test. The versatility provided by this methodology will allow testing of many different sample types while achieving excellent recovery of this important pathogen.

Dynal, Inc., Lake Success, NY

Reader Service No. 349



Markson LabSales

Does Anybody Really Know What Time It Is?

If you need to know the exact time, then the Traceable Clock® from Markson is the answer to your question!

The new traceable clock receives a signal directly from the NIST (National Institute of Standards and Technology) atomic clock which is accurate to better than one millionth of a second per year.

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Markson LabSales, Hillsboro OR

Reader Service No. 350

BusinessExchange

Employment Opportunities

Assistant/Associate Professor Food Safety Microbiology

In the Department of Food Science and Technology, University of California, Davis, teaching food microbiology; advising; directing graduate students (M.S. and Ph.D.); working with campus food microbiologists and other scientists on program development; and developing a research program in microbial food safety. The specific research program will depend on the expertise and interests of the candidate. Requires a Ph.D. in microbiology or related field and ability and desire to develop a research program in food safety microbiology. The position is 45% teaching, 55% research. It is a 9 month tenure-track appointment; 11 month term employment to be offered and continued based on academic personnel review. Send statement of research and teaching interests, curriculum vitae, transcripts, lists of publications and research support, and names, addresses and telephone numbers of at least four professional references to:

David M. Ogrydziak
Search Committee Chair
Dept. of Food Science & Technology
University of California, Davis
Davis, CA 95616-8598
Telephone: 530-752-8079
Fax: 530-752-4759

To assure consideration, applications should be received by January 4, 1999. Position open until filled and available beginning July 1, 1999.

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ASSISTANT/ASSOCIATE/FULL PROFESSOR in Sensory Evaluation. The Department of Nutrition and Food Science, University of Maryland, invites applications for a 9.5 month tenured or tenure-eligible position (50% teaching/50% research). Applicants must have a Ph.D. in Food Science or related discipline; relevant industrial experience is preferred. Responsibilities include (1) establish an independent, innovative and competitively funded research program focused on sensory evaluation or flavor chemistry with interaction relative to the impact of techniques to improve food safety on the organoleptic qualities or consumer acceptance of the resulting food products; and (2) teach undergraduate courses on food quality and food product development and a graduate course on sensory evaluation. Send curriculum vitae, statement of research and teaching interests, academic transcripts and three letters of reference to:

Dr. Donald Schlimme,
Chair of the Search Committee,
3304 Marie Mount Hall,
Department of Nutrition
and Food Science,
University of Maryland,
College Park, MD 20742-7521

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- Product Recall Procedures
- Complaint Investigation Procedures
- All of Your Prerequisite Programs

"Our Experience Is Your Protection."

Reader Service No. 163

Dairy, Food and Environmental Sanitation, Vol. 18, No. 11, Pages 790-791

Amendments to 3-A® Sanitary Standards for Equipment for Packaging Dry Milk and Dry Milk Products Number 27-04

Formulated by
International Association of Milk, Food and Environmental Sanitarians
United States Public Health Service
The Dairy Industry Committee

It is the purpose of the IAMFES, USPHS, and DIC in connection with the development of the 3-A Sanitary Standards Program to allow and encourage full freedom for inventive genius or new developments. Dry milk and dry milk products packaging equipment specifications heretofore or hereafter developed which so differ in design, materials, and fabrication or otherwise as not to conform to the following standards but which, in the fabricator's opinion, are equivalent or better, may be submitted for the joint consideration of the IAMFES, USPHS, and DIC at any time. The 3-A Sanitary Standards and 3-A Accepted Practices provide hygienic criteria applicable to equipment and systems used to produce, process, and package milk, milk products, and other perishable foods or comestible products.

A1 These standards cover the sanitary aspects of equipment for performing the functions of holding, forming, dispensing, filling, deaerating, weighing, closing, and/or sealing containers, and all parts which are essential to these functions when they are performed as an integral part of the packaging operation. These standards do not pertain to the container nor to a duct(s) which is not a part of the packaging equipment.

A2 In order to conform with these 3-A Sanitary Standards, equipment for packaging dry milk shall comply with the following design, material, and fabrication criteria and the applicable documents referenced herein[1].

C1.5 Plastic materials may be used for container holding, opening, forming, dispensing, and closing parts, filling nozzles, flexible connectors, plungers, bonded or removable gaskets, diaphragms, shields or guards, filling valve members, covers, seals, diverting aprons, screening and perforated media, screen frame assemblies, deaeration probes, and parts used in similar applications.

C1.6 Plastic materials, when used for specified applications, shall comply with the applicable provisions of the 3-A Sanitary Standards for Multiple-Use Plastic Materials Used on Product Contact Surfaces for Dairy Equipment, Number 20-, except for deaeration probes, which must only meet FD&C Act requirements.

D1 Product contact surfaces, except those for screens and perforated media, shall be at least as smooth as a No. 4 ground finish on stainless steel sheets and be free of imperfections such as pits, folds, and crevices (see Appendix, Section F) and the use of selected stainless steel sheets with a No. 2B finish free of imperfections such as pits, folds, and crevices in the fabricated form for product contact surfaces is permitted, except that:

D1.1 Deaeration probes may be a sintered material.

D3 **Deaerating Probe**

D3.1 The product contact surfaces of sintered deaeration devices shall meet the requirements of these standards except for those single service sintered devices which are intended to be discarded after they have become plugged.

F **PRODUCT CONTACT SURFACE FINISH**

Surface finish equivalent to 150 grit or better as obtained with silicon carbide, properly applied on stainless steel sheets, is considered in compliance with the requirements of Section D1 herein. A maximum R_a of 32 µin.

(0.80 µm), when measured according to the recommendations in American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME)[7] B46.1 - *Surface Texture*, is considered to be equivalent to a No. 4 finish.

These amendments to 3-A Sanitary Standards for Equipment for Packaging Dry Milk and Dry Milk Products, Number 27-04 are effective November 25, 1998.

[1]Use current revisions or editions of all referenced documents cited herein.

[7]Available from the American Society of Mechanical Engineers, 345 E. 47th St., New York, NY 10017-2392; Phone: 212.705.7722.

Dairy, Food and Environmental Sanitation, Vol. 18, No. 11, Pages 791-792

3-A® Sanitary Standards for Refractometers and Energy Absorbing Optical Sensors for Milk and Milk Products Number 46-02

Formulated by
International Association of Milk, Food and Environmental Sanitarians
United States Public Health Service
The Dairy Industry Committee

It is the purpose of the IAMFES, USPHS, and DIC in connection with the development of the 3-A Sanitary Standards Program to allow and encourage full freedom for inventive genius or new developments. Refractometers and energy absorbing optical sensor specifications heretofore or hereafter developed which so differ in design, materials, and fabrication or otherwise as not to conform to the following standards but which, in the fabricator's opinion, are equivalent or better, may be submitted for the joint consideration of the IAMFES, USPHS, and DIC at any time. The 3-A Sanitary Standards and 3-A Accepted Practices provide hygienic criteria applicable to equipment and systems used to produce, process, and package milk, milk products, and other perishable foods or comestible products.

MATERIALS

C.1.1 Silver bearing solder may be used and shall be corrosion resistant, free of cadmium, lead and antimony, nonabsorbent, and shall not impart any toxic substance to the product when exposed to the conditions encountered in the environment of intended use and in cleaning and bactericidal treatment or sterilization.

C.1.7 Where materials having certain inherent functional properties are required for optical surfaces or optical elements, materials such

as glass, sapphire, quartz, fluorspar and spinel may be used.

C.1.7.1 Materials used for optical surfaces or optical elements shall be inert, nonporous, nontoxic, nonabsorbent, insoluble, resistant to scratching, scoring and distortion when exposed to the conditions encountered in the environment of intended use and in cleaning and bactericidal treatment or sterilization.

C.1.7.3 Optical elements jacketed or carbon coated and electroplated with gold and/or nickel may be used.

FABRICATION

D.2 All permanent joints in metallic product contact surfaces shall be continuously welded. Welded areas on product contact surfaces shall be at least as smooth as a No. 4 ground finish on stainless steel sheets and be free of imperfections such as pits, folds and crevices, except that:

D.2.1 Permanent joints between a metallic product surface and jacketed or electroplated optical element may be formed with silver bearing solder. The metallic and optical joint areas having product contact surfaces shall be at least as smooth as a No. 4 finish on stainless steel sheet free of imperfections such as pits, folds, and crevices.

Renumber C and D sections as necessary.

Other editorial corrections to phone numbers and addresses in the footnotes for the U.S. Government Printing Office, AISI and ASTM.

These amendments to 3-A Sanitary Standards for Refractometers and Energy Absorbing Optical Sensors for Milk and Milk Products, Number 46-02 are effective November 25, 1998.

FIGHT BAC!™

Now available is a new visual tool that brings the four food safety principles to life by presenting them in a simple, graphically interesting manner. IAMFES encourages its members to become involved. Join this effort and you can help close the gap!

For information on joining the FIGHT BAC!™ campaign, contact: The Partnership for Food Safety Education, Phone: 202.429. 8273; Fax: 202.429.4550; Web site: www.fightbac.org.

Dairy, Food and Environmental Sanitation, Vol. 18, No. 11, Page 793

Amendments to 3-A® Sanitary Standards for Plug-Type Valves for Milk and Milk Products Number 51-01 (08-17 as Amended)

Formulated by
International Association of Milk, Food and Environmental Sanitarians
United States Public Health Service
The Dairy Industry Committee

It is the purpose of the IAMFES, USPHS, and DIC in connection with the development of the 3-A Sanitary Standards program to allow and encourage full freedom for inventive genius or new developments. Plug-type valves specifications heretofore or hereafter developed which so differ in design, material, construction, or otherwise, as not to conform with the following standards, but which in the manufacturer's or fabricators opinion are equivalent or better may be submitted for the joint consideration of IAMFES, USPHS, and DIC at any time. The 3-A Sanitary Standards and 3-A Accepted Practices provide hygienic criteria applicable to equipment and systems used to produce, process, and package milk, milk products, and other perishable foods or comestible products.

A **SCOPE**

A1 These standards cover the sanitary aspects of plug-type valves used on processing equipment and on equipment and lines which hold or convey milk or milk products. These standards do not pertain to thermoplastic plug-type valves which are covered by current 3-A Sanitary Standards for Plastic Plug-Type Valves for Milk and Milk Products, Number 52-.

A2 In order to conform to these 3-A Sanitary Standards, plug-type valves shall comply with the following in design, material and fabrication criteria and the applicable documents referenced herein.[1]

B **DEFINITIONS**

B1 *Product:* Shall mean milk and milk products.

B2 *Plug-Type Valve:* Shall mean a two-ported or three-ported valve consisting of a plug with either two or three passageways that is rotated inside a body with either two or three ports to stop, direct, or throttle flow.

These amendments to 3-A Sanitary Standards for Plug-type Valves for Milk and Milk Products, Number 51-01 are effective November 25, 1998.

[1]Use current revisions or editions of all referenced documents cited herein.

Dairy, Food and Environmental Sanitation, Vol. 18, No. 11, Page 794

Amendments to 3-A® Sanitary Standards for Plastic Plug-type Valves for Milk and Milk Products Number 52-02

Formulated by
International Association of Milk, Food and Environmental Sanitarians
United States Public Health Service
The Dairy Industry Committee

It is the purpose of the IAMFES, USPHS, and DIC in connection with the development of the 3-A Sanitary Standards Program to allow and encourage full freedom for inventive genius or new developments. Plastic plug-type valves specifications heretofore or hereafter developed which so differ in design, materials, and fabrication or otherwise as not to conform to the following standards but which, in the fabricator's opinion, are equivalent or better, may be submitted for the joint consideration of the IAMFES, USPHS, and DIC at any time. The 3-A Sanitary Standards and 3-A Accepted Practices provide hygienic criteria applicable to equipment and systems used to produce, process, and package milk, milk products, and other perishable foods or comestible products.

A **SCOPE**

A1 These standards cover the sanitary aspects of plastic plug-type valves used on processing equipment for milk or milk products and on equipment and pipelines which hold or convey milk or milk products.

A2 In order to conform with these 3-A Sanitary Standards, plastic plug-type valves shall comply with the following design, material, and fabrication criteria and the applicable documents referenced herein.[1]

B **DEFINITIONS**

B1 *Product:* Shall mean milk and milk products.

B2 *Plug-Type Valve:* Shall mean a two-ported or three-ported valve consisting of a plug with either two or three passageways that is rotated inside a body with either two or three ports to stop, direct or throttle flow.

These amendments to 3-A Sanitary Standards for Plastic Plug-type Valves for Milk and Milk Products, Number 52-02 are effective November 25, 1998.

[1]Use current revisions or editions of all referenced documents cited herein.

Dairy, Food and Environmental Sanitation, Vol. 18, No. 11, Page 795

Amendment to 3-A® Sanitary Standards for Compression-Type Valves for Milk and Milk Products Number 53-01 as Amended

Formulated by
International Association of Milk, Food and Environmental Sanitarians
United States Public Health Service
The Dairy Industry Committee

It is the purpose of the IAMFES, USPHS, and DIC in connection with the development of the 3-A Sanitary Standards Program to allow and encourage full freedom for inventive genius or new developments. Compression type valves heretofore or hereafter developed which so differ in design, materials, and fabrication or otherwise as not to conform to the following standards but which, in the fabricator's opinion, are equivalent or better, may be submitted for the joint consideration of the IAMFES, USPHS, and DIC at any time. The 3-A Sanitary Standards and 3-A Accepted Practices provide hygienic criteria applicable to equipment and systems used to produce, process, and package milk, milk products and other perishable foods or comestible products.

A **SCOPE**

A1 These standards cover the sanitary aspects of compression type valves (reference 3-A drawings, number 3-A-100-24 and 3-A-100-25) used on processing equipment and on equipment and lines which hold or convey milk or milk products.

A2 In order to conform to these 3-A Sanitary Standards, compression type valves shall comply with the following in design, material and fabrication criteria and the applicable documents referenced herein.[1]

B **DEFINITIONS**

B1 *Product:* Shall mean the milk and milk products.

B2 *Compression-Type Valve:* Shall mean a valve which directs, regulates, or prevents product flow between two or more inlet/outlet ports by the compression of a seal(s) on a rising stem and a seal face(s) on the valve body.

These amendments to 3-A Sanitary Standards for Compression-Type Valves for Milk and Milk Products, Number 53-01 are effective November 25, 1998.

[1]Use current revisions or editions of all referenced documents cited herein.

ComingEvents

DECEMBER

·**1-2, HACCP for Retail, Food Service & Institutional Sectors Seminar,** Guelph, Ontario. For further information, contact Guelph Food Technology Centre, 88 McGilvray St., Guelph, Ontario N1G 2W1; Phone: 519.821.1246 ext. 5028; Fax: 519.836.1281.

·**1-3, A Working Conference on Hazard Analysis Critical Control Points,** Cornell University, Ithaca, NY, sponsored by The Food Processor's Institute. For further information, contact the Food Processors Institute at 202.393.0890.

·**1-3, Technical Symposium & Workshop,** Hyatt Regency Crystal City, Arlington, VA. Sponsored by the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP). Learn first hand about groundbreaking environmental research and innovative technologies developed by the Department of Defense (DoD), the Department of Energy, the Environmental Protection Agency, and their many public and private collaborators. For more information call 703.736.4548.

·**3, GMP Distribution and Warehousing Seminar,** Houston, TX. For further information, contact ASI Food Safety Consultants, Inc., Christine VerPlank, or Vorrie Strong, Phone: 800.477.0778; Fax: 314.727.2563.

·**8-9, 1998 FDA Science Forum – Biotechnology: Advances, Applications, and Regulatory Challenges,** at the Washington Convention Center, Washington, D.C. The Science Forum is co-sponsored by the FDA, the American Association of Pharmaceutical Scientists, and the FDA Chapter of Sigma Xi, The Scientific Research Society. The Science Forum will bring FDA research and review scientists together with representatives of industry, academia, government agencies, consumer groups, and the public to discuss the impact of the enormous advances in biotechnology on product development and regulation. For additional information, contact the American Association of Pharmaceutical Scientists at Phone: 703.518.8429 or E-mail: meetings@aaps.org.

·**8-11, Thermal Processing Development Workshop,** presented by The Food Processors Institute, Washington, D.C. These workshops are an excellent follow-up for those who have attended a *Better Process Control School*. This includes: Quality Assurance Managers, Quality Control Managers, Process Engineers, and Specialists in Thermal Processing. Participants will generate heat penetration data in the pilot plant of NFPA's research laboratory. Working teams will examine in detail the design of thermal processes; improve skills and understanding of basic thermal process establishment and evaluation techniques, including heat penetration testing and process calculation; identify critical decision-making steps essential to thermal process establishsment; generate data during the workshop excercises; and learn both the General and Ball Formula methods of calculation. For additional information, call Customer Service at 202.639.5954.

FEBRUARY

·**3-4, 1999 Food Sanitation Workshop,** Doubletree Hotel, Modesto, CA. This two-day workshop is designed for all levels of personnel in the food industry directly or indirectly involved with sanitation. A supplier exhibit is included on the first day. Contact Dr. Linda Harris, Department of Food Science & Technology, University of California, Davis, CA 95616; 916.754.9485; E-mail: ljharris@ucdavis.edu.

·**5, Train the Trainer – Techniques for Educating Adults in Sanitation**, Doubletree Hotel, Modesto, CA (limited enrollment). This half-day workshop will cover the basics of adult education theory and will provide participants with the tools to deliver effective training sessions. Focus will be on sanitation training. Contact Dr. Linda Harris, Department of Food Science & Technology, University of California, Davis, CA 95616; 530.754.9485; E-mail: ljharris@ucdavis.edu.

·**6-8, United 99, United Fresh Fruit & Vegetable Association 95th Convention & Exposition,** San Diego Convention Center, San Diego, CA. For more information, call 703.836.3410; Fax: 703.836.7745.

·**16-18, Kentucky Assn. of Milk, Food & Environmental Sanitarians, Inc. Meeting,** for additional information, contact John Summers at 606.439.2361.

·**23-26, Better Process Control School,** University of California, Davis. Aimed toward high-acid food cannery employees, retort operators, seam closure operator, and food processing industry, this course examines microbiology of canning, still retorts, aseptic processing and packaging systems. For registration call 800.752.0881, Dept. 2406 or 530.757.8777. For program information, contact Diane Barrett at 530.752.4800; E-mail: dmbarrett@ucdavis.edu.

MARCH

·**10, Dairy HACCP Workshop,** Madison, WI. This one-day workshop will cover design and implementation of HACCP plans in dairy plants. For additional information, contact

the Program Coordinators or Dept. of Food Science, University of Wisconsin-Madison, Madison, WI 53706-1565; Phone: 608.262.3046; Fax: 608.262.6872.

APRIL

·**19, International Dairy Federation Symposium,** Convention Centre, Ottawa, Canada. The symposium will deal with the subject of Laboratory Accreditation and Proficiency Testing. For additional information contact, International Dairy Federation, Secretariat, 41 Sqaure Vergote, B-1030 Bruxelles, Belgium or Fax: +32 2 733 04 13; E-mail: Info@fil-idf.org; Web site: www.fil-idf.org.

MAY

·**3-5, First NSF International Conference on Indoor Air Health: Impacts, Issues and Solutions,** Marriott Tech Center in Denver, CO. This new conference explores the contrasting and complementary viewpoints of medical, scientific, academic, laboratory, regulatory and industry forces focused on critical indoor air health issues. For additional information, contact Wendy Raeder by phone: 734.769.8010 ext. 205; Fax: 734.769.0109; E-mail: raeder@nsf.org.

·**6-12, 15th International Trade Fair for Packaing Machinery, Packaging and Confectionery Machinery,** in Düsseldorf, Germany. For further information, contact Dusseldorf Trade Shows, Inc., 150 N. Michigan Ave., Suite 2920, Chicago, IL 60601 or Phone: 312.781.5180; Fax: 312.781.5188; Web Site: www.dtsusa.com/dts/.

·**12-14, "Food Irradiation 99 Conference—The Solution to the Food Safety Crisis?",** Sheraton National Hotel, Arlington, VA. This international conference will present an examination of the business and technical outlook for food irradiation as a solution to the growing global problem of food safety. For further information, contact Deborah Crommett, Conference Coordinator, Intertech Conferences, 411 US Route One, Portland, ME 04105 or Phone: 207. 781. 9800; Fax: 207.781.2150; E-mail: info@intertechusa.com or www. intertechusa.com.

·**24-26, 3rd International Symposium on Recombined Milk and Milk Products,** Penang, Malaysia. The symposium will seek to discuss and review issues facing the milk recombination industry, the need for the industry to keep pace with the challenges of the future, and product development opportunities presented by the introduction of new technologies and emerging markets. For further information, contact Alison Johnson, The Secretariat, 3rd International Symposium on Recombined Milk and Milk Products, Private Bag 16, Werribee, Victoria Australia, 3030 or Phone: 61 3 9742 0117; Fax: 613 9742 0201; E-mail: alison.johnson@foodscience.afisc.csiro.au.

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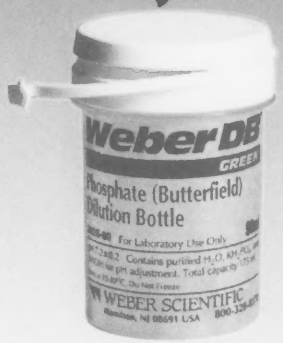

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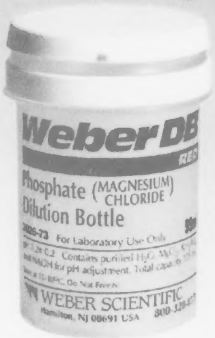

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