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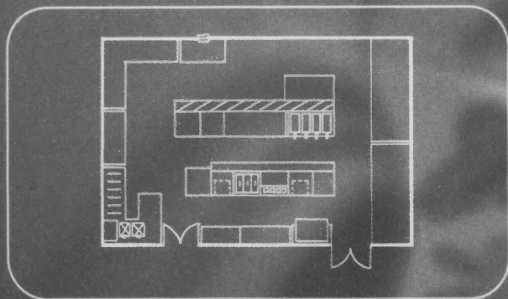
DAIRY, FOOD AND ENVIRONMENTAL

Sanitation

A PUBLICATION OF THE INTERNATIONAL ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, INC. OCTOBER 1997

- 1997 Annual Meeting Highlights and Award Winners

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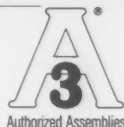
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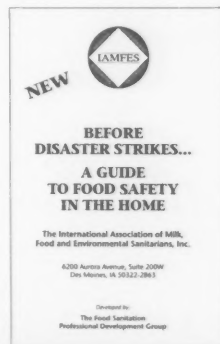
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CALL FOR NOMINATIONS

Nominations are now being accepted by the Nominating Committee for the office of IAMFES Secretary. A representative from the education sector will be elected in the spring of 1998 to begin serving at the conclusion of the 1998 IAMFES Annual Meeting for the year 1998-1999.

Letters of nomination, including a photograph and a biographical sketch, are to be submitted to the Committee Chairperson **no later than November 1, 1997**. After the close of nominations, the Committee will review the nominees and select two (or more) persons to be presented to the membership for voting.

The Secretary-Elect is determined by a majority of votes cast through a mail vote taken in the spring of 1998. Official Secretary duties begin at the conclusion of the 1998 IAMFES Annual Meeting. The elected Secretary serves as a member of the Executive Board of IAMFES for a total of five years succeeding to President, then serving as Past President. Board meetings are scheduled at least three times a year and other time commitments may be necessary.

For more information regarding duties and requirements of the position, please contact David Tharp, Executive Director at Phone: 800.369.6337 or 515.276.3344; Fax: 515.276.8655; E-mail: dtharp@iamfes.org.

Send a letter of nomination for Secretary of IAMFES, along with a photograph and biographical sketch of nominee, to the Nominations Chairperson:

Robert B. Gravani
Cornell University
Department of Food Science
11 Stocking Hall
Ithaca, NY 14853
Phone: 607.255.3262

Nomination deadline is November 1, 1997.

COMMENTS

FROM YOUR PRESIDENT



By GALE PRINCE
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“I’m proud to be associated with such an important group dedicated to promoting the health of consumers around the world through food safety.”

What does it mean to be a Member of IAMFES? Members may find a sense of prestige in belonging to an association of food safety experts from around the world. IAMFES has Members in over 50 countries throughout the world. The daily impact of the accumulative food safety expertise of the IAMFES Membership is astronomical in feeding the world population. No matter what your job might be; whether it be a researcher, a laboratory assistant, a professor, an equipment manufacturer, a cleaning supply technical representative, a food plant manager, a sanitation worker in a plant, an inspector, or a trainer; you are involved in some form of food safety. IAMFES Membership includes practicing individuals who work hard each day to provide the millions of tons of safe food consumers expect and enjoy daily. The IAMFES Membership also includes individuals attempting to solve the food safety challenges of tomorrow. I’m proud to be associated with such an important group dedicated to promoting the health of consumers around the world through food safety.

IAMFES Members look to IAMFES publications, *Journal of Food Protection and Dairy, Food and Environmental Sanitation*, as “world class” in the field of food safety. Our publications are frequently cited on the subject matter of food safety. From scientific content to the practical application of food safety, our monthly publications are a necessity to stay ahead of the rapidly changing food safety challenges. The IAMFES booklets

on *Procedures to Investigate Foodborne Illness, Procedures to Investigate Waterborne Illness, Procedures to Implement the HACCP System*, and the 3-A Sanitary Standards have proven to be an excellent source of information for IAMFES Members. These booklets are used around the world as training and reference materials. The IAMFES Audio-Visual Lending Library provides Members access to a large selection of essential training materials.

The IAMFES Annual Meeting provides educational opportunities in food safety that covers the latest information in all fields. It provides opportunities for Members to meet peers and share their knowledge and experiences in advancing food safety. It allows our young, developing scientists to nurture their talents and contribute knowledge. The Annual Meeting provides an opportunity to honor Members for their contributions to the Association and to recognize outstanding accomplishments in the field of food safety.

Membership in a professional organization in your field becomes more important every year. Our own technical knowledge has to grow in order to do our job effectively. In the food and dairy industries, I believe IAMFES provides those essential elements necessary today. I encourage you to spread the word among your colleagues to join IAMFES. Your comments regarding ways to increase Membership and improve the services we offer our Members are welcome! Please contact me by E-mail: gprince@kroger.com or Fax: 513.762.4372.

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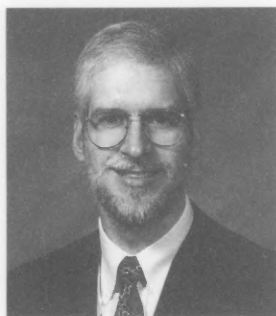
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COMMENTARY

FROM THE EXECUTIVE DIRECTOR



By DAVID W. THARP
IAMFES Executive Director

**“Those who can
foresee changes
and plan change
will succeed”**

For October, my topic again is change. It is time to update you on what is going on in the IAMFES office and what is taking place with your Association. As for the office, a few months ago we discussed our plans for a much needed updating of the office computer equipment and establishing an office network. This plan is now in phase two which includes adding four stations to the network and converting four staff members from a Macintosh environment to Windows 95.

The computers arrived September 10 and our changeover is in process. I'm certain most everyone reading this column has experienced

some sort of computer changeover. These conversions never go without encountering some difficulties. I'm also certain we will have our share of such problems, so please bear with us over the next few months.

To achieve office efficiencies, phase two of our computer plan includes changing our membership database software. This is a monumental task in itself. We have been working with a local firm that is the reseller for an Alexandria, VA company which writes association software. We felt this system offered the most efficient and economical value for our money. Our old membership database was written in "Filemaker®" which has served us well but was causing problems. The employee that wrote the program has long left IAMFES, so every time we needed to generate a new report, it was a major undertaking and caused undue expense. Our new software is a package (with manuals!) that our staff should be able to adapt to our special needs. If we have complications and need assistance, we can call on our local support firm.

Additional efficiencies will be gained after phase three (April 1998); all IAMFES employees will be converted to the network and will be able to answer questions about your Membership. With our old system, Membership records resided on only one computer and only one employee could answer your Membership questions. Someone else handles the Lending Library, and another person maintains the manuscript monitoring. We had up to 20 separate databases (Lending Library, manuscript tracking, 3-A orders, advertisers, etc.). This makes answering your questions very difficult and inefficient. If you have multiple questions, you needed to talk to multiple staff persons! Over the next six months,

our processes will be changing to allow your questions to be answered more efficiently. We are excited about these changes and know there will be problems to work through. The end product will be so much easier and will serve our Members better.

By the time you read this issue, our website should be live. We are located at www.iamfes.org and welcome your visit. To begin with, our objective is to have information about IAMFES on the web to inform visitors of our purpose and our product offerings. We have many ideas for future expansion, but have limited resources. If you have ideas and want to share your input, please drop us a message; you may use our E-mail address of iamfes@iamfes.org.

This fall, we have had a great response to our program to support IAMFES Executive Board Members speaking at IAMFES Affiliate Meetings. President Gale Prince talked to the Washington Affiliate group; President-Elect, Bob Brackett spoke at Wisconsin and Kansas Affiliate meetings; and Secretary, Jenny Scott addressed the Illinois Affiliate. Thanks to each of the Affiliates for your interest in our Board's expertise. Thanks also to the Board Members for committing their time to share their experience and information and promoting IAMFES. If your Affiliate is interested in participating in this program, give me a call or send a letter with your questions.

Life is a constant series of change. We must adapt to and deal with change. Those who can foresee changes and plan change will succeed. Your Executive Board has approved changes that will build the base for future growth of IAMFES. We have our sights set on the future for IAMFES!

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Microbiological Quality of Kunafa and the Development of a Hazard Analysis Critical Control Point (HACCP) Plan for Its Production

Mohammed I. Yamani,^{1*} Salma K. Tukan,¹ and Suleiman J. Abu-Tayeh²

SUMMARY

The averages of the aerobic plate counts and the counts of coliforms and *Escherichia coli* of 35 commercial samples of kunafa, a non-sterile, ready-to-eat sweet dish very popular in Jordan, were 4.5×10^5 , 4.6×10^2 and 7 CFU/g respectively. White cheese, the most sensitive ingredient of kunafa, had the highest counts (1.2×10^6 , 4×10^2 and 1.7×10 CFU/g, respectively). The HACCP plan developed for kunafa production showed that the ingredients were intensively handled during preparation and that the heat treatment to which kunafa was subjected does not destroy vegetative microorganisms, including indicator bacteria. Accordingly, seven critical control points (CCPs) and 18 control points (CPs) were identified in the flow chart of kunafa production. Most of the CCPs were associated with the cheese and the cooking process, whereas the CPs were related to sanitation and personal hygiene. Only the CCPs were included in the HACCP worksheet in which the seven HACCP principles were applied to kunafa production. A modification of the cooking process to include heating of kunafa at 75°C/5 min was recommended to make cooking the controlled processing step of kunafa production.

INTRODUCTION

Kunafa (kunafeh or knafeh) is probably the most popular Arab sweet dish in many Middle East countries. There are several recipes for kunafa which is basically prepared from flour batter finished in the form of fine threads (vermicelli) and relatively thick sugar syrup. In the kunafa that is popular in Jordan and neighboring countries, a white cheese of the Nabulsi type (9, 22) is used as a major ingredient; thus this food is called "kunafa Nabulsieh" or "Nabulsieh" (referring to the Palestinian town of Nablus in the West Bank section of Jordan).

Kunafa is prepared mainly in sweet shops that specialize in producing Arab sweets and in many restaurants where it is served or sold either in individual portions or by the whole pan. It is usually consumed warm to hot with syrup added as desired. Kunafa is served mainly as a dessert after the main meal, especially at occasions such as weddings and big receptions, but

it is also taken as a snack food. In some areas, it is eaten at breakfast, either alone or in the form of a sandwich in a special pocket sesame bread called ka'ak.

The microbiological quality of some indigenous ready-to-eat foods in various developing countries has been reported recently (2, 7, 18, 19, 21). The application of a hazard analysis critical control point (HACCP) system to the production of these foods has also been reported (1, 3, 4, 5, 14, 20). No data are available about the microbiological profile of kunafa or about kunafa's possible role as a vehicle for foodborne pathogens. This study was undertaken to evaluate the microbiological quality of kunafa and to develop a HACCP plan for its production process.

MATERIALS AND METHODS

Restaurants serving kunafa in the six major cities of Jordan were visited, and methods of kunafa production in each restaurant were carefully observed, discussed with the producer, and recorded. Samples of kunafa were taken from each restaurant and analyzed microbiologically. A HACCP plan for the application of a HACCP system was developed after evaluating the results of the microbiological analysis and processing the data collected during the visits.

Description of kunafa preparation

Kunafa pastry is prepared by mixing white wheat flour with enough water to form a slightly thick batter, which is then beaten until it reaches what is known to producers as the "thread stage," i.e., the stage at which the batter forms threads when poured from a spoon. The batter is then placed in a specially perforated device from which threads fall onto a revolving hot round plate to form long, thin, yellow strands. The cooled strands are rubbed between the hands

with fat (usually ghee), roasted (heated on a plate), and broken into very fine particles (crumbs), usually with a meat mincer. The resulting crumbs are passed through a sieve to obtain the desired particle size. They are kept at room temperature or in the refrigerator until utilized.

Desalted Nabulsi cheese, a white brined cheese made from ewe's and/or goat's milk (9, 22), is used in the preparation of most kunafa; although Akkawi cheese is often used in Syria and Lebanon. For desalting, the cheese is usually sliced and soaked at room temperature in tap water; the water is changed several times until the taste of salt disappears. The cheese is then drained, pressed (usually between the hands) to remove excess water, and in most cases held at room temperature until used.

To prepare kunafa, a red or orange food color, or both, mixed with melted fat, is spread on a round aluminum baking pan (30 to 48 cm diameter) on which some pine seeds may be sprinkled. A layer (about 1 cm final thickness) of the kunafa crumbs is then evenly spread, followed by a layer (about 0.5 cm final thickness) of the desalted cheese. The kunafa is then slowly heated over low heat of a specially designed gas burner until the crumbs at the bottom are well roasted, as indicated by ease of release of the baked kunafa as a whole from the pan upon horizontal shaking. A small amount of extra crumbs are sprinkled, and a little hot sugar syrup (~65% sucrose) is poured, on top of the cheese. The pan is immediately inverted over a second identical or slightly larger pan, and the top (the roasted crust) of the released kunafa may be decorated with pistachio nuts and fresh cream. Hot syrup is poured onto the surface to be absorbed by the kunafa. The kunafa is then held over very low heat of a charcoal burner to keep it warm until it is served.

Temperature measurement

Temperature of kunafa during roasting and during display for sale was measured by inserting the probe of a thermocouple thermometer (Atkins, Model # 39658-K, Gainesville, FL 32608-2399) into the center of the kunafa and into other four other points that formed a rectangle whose angles were away from the edge of the pan by one-fourth of the pan's radius. The probe was placed just above the surface of the pan, without touching it. Time of cooking and time of display were also recorded.

Kunafa samples

Samples were taken from kunafa displayed for sale in sweet shops and restaurants. Approximately 250 g samples were transferred with sterile tools into sterile containers and kept in an insulated box containing frozen ice packs. The samples were brought to the laboratory within 1 to 4 h and kept in a refrigerator until examined the same day.

Microbiological examination of kunafa samples

Preparation of kunafa analytical units and homogenates. The initial dilution (10^{-1}) of each kunafa sample was made by blending 25 g of the well-mixed kunafa with 225 ml sterile buffered peptone water (Oxoid) for 2 min. In some samples, the crust layer was separated carefully and under aseptic conditions from the cheese layer. Separate homogenates were prepared from the two layers similarly for whole kunafa samples.

Aerobic plate count (APC), Coliform count (CC), Escherichia coli count (ECC) and isolation of Salmonella. The conventional methods described in the Food and Drug Administration's Bacteriological Analytical Manual of the AOAC International (8) for these tests were followed. Media used were from Oxoid.

Development of kunafa HACCP plan

Guidelines for HACCP plan development described by the National Advisory Committee on Microbiological Criteria for Foods (15), the Microbiology and Food Safety Committee of the National Food Processors Association (17), and the Codex Committee on Food Hygiene (6) were followed. The plan included the assembling of the HACCP team (process authorities and the authors), description of kunafa and its distribution, identification of the intended use and the consumers, developing and verifying a flow diagram of kunafa production, and application of HACCP principles one through seven in the kunafa production process.

RESULTS

Temperature measurement

Kunafa temperature varied noticeably among the different samples. The average temperatures ranged between 55 and 68°C during roasting and between 47 and 64°C during display. The highest temperatures recorded during roasting and during display were 75 and 73°C, respectively, and the lowest were 53 and 40°C, respectively. Roasting time ranged between 5 and 15 min, whereas display time could be as short as 5 min or as long as 1 h, depending on demand.

Microbiological Analysis

Kunafa samples had high microbial loads. The average of the aerobic plate counts (APC) of the 35 samples was 4.5×10^5 CFU/g, and in 18 of the samples the APC was $>1 \times 10^6$ CFU/g. Coliforms were present in 94% of the samples, and *E. coli* was isolated from 40% of the samples. The average coliform and *E. coli* counts were 4.6×10^2 and 7 CFU/g, respectively. In 18 samples, the coliform count was $>1 \times 10^3$ CFU/g, and in 8 samples, *E. coli* count was $>1 \times 10^2$ CFU/g.

In samples in which cheese, crust and whole kunafa were examined separately, the cheese had the highest APC as well as the highest counts of coliforms and *E. coli*; the averages of these counts were 1.2×10^6 , 4×10^2 and 1.7×10 CFU/g, respectively, while the averages for the crust were 7.8×10^4 , 6.2×10 and 3 CFU/g, respectively. In 11 of the 15 cheese samples, the APC was $>1 \times 10^6$ CFU/g, while in only two crust samples was this count $\geq 1 \times 10^6$ CFU/g. Furthermore, in six cheese and three crust samples coliform counts were $>1 \times 10^3$ CFU/g, and in six cheese and only two crust samples, *E. coli* counts were 1×10^2 CFU/g. *Salmonella*, on the other hand, was not isolated from any samples.

Development of kunafa HACCP plan

Kunafa and its distribution.

Kunafa is a non-sterile ready-to-eat product that contains two sensitive ingredients, cheese and nuts. It is subjected to heat treatment that does not effectively destroy vegetative microorganisms, including indicator bacteria. During preparation, kunafa ingredients are subjected to intensive handling that may cause contamination.

Intended use and consumers.

Kunafa is intended for the general public. It is not usually heated by the consumer but may be warmed, and there will likely be no leftovers.

Flow diagram. Figure 1 shows the developed flow diagram for the kunafa production process. Four process areas are identified in the diagram: pastry, cheese, syrup and prepared kunafa. The diagram also shows control points (CPs) and critical control points (CCPs) identified in the production steps.

HACCP worksheet. The results of applying HACCP principles one through six (identifying the hazards and their preventive measures, and establishing the CCPs, the critical limits, the monitoring system, the

corrective action, and the verification procedures) to kunafa production are shown in Table 1.

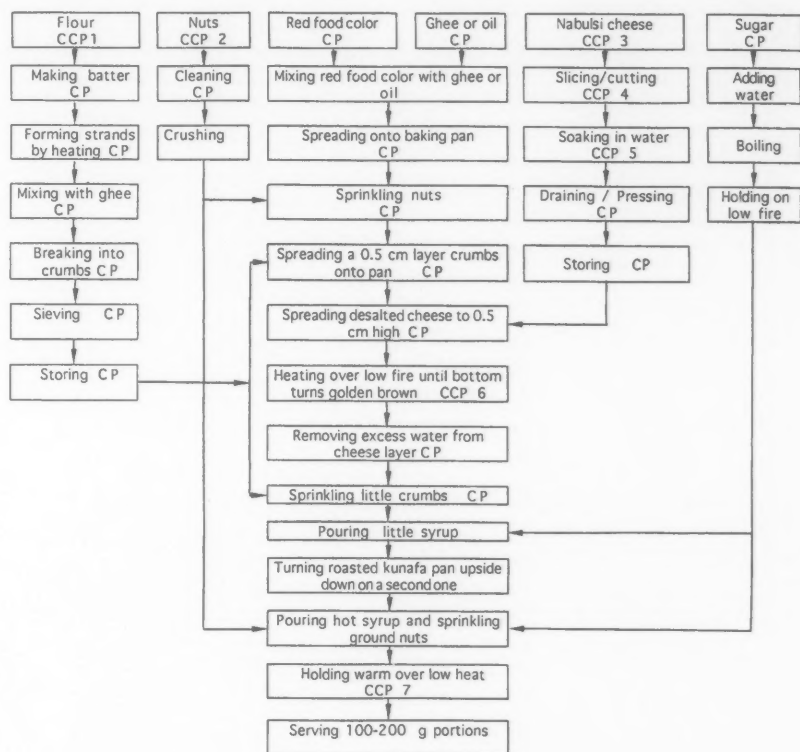
DISCUSSION

Microbial quality of kunafa

The microbial load of kunafa is considered high for a ready-to-eat food that is directly consumed as such. Although no epidemiological data are available about the role of kunafa as a vehicle for foodborne pathogens, and although *Salmonella* was not isolated from any of the samples examined, the presence of the coliforms and *E. coli* should be seriously taken into account when considering the safety of kunafa. The presence of these bacteria in a ready-to-eat food indicates the possibility of the presence of some important foodborne enteropathogens of human origin such as *Salmonella*, *Shigella*, *E. coli* as well as *Entamoeba histolytica*, *Giardia lamblia* and enteric viruses. Furthermore, such microbial loads confirm that exposure of kunafa to heat during preparation was not sufficient to destroy vegetative bacterial cells.

The high microbial loads of kunafa also reflect unsuitable procedures and practices during preparation, especially the soaking of cheese, which indicates a need to give more attention to the process of kunafa preparation. Because of the intensive handling of the ingredients during preparation, and because kunafa is consumed directly after preparation, the traditional approach to safety and quality assurance (inspection and testing of the end product) is not sufficient to ensure the safety of kunafa. On the other hand, the HACCP system, which functions as an integral part of the production process and which covers all its steps (10, 12), could be the most appropriate system to ensure the safety and the microbial quality of kunafa.

Figure 1. Process flow diagram of kunafa production.



Kunafa HACCP plan

A CCP is defined as a point, step, or procedure at which control can be applied and a food safety hazard (a biological, chemical, or physical property that may cause food to be unsafe for consumption) can be prevented, eliminated, or reduced to acceptable levels (16, 17). Loss of control at CCPs has a reasonable probability of creating an unacceptable health hazard. Control points (CPs), on the other hand, are points in the process where loss of control is not likely to result in an unacceptable health hazard (16, 17). CPs are generally points related to product quality or regulatory compliance rather than to safety. Because of the nature of the ingredients, especially cheese, and their intensive handling during preparation, relatively high number of CPs could be identified in the kunafa preparation process. These

CPs could be controlled by daily monitoring of application of general guidelines of hygienic practices regarding cleanliness and sanitation of utensils and areas of work and adherence to the rules of personal hygiene. Because of their importance and their possible relation to safety, CPs are shown in the process flow chart (Fig. 1). However, to make the kunafa HACCP program more effective and easier to manage, only CCPs are included in the HACCP worksheet (Table 1).

No lactic starter cultures are used in the production of Nabulsi cheese (9, 22), the most sensitive ingredient of kunafa. Before the cheese is soaked in water, the brine's high salt content (15 to 20%) can be relied on to prevent the growth of most foodborne microorganisms, including pathogens (9, 22). Typical aerobic plate

count and the counts of coliforms and yeasts and molds in boiled Nabulsi cheese are around 10×10^5 and <10 CFU/g respectively (22). The salt content of cheese is lowered by soaking in water. Therefore, the low acidity and the soaking conditions (usually overnight at room temperature, in tap water) allow microbial growth as indicated by the high APC and the high counts of coliforms and *E. coli* of the samples. Moreover, no preventive measures exist for the soaking of cheese as usually practiced. According to principle two of the HACCP system (6, 15, 17), if control at a step is necessary for safety and no preventive measure exists at that step, or at any other, the product or process should be modified at that step or at the later stage, so as to include a preventive measure. Some relatively large-scale kunafa producers now

TABLE 1. HACCP worksheet for kunafa preparation

Process step	CCP no.	Hazard	Control	Critical limit	Monitoring procedure/frequency	Corrective action	Verification
Flour	1	Mold growth	Use mold free flour	Legal requirements	Visual/on receipt	Change supplier	Random testing for mycotoxins
Nuts	2	a - Mold growth b - Foreign bodies (shell fragments, stones)	Use mold and foreign body free nuts	Legal requirements	Visual/on receipt and before use Sieving before use	Reject moldy nuts Reject nuts with foreign bodies	Random testing for mycotoxins
Nabulsi cheese	3	a - Bacterial toxins b - Antibiotic residues	Purchase cheese with a HACCP plan	HACCP plan implementation	Inspect HACCP cheese producer every 6 months	Reject as supplier	Random testing for <i>Staphylococcus aureus</i> toxins and antibiotic residues
Slicing/cutting cheese	4	Contamination by pathogens of human origin	Learning and training general principles of food hygiene	Compliance to general principles of food hygiene	Visual/Daily or more frequent	Proper instruction and enforcement	Hand swabs as needed
Soaking cheese in water	5	Growth of bacterial pathogens	Soaking at <4°C	Maximum soaking time 48 h Maximum temp. 10°C for 2 h	Temperature and time measuring/ Continuous	Discard when exceeding temperature and/or time	Thermometer calibration
Heating kunafa	6	Survival of vegetative pathogens	Correct heat treatment	75°C/5 min	Temperature and time measuring/ Continuous	Repeat heat treatment when temperature or time are short of the specified	Thermometer calibration Random sampling
Holding warm	7	Growth of bacterial pathogens	Correct warm holding	Holding at 60°C/ 1 h	Temperature and time measuring/ Continuous Max. holding time 1 h	Reheat to 75°C when temperature falls below 55°C	Thermometer calibration Random sampling

either make or purchase unsalted soft white cheese to be used directly in kunafa preparation. This practice calls for additional attention, because soft white cheese is associated with many foodborne outbreaks worldwide (11). In addition, the boiling treatment, which destroys the vegetative cells in white soft cheese (9, 22), and the brining step are eliminated. The production of soft white cheese

made from raw milk is still practiced by some producers; use of such cheese could exacerbate the hazard. Thus only soft cheese produced from pasteurized milk, as confirmed by the phosphatase test, should be used, and a HACCP plan similar to the HACCP plan developed by the Codex Alimentarius Commission's Food Hygiene Committee for producing soft cheese from raw milk (6) should be

applied. Soaking of cheese under refrigerated conditions ($\leq 4^{\circ}\text{C}$) may be practiced as an alternative. In this regard, strict control of general personal hygiene and temperature recording are essential.

Having a controlled processing step that effectively destroys harmful microorganisms would significantly contribute to safety of foods, especially when subsequent recontamination is prevented (15).

Heating of kunafa during preparation (CCP 6) could be the controlled processing step of kunafa preparation (Fig. 1). However, the heat treatment used in the process is noticeably short of the pasteurization universally practiced in dairy industry (11), since it was not sufficient to destroy vegetative cells, as proved by the survival of the coliforms and *Escherichia coli* in the product. Furthermore, roasting of kunafa from one side only by the open fire may produce a temperature gradient in the product. To make the heat treatment effective, a rise in temperature and an increase in the time of heating were proposed (Table 1). This treatment is more extreme than that recommended to destroy *E. coli* O157:H7 in hamburger patties (13). The use of cheese of low microbial load could improve the effectiveness of this treatment. Further studies are needed, especially microbial testing of kunafa before and after the proposed heat treatment, to check the treatment's effectiveness and its effect on the sensory quality of kunafa.

Record-keeping and documentation (HACCP system principle No. 6) are an essential part of any HACCP plan (6, 15). In addition to information about the HACCP team, the product description and the intended use, the process flow diagram, and the HACCP chart, documentation activity of the kunafa HACCP plan includes records of ingredients and records from all monitored CCPs. Testing, inspection and training activities also need to be included.

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The Case Life of Ground Beef Can be Greater than One Day

Rodney J. Worobo,^{1*} Michael E. Stiles,² G. Gordon Greer,¹ and Richard Lower³

SUMMARY

Centralized production of coarse ground beef at a large meat packing plant was monitored by bacteriological evaluation of the production process. The product was vacuum packaged as 6 kg (13.2 lb) chub packs, shipped under commercial conditions to a retail store, and then transported to a research laboratory for case-life studies. The temperature of the boxed chub packs was monitored with a temperature data logger during commercial shipping. Bacterial evaluation of the production process showed that total bacterial loads of trim through to the final product remained constant at about 10^3 bacteria per gram with less than 10^4 *Escherichia coli* per gram. During storage and shipping, the temperature averaged $+0.5^\circ\text{C}$ (33°F), with a range of -1.0 to 4.5°C (30 to 40°F). This was reflected by no increase in the bacterial load in the coarse ground beef during the 3 days of shipping and storage. The predominant bacterial population of the meat during vacuum storage at 4°C (39°F) and aerobic retail display at 6°C (43°F) consisted of lactic acid bacteria. The results show that when centrally produced coarse ground beef is stored in vacuum for up to 20 days, the resulting retail display packs can still achieve an aerobic storage life of 2.5 days.

INTRODUCTION

Ground beef produced at retail level traditionally uses store trim and/or commercial beef trimmings that are vacuum packed and distributed to retailers for fine grinding; it is then aerobically packaged for the retail display case. Ground beef produced in this manner has a highly variable total bacterial load, ranging from 10^3 to 10^7 colony forming units (CFU) per gram with coliform bacteria usually exceeding 10^3 per gram (2, 3). The bacterial load of retail ground beef often exceeds 10^7 CFU per gram (2, 8, 10) and these bacterial loads have changed little over the past seventy years (5). The bacterial load of ground beef produced in this manner depends on the bacteriological quality of trimmings, process hygiene, and temperature during transit, storage, and retail display. With these levels it is not surprising that retail stores expect a case life of less than 24 hours for ground beef. The commercial process for ground beef production has been studied in detail by Gill and McGinnis (6).

Centralized preparation of vacuum packaged, coarse ground beef offers an alternative to the traditional method. Centralized preparation is defined as prepara-

tion in "an autonomous facility in which all preparation operations are completed before the packaged product is transported to retail outlets" (12). Ground beef produced in a centralized operation has a lower microbiological load than ground beef prepared in the traditional way (12), because centralized preparation allows for more effective control of process hygiene, as well as improvements in product safety and storage stability.

This study was undertaken to determine if centralized preparation of vacuum packaged coarse ground beef could result in a high quality product with a markedly greater storage life in the retail counter.

MATERIALS AND METHODS

The production process

Meat trimmings were collected during fabrication of carcasses from animals that were slaughtered the previous day at a large beef slaughtering plant processing 2,000 carcasses per day. Trimmings were collected on a common belt and sorted for various uses. Trimmings for coarse ground beef production were collected in large stainless steel bins and standardized for desired fat content. Up to 20 of these combo bins could be ground in a single day of processing. Coarse ground beef was produced in batches by dumping the contents of a single bin into a hopper from which it was passed through a 5/8-inch grinder and into a mixing bin. The ground meat was mixed and cooled to 0 to 1°C (32 to 34°F) by blowing carbon dioxide (CO₂) through a tunnel as the meat was mixed. The chilled meat was then passed through a 3/8-inch grinder, immediately prior to vacuum packaging. The packaging system used was a standard Multivac clip-seal system. The forming web had an oxygen transmission rate of 1.6 cc/m²/day at 0% relative humidity and 23°C. The non-forming web had an

oxygen transmission rate of 4 cc/m²/day under the same conditions (Cryovac Division, W. R. Grace & Co. of Canada, Calgary, AB, Canada). The vacuum packs (chubs) contained approximately 6 kg of coarse ground beef per package. Four chub packs were placed into a cardboard box, sealed, and transferred to chill storage to await dispatch in refrigerated trailers to a centralized distribution warehouse 50 km (30 miles) from the production plant. The boxed chubs were then shipped by refrigerated trailer to retailers for fine grinding and aerobic packaging for retail sale. Six boxes containing 4 chub packs each were selected at random for shipment. For this study, the meat was shipped 175 km (110 miles) from the distribution warehouse to a local retailer, where the product was stored overnight. The next morning, the meat was taken to the research laboratory for study of extended vacuum storage and retail case life. The distance between the retailer and the laboratory was too short for product temperature to be altered.

Temperature profiles during transportation and storage

Temperature profiles of the coarse ground beef in the chub packages were obtained by placing a temperature data logger (MIRINZ Delphi Tru-Test, Auckland, New Zealand) at the center of each box between the chub packs. The temperature data loggers were kept in the boxes throughout the study to monitor the temperature during extended storage. The temperature history of the product during retail display was monitored with external probes at the product surface with a YEW strip chart recorder, model 3088 (Metermaster Western, Edmonton, AB, Canada) equipped with type "T" saber-type thermocouples (ATS Alltemp, Edmonton, AB, Canada).

Vacuum storage and retail case life studies

After storage under vacuum at 4°C (39.2°F) for 0, 4, 8, 12, 16 and 20 days, a 25-kg box of coarse ground beef was removed from storage and fine ground (1/8 inch). The fine ground beef was subdivided into 0.5 kg (1.1 lb) amounts, placed on Styrofoam trays (Scott National, Calgary, AB, Canada), overwrapped with oxygen-permeable polyvinyl chloride film (VitaFilm Choice Wrap, Goodyear Canada Inc., Toronto, ON, Canada) with an oxygen transmission rate of 8000 cc/m²/24/day, and placed under simulated retail conditions in a horizontal-type retail case with fan-circulated air (model LPM12T, Hill Refrigeration of Canada, Ltd., Barrie, ON, Canada). The display case was illuminated for 12 h per day with incandescent lighting to give a light intensity of 750 lux at the meat surface. Five meat samples were placed at each storage point from the front to the back of the case. On each sampling day, five retail packs were evaluated for bacterial load, appearance, and odor.

Sensory evaluation

Odor and appearance of the vacuum packaged coarse ground beef were evaluated 15 minutes after opening the vacuum bag at each testing time. An experienced five-member sensory panel also evaluated fine ground retail beef subjectively on each day of retail display (within the retail case) for appearance (with a 7-point hedonic scale: 1=extremely undesirable to 7=extremely desirable) and odor (with a 5-point acceptability scale: 1=acceptable to 5=unacceptable). Retail case life was estimated by assuming that rejection would occur at the time in days when the mean scores of the five-member sensory panel had declined to 3.5 for acceptance and/or exceeded 3.5 for odor.

TABLE 1. Bacterial counts^a (log CFU/g or cm²) in coarse ground beef during commercial production and shipping from the processor to the research laboratory

Organism	Sample			
	Trim ^b	Firstgrind	Secondgrind	Research lab ^c
Enterics	1.16	1.46	1.43	1.33
<i>E. coli</i>	0.43	0.25	0.86	0.54
Pseudomonads	2.36	2.76	2.92	2.77
Lactics	2.73	2.76	2.07	2.12
Psychrotrophs	2.91	3.32	3.29	3.17

^aData are means of 5 samples and 3 replications at each step in the production process.

^bLog CFU are reported per cm²; counts in other columns are log numbers per gram.

^cSamples arrived at research laboratory after 3 days of transportation and storage.

Bacteriological sampling

The meat was sampled to determine bacterial content during commercial production (meat trim, first and second coarse grinds), after each vacuum storage interval, and daily during retail display. The production process was monitored by taking five samples at each step of the process during each of three visits to the plant. A 25 g meat sample was aseptically removed and placed in a sterile Stomacher bag, 225 ml of sterile 0.1% peptone water was added, and the sample was homogenized for 1 min using a Colworth Stomacher (Baxter Diagnostics Corp., Canlab Division, Edmonton, Alberta, Canada). Standard dilution and plating techniques were used to test four samples of vacuum packaged coarse ground beef and five samples of fine ground retail beef at each sampling time.

The total population of psychrotrophs was determined on plate count agar (PCA, Difco Laboratories, Detroit, MD) incubated at 4°C for 10 d. *Pseudomonas* spp. were

determined on cephaloridine-fucidin-cetrimide (CFC) agar incubated at 25°C for 48 h. Lactic acid bacteria (LAB) were determined with De Man-Rogosa-Sharpe (MRS, Difco) agar incubated anaerobically (BBL Anaerobic System with 5 to 10% CO₂; Becton Dickinson Co., Cockeysville, MD, USA) at 25°C for 72 h. *Enterobacteriaceae* (enteric bacteria) were determined on violet red bile glucose (VRBG, Difco) agar incubated at 35°C for 18 to 21 h. The selective properties of the preceding media have been described in detail (1). Coliform bacteria were determined on Lactose Monensin Glucuronate (LMG) agar (QA Laboratories; Toronto, Canada) incubated at 35°C for 24 h. *E. coli* were determined by transferring the hydrophobic grid membrane after coliforms were counted to buffered 4-methylumbelliferyl-B-D-glucuronide (BMUG) agar (QA Laboratories), incubated at 35°C for 2 hours and examined under long wave length ultraviolet light to

enumerate the fluorescent colonies. *Brochothrix thermosphacta* was determined on streptomycin-indole-neutral red (SIN) agar incubated at 25°C for 72 hours (11). The enterics, *B. thermosphacta*, coliforms and *E. coli*, were enumerated by the hydrophobic grid membrane filtration technique to give a sensitivity of detection of 1 organism per gram. Other bacterial groups were enumerated by standard plating techniques, with a minimum detection level of 100 organisms per gram. Bacterial numbers were reported as Colony Forming Units per gram (CFU/g) or were transformed to logarithms (log₁₀) for calculation of geometric means.

RESULTS

Meat temperatures during shipment and storage

A period of 3 days elapsed between the time the chubs of coarse ground beef were boxed at the processing plant and they arrived at our laboratory, including storage overnight in the cold room of a local retailer. Two shipments were completed for the study of temperature profiles during transportation from the slaughter plant to the retailer and research laboratory. For both shipments, the temperatures ranged from -1.0 to 4.8°C, with an average of +0.5°C. An example of the temperature history of the product during shipment is shown in Fig. 1. During storage under vacuum at our laboratory, the temperature of the meat in the chub packs was 4.0°C (range 3.5 to 4.75°C) during the 20 days of storage. In the retail display case, the mean internal temperature of the ground beef was 5.9°C (range 1 to 10°C) when the temperatures at the five locations in the retail case were averaged. The five storage locations were distributed from the rear to the front of the retail case, with the meat placed below the load limit line specified by the manufacturer.

TABLE 2. Storage life of aerobically packaged ground beef assessed by appearance and odor of meat prepared after vacuum storage of the coarse ground beef at 4 °C for up to 20 d

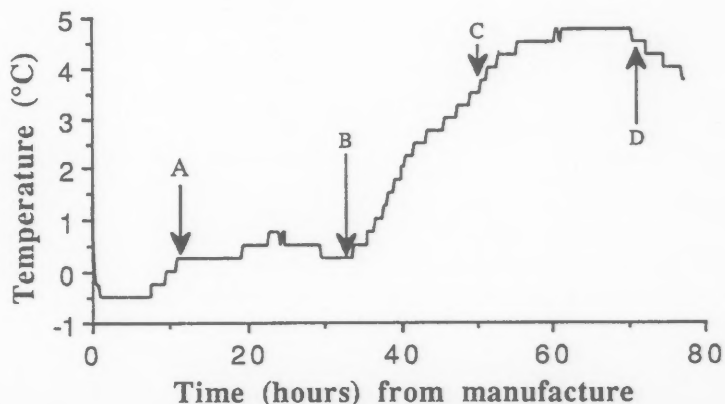
Time of vacuum storage (d)	Case life (d)	
	Based on odor ^a	Based on appearance ^b
0	>5.0	1.5
4	4.9	2.6
8	4.4	3.3
12	2.8	2.2
16	2.7	2.3
20	2.5	2.5

^aOdor was assessed using a 5-point hedonic scale (1=acceptable, 5=unacceptable). Samples were considered unacceptable when the mean panel score was >3.5 on the hedonic scale.

^bAppearance was assessed using a 7-point hedonic scale (1=extremely undesirable, 7=extremely desirable). Samples were considered unacceptable when the mean score was <3.5 on the hedonic scale.

^{ab}Data are means of 5 retail samples at each vacuum storage time.

Figure 1. Temperature profile of vacuum-packaged coarse ground beef produced at a centralized processing facility and transported to a retail store. The arrows indicate temperature: (A) on arrival at the distribution warehouse; (B) at time of shipping from the distribution warehouse; (C) on arrival at the retail store; and (D) on arrival at the research laboratory.



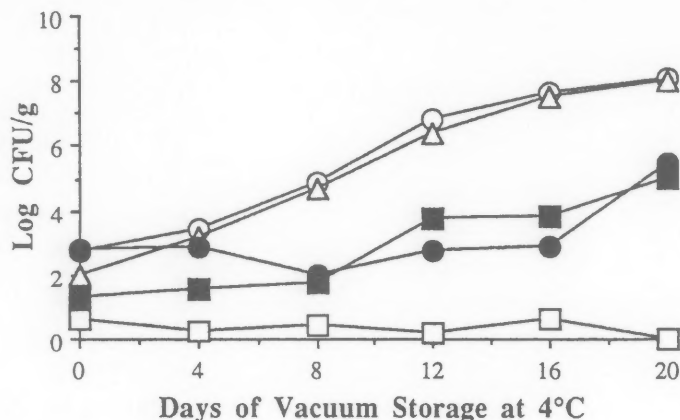
Bacterial contamination of coarse ground beef during commercial preparation and distribution

The data in Table 1 are the mean log counts of the different bacterial groups on the meat during commercial preparation and transportation to the research laboratory. The microbial load of the coarse ground beef in the chub packs indicated that very hygienic processing conditions were achieved at the meat plant (Table 1). Total psychrotrophic bacterial load, consisting mainly of *Pseudomonas* spp. and lactic acid bacteria (LAB) was of the order of 10^3 CFU/g. *E. coli* was present at levels below 10 CFU/g. Bacterial counts did not change markedly from the time the trim was prepared at the processing plant to the time it arrived at the laboratory.

Bacterial growth in coarse ground beef and sensory changes

The effect of time of storage under vacuum on bacterial growth in the chub packs of coarse ground beef at 4°C is shown in Fig. 2. Growth of the important spoilage bacteria (*Pseudomonas* spp., LAB and enterics) and of *E. coli* is compared with growth of the total population of psychrotrophs. *B. thermosphacta* and coliform bacteria were also enumerated, but their numbers did not exceed 10 CFU/g. The data show that the main bacteria enumerated during vacuum storage at 4°C were LAB and that their growth was similar to that of the total bacterial population. After 20 days of storage at 4°C under vacuum, the population density of LAB was 10^8 CFU/g. The number of *Pseudomonas* spp. remained unchanged at 10^2 to 10^3 CFU/g until day 16, but by day 20 of storage they had increased 100 fold to 10^4 to 10^5 CFU/g. *Enterobacteriaceae* were not detected during the first 8 days of vacuum storage at 4°C, after which their numbers reached approximately

Figure 2. The effect of vacuum storage at 4°C on growth of total psychrotrophic bacteria (○), lactic acid bacteria (△), *Pseudomonas* spp. (●), enteric bacteria (■), and *E. coli* (□) in the coarse ground beef. Each data point represents the mean log CFU/g of four vacuum chub packs.



10^4 CFU/g by day 12 and 10^5 CFU/g by day 20. In contrast, the number of *E. coli* and coliform bacteria remained at less than 10 CFU/g throughout storage. Acceptability of the appearance and odor of the coarse ground beef changed little during vacuum storage at 4°C. None of the samples reached a point of rejection by the panel, even at the end of the 20-day storage period (data not shown).

Bacterial growth in retail ground beef

The effect of aerobic retail display on bacterial growth of ground beef prepared from chub packs of the vacuum packaged coarse ground beef stored at 4°C for up to 20 days is shown in Fig. 3. The data illustrate the growth of each group of spoilage bacteria during retail display for 5 days. LAB account for the majority of the psychrotrophic bacteria growing on the meats (Figs. 3A and 3B), even on day 0 when the meat was received at the research laboratory (after three days of vacuum storage in the chub packs). LAB dominated the microbial population by at least 100 fold throughout the 5 days

of retail display. LAB reached their maximum population of 10^8 CFU/g on retail packs after 16 days of vacuum storage of chub packs.

Pseudomonas spp. (Fig. 3C) and enterics (Fig. 3D) comprised a minor component of the bacterial population in retail meat prepared from chub packs stored under vacuum at 4°C for up to 16 days. In retail meat prepared from chub packs stored for 20 days, these bacteria were present at 10^5 to 10^6 CFU/g, accounting for less than 1% of the total population of the meat. The number of *E. coli* did not exceed 10^2 CFU/g during retail display, and *B. thermosphacta* did not reach detectable numbers ($>10^2$ CFU/g) (data not shown). As expected, the bacterial load of the retail product increased with the time of storage under vacuum.

Case life studies

The effect of time of storage of the chub packs of coarse ground beef at 4°C on retail case life of aerobically packaged ground beef is shown in Table 2. Case life was assessed with both odor and appearance as acceptance criteria.

Case life based on acceptability of the odor of the meat decreased from 5 days (after 0 days of vacuum storage) to 2.5 days after 20 days of vacuum storage at 4°C (Table 2). In contrast, retail case life determined by appearance (color) was only 1.5 days for ground beef prepared from the chub packs at day 0, but thereafter the case life ranged between 2.2 and 3.3 days for ground beef prepared from chub packs stored for up to 20 days.

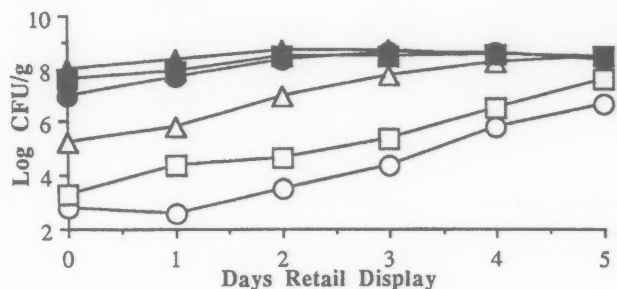
DISCUSSION

Ground beef provides a highly favorable environment for microbial growth. The quality depends on three main factors: initial bacterial load of meat used for grinding, sanitation of equipment, and time-temperature of storage. Traditional preparation of ground beef for retail sale utilizes meat trimmings accumulated at retail store level and from a centralized producer. It is well documented that the bacterial load of traditional ground beef often exceeds 10^7 CFU/g and, as a result, ground beef has a short retail shelf life (2, 8, 10). With traditional preparation of ground beef, in which grinding, packaging and other operations are carried out by the retail store, the quality of the ground beef depends on the quality of the trim (12). Ground beef produced by a centralized producer was of better microbiological quality than that prepared at the retail level or by traditional preparation (12). Under the conditions described herein only one sample of the centrally produced ground beef had an *E. coli* load greater than 50 CFU/g, compared with levels as high as 10^4 CFU/g reported for ground beef prepared by the traditional method (12).

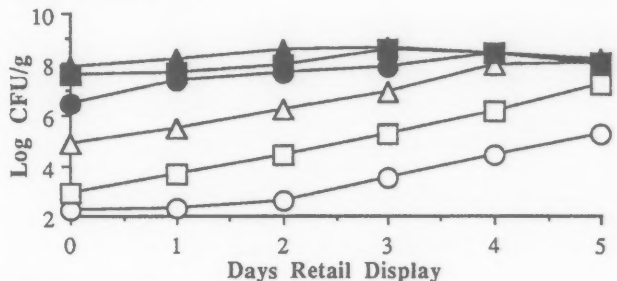
Gill and McGinnis (6) examined the microbial quality of traditionally prepared ground beef. Meat plant trimmings at the slaughter plant had levels between 10^3 and 10^5 CFU/g with a mean of 10^4

Figure 3. Effect of vacuum storage time of coarse ground beef on bacterial populations in retail packaged ground beef. Each data point represents the mean of five samples stored aerobically on retail display with a mean temperature of 6°C. Growth of (A) total psychrotrophic bacteria, (B) lactic acid bacteria, (C) *Pseudomonas* spp., and (D) enteric bacteria at each interval of storage under vacuum, on day 0 (○), day 4 (□), day 8 (△), day 12 (●), day 16 (■), and day 20 (▲) of vacuum storage.

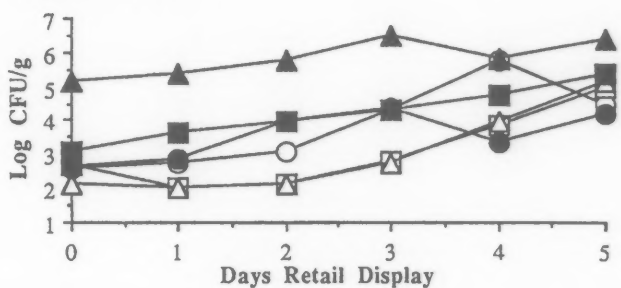
A. Total Psychrotrophs



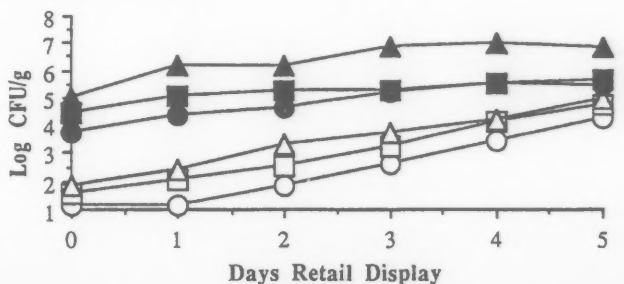
B. Lactic Acid Bacteria



C. *Pseudomonas* spp.



D. Enterobacteriaceae



CFU/g. Little or no change in microbial load occurred from the slaughter plant to arrival at the retail store (6). However, ground beef displayed at retail had bacterial loads ranging from 10^4 to 10^7 CFU/g, with 75% of the samples containing 10^6 CFU/g. They reported an increase in mesophilic gram-positive bacteria in meat. This is expected because of the increase in numbers of lactic acid bacteria in vacuum packaged meat during refrigerated storage (9). The primary reasons for loss of microbial quality at the retail level are that wholesalers and retailers maintain stocks of meat that allow them to deal with fluctuations in supply and demand (6) and that temperature control is lost in retail display cases (7).

An alternative method of ground beef production is described in this study. Beef trim was collected on a common belt during meat cutting with the specific objective of preparing vacuum packaged, coarse ground chub packs for retail grinding. Coarse ground beef produced in this manner and shipped under commercial conditions maintained constant bacterial numbers of 10^5 CFU/g during three days of transit and storage. Emswiler et al. (4) also studied the bacteriological quality and case life of ground beef in 1.5 kg chub packs that were fabricated commercially and supplied unfrozen to retailers. They showed that fresh ground beef produced and shipped under their conditions contained $<10^5$ CFU/g. The superior bacterial quality of ground beef in the current study was likely related to the low levels of bacterial contamination on the beef trim and temperature control during shipment and storage (average 0.5°C).

The results described herein apply to a totally centralized ground beef production facility where slaughter, trim preparation, and grinding are on the same premises. In instances where raw materials are produced in different plants, variation in the microbial condition of the final product would be expected.

The results of the present study showed that even after 20 days of vacuum storage of coarse ground beef at 4°C, the resulting fine ground product had a retail case life equal to or better than that observed under commercial conditions. Bacteria predominating during vacuum storage and retail display were lactic acid bacteria, and these organisms generally have a low spoilage potential. Pseudomonads would normally be expected to predominate during aerobic storage and to spoil the meat. It is possible that the prevailing lactic acid bacteria had consumed the available glucose in the meat, enabling the pseudomonads to cause spoilage at lower cell densities (i.e., 10⁵ to 10⁶ CFU/g) than would normally be required. The lactic acid bacteria may also have mediated spoilage through their own metabolic activities. The number of coliform bacteria remained constant at 10 CFU/g during vacuum storage but increased to 10³ CFU/g during retail display. Growth of *E. coli* under retail display conditions would be expected (7).

In summary, the present study illustrates that vacuum packaged coarse ground meat prepared and distributed through a commercial system, stored under vacuum for up to 20 days at 4°C, can yield a

retail product with excellent case life. This would allow considerable marketing flexibility and would be revolutionary in terms of retail trade norms by reducing retail fabrication.

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STANDARD METHODS FOR THE EXAMINATION OF DAIRY PRODUCTS

H. Michael Wehr, Ph.D.
Chairman, APHA Technical Committee

The American Public Health Association (APHA) is pleased to announce the initiation of work on a new 17th Edition of *Standard Methods for the Examination of Dairy Products* (SMEDP 17). *Standard Methods for the Examination of Dairy Products* is the primary reference for microbiological and chemical analysis of milk and dairy products for both regulatory and quality assurance purposes. SMEDP 17 is scheduled for publication in October, 1999 celebrating the centennial of the APHA's Committee on Laboratory Standards and Practices.

Technical Committee

A Technical Committee will be responsible for the preparation of SMEDP 17. Chairing the Technical Committee is Dr. Michael Wehr of the National Milk Producers Federation (phone 703.243.6111). Joining Dr. Wehr on the Committee is Mr. Edward Arnold Jr., Land O'Lakes Company (phone 800.328.9687), Ms. Mary Bulthaus, Dairy Quality Control Institute (phone 612.785.0484), Dr. John Bruhn, University of California, Davis (phone 916.752.2192), Mr. James Fitts, New York Department of Agriculture and Markets (phone 518.457.1772), Dr. Joseph Frank, University of Georgia (phone 706.542.0994), Dr. Robert Marshall, University of Missouri (phone 573.882.7355), and Dr. Larry Maturin, U.S. Food and Drug Administration (phone 708.728.4120). Dr. Carl Blank will serve as the APHA Liaison to the Technical Committee.

Purposes of SMEDP

The purposes of SMEDP are to provide a source of:

1. Methods for use in the Grade A milk control programs of the United States and for use by other countries that may find the methods appropriate to their control programs.
2. Methods for use in the Manufacturing Milk Control program.

3. Methods for use in the U.S. Federal Order programs of the United States.
4. Methods for use in quality control of dairy foods for the world.
5. Selected methods of the International Dairy Federation and other international agencies/organizations for use in the shipping of milk in international commerce.
6. Background information on the test methods and information important to interpretation of results.

Book Content

Table 1 lists all chapters proposed for SMEDP 17 as well as the Technical Committee members who will serve as the Liaison for the various chapters. The focus of SMEDP 17 will be on procedures that have wide-spread acceptance and use for both regulatory and quality assurance purposes true to Standard Methods.

SMEDP 17 will provide test procedures for standard plate counts, coliforms and pathogens for milk and milk products as well as test methods for various groups of microorganisms. Also incorporated are chapters on quality assurance and safety, drug residues and antibiotics, abnormal milk, direct microscopic counts, phosphatase detection, and chemical and physical methods.

All chapters will be updated to incorporate new analytical methods and test procedures. Virtually rewritten will be the chapter on the detection of antibiotic/drug residues in milk and dairy products. Extensive updates will also be made to the chapter on chemical and physical methods. Expanded methods and procedures for environmental monitoring in processing plants will also be included.

The chapter on laboratory quality assurance and safety will take on a new look. The chapter will be modeled after a comprehensive laboratory quality assurance/safety plan customized for dairy laboratories.

TABLE 1. Chapter Content and Technical Committee Chapter Liaisons for the 17th Edition of *Standard Methods for the Examination of Dairy Products*.

Chapter	Committee Liaison
1. Standard Methods	Michael Wehr
2. Laboratory Quality Assurance and Safety	Edward Arnold, Jr.
3. Sampling Dairy and Related Products	Larry Maturin
4. Media and Reagent Preparation	Mary Bulthaus
5. Pathogens in Milk and Milk Products	Joseph Frank
6. Microbial Count Methods	Larry Maturin
7. Coliform and Other Indicator Bacteria	John Bruhn
8. Tests for Groups of Microorganisms	Joseph Frank
9. Microbiological Methods for Dairy Products	John Bruhn
10. Direct Microscopic Methods for Bacteria or Somatic Cells	Robert Marshall
11. Methods to Detect Abnormal Milk	James Fitts
12. Detection of Antibiotic/Drug Residues in Milk and Dairy Products	Mary Bulthaus
13. Tests for the Environment, Water Supplies, Equipment and Containers	James Fitts
14. Alkaline Phosphatase Methods	James Fitts
15. Chemical and Physical Methods	Edward Arnold, Jr.
16. Compositional Standards and Regulatory Requirements for Milk and Milk Products	Robert Marshall

New Additions to SMEDP 17

International Focus: The General Agreement on Tariffs and Trade (GATT) Uruguay Round Agreements, particularly the Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) Agreements have substantially changed the regulatory and trade environments. Countries have an obligation to use international standards for the food safety area. International compositional standards will be used to resolve technical trade disputes. The Codex Alimentarius (Codex) and the International Dairy Federation (IDF) have become much more important. Codex Standards will become the reference standards for the SPS and TBT Agreements while IDF serves as the technical advisor to the Codex Committee on Milk and Milk Products. Additionally, it is likely that domestic regulations and programs will be impacted by these changes in the international community. Harmonization with international standards is the focus for the future.

The Technical Committee has recommended that selected IDF methods be incorporated into SMEDP and that the book's format be consistent with the presentation of methods provided by international organizations. SMEDP 17 will also incorporate a discussion on the new international trade environment.

New Chapter on Product Composition and Regulatory Standards

As part of the recognition of the new international environment, SMEDP will contain a new chapter on composition and regulatory requirements of milk and milk products. This chapter will also provide the dairy industry with a quick reference for the composition, specification and regulatory requirements of milk and common dairy products. Both United States and Codex product standards requirements will be included. Also included will be compositional information for milk from major commercial milk producing animals including bovine, goat and buffalo.

Method Classification

As in past editions, SMEDP will use a method classification system. Method classes O (historically widely used methods that have not been formally collaboratively studied), A₁ (formally collaboratively studied with extensive use), A₂ (formally collaboratively studied) and B (used successfully in research or other situations, has had limited evaluation with no formal collaborative study) will continue to be used. A new methods class A₃ will be used for test kits evaluated by programs such as the AOAC International Research Institute Performance Tested™ Program. The Technical Committee has agreed to delete method classes C (unproved or suggested method proposed as useful) and D (method previously published in SMEDP) but without widespread use. The Technical Committee will, however, consider incorporating methods previously deleted but now found useful; these methods must have current demonstrated widespread use. Readers are encouraged to recommend methods for inclusion into Standard Methods, including those published in earlier editions, but deleted.

Peer Review

Also as in past editions, a peer review process will be used in the preparation of SMEDP 17. Dairy analysts, quality assurance managers, regulatory personnel, researchers and other interested individuals are encouraged to serve as peer reviewers. Peer reviewers will have the opportunity to review and comment on the content of draft chapter manuscripts. The Technical Committee currently anticipates that manuscripts will be ready for review by the summer of 1998. Individuals interested in serving as a peer reviewer should send their name, chapter(s) of interest and a short resume or statement indicating their expertise to Dr. Michael Wehr, Editor, or to the Liaison for the Chapter indicated in Table 1. Dr. Wehr can be reached at the National Milk Producers Federation, 1840 Wilson Blvd., Arlington, VA 22201; Phone 703.243.6111; Fax: 703.841.9328; E-mail: NMPF@aol.com.

Input Welcomed

The Technical Committee welcomes your thoughts and comments for SMEDP 17. Appropriate suggestions are able to be incorporated into the new edition at this early stage of preparation.

Scenes from the 1997 Annual Meeting



Sun, humidity, palm trees, sand, water... was this the Annual Meeting?

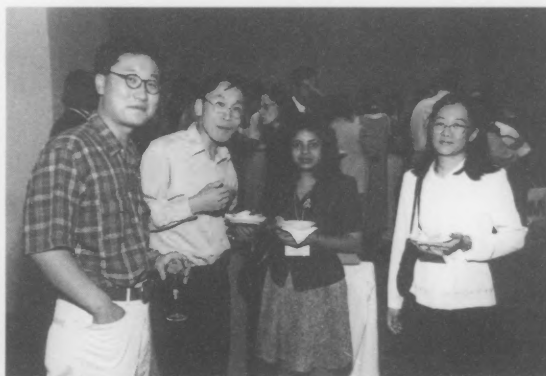
The Hyatt Regency Grand Cypress in Orlando, Florida made a beautiful setting for the 84th IAMFES Annual Meeting. So beautiful, it would have been easy to forget why we came. Luckily, the Florida Association of Milk, Food and Environmental Sanitarians kept everyone in line and the Meeting running smoothly. Under the direction of Co-Chairs Peter Hibbard and John Chrisman, FAMFES provided the best in Southern hospitality and made all attendees feel welcome in the Sunshine State! Thanks to all from FAMFES who helped!

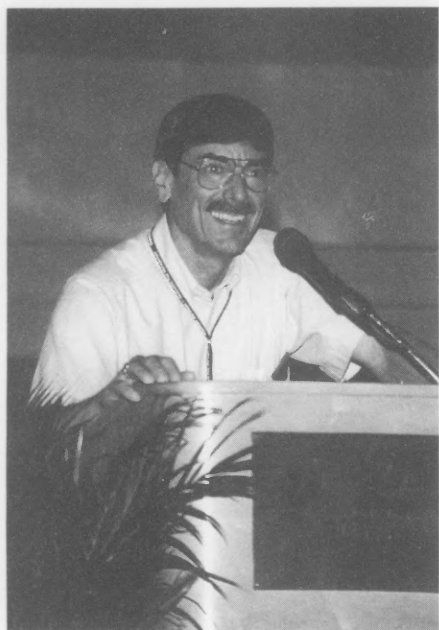
This year's Meeting again proved that IAMFES is the leading food safety



organization in the world! The Meeting featured over 250 presentations and drew over 1,000 attendees. As in the past, the Meeting included times for committees, professional development groups and task forces to meet; educational exhibits to be observed; award winners to be honored; socializing to be done; and most importantly, time to learn. The following highlights these topics.

Sunday morning and afternoon were filled with the hustle and bustle of committees, professional development groups and task forces meeting and setting goals for the next year. Minutes of these meetings can be found on page 664. The official opening of the 84th Annual Meeting was marked by the





Ivan Parkin Lectureship. A thought-provoking lecture was presented by this year's noted speaker, Martha R. Roberts, Deputy Commissioner, from the Florida Department of Agriculture. Dr. Roberts presented her thoughts on "Science or Fable: Who is Winning the Battle?"

The program included high quality presentations from around the world, including 20 symposia, three technical sessions, four poster sessions, and the General Session. Topics ranged from opening doors to new dairy markets to genetically modified foods, from risk assessment to HACCP, and an all encompassing

session on ensuring a safe global food supply. Countries represented included the United States, Mexico, Canada, The Netherlands, United Kingdom, Japan, Australia, Egypt and many others, thus making the Annual Meeting a truly global event.

Each year we are fortunate to be associated with many organizations who lend support to our program through sponsorship of speakers. We wish to extend our appreciation to the International



Life Sciences Institute, IAMFES Foundation Fund, Ecolab, Inc., Food and Beverage Division, Zep Manufacturing, National Food Processors Association, Silliker Laboratories Group, Gen-Probe, Inc., International Fresh-Cut Fruit Association, Ontario Food Protection Association, and Qualicon. It is with the continued support of these organizations that IAMFES is able to attract such high quality presenters from around the world.

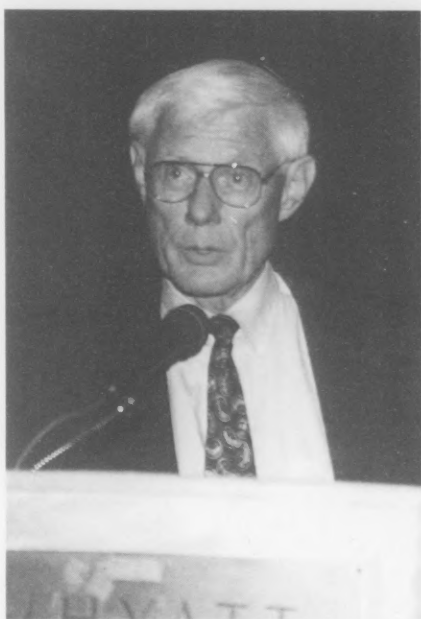




This year's General Session provided a perspective on food safety issues for special populations. Co-Convenors, Michael Cirigliano and Morris Potter brought together an excellent panel who provided current information on handling special consumers and their food safety needs. The General Session was



followed by the IAMFES Annual Business Meeting. During the Business Meeting, reports from Committee Chairs, President Michael Brodsky, and David Tharp, IAMFES Executive Director, were presented.



A special announcement added to the excitement of the Business Meeting. IAMFES formed a piece of history with the induction of our first affiliate outside of North America. The Korean Association of Dairy, Food and Environmental Specialists were granted their official IAMFES affiliate charter at the Business Meeting.

Some of the most memorable events of Annual Meeting happen after the day-long sessions at the social functions. This year was no exception! The Monday Night Social included alligators, jugglers, fire eaters, magicians, and great food! The day tours for spouses



and companions included a trip to the Kennedy Space Center, a view of the city, and a day at Cypress Gardens. The beautiful surroundings provided by the wonderful accommodations at the Hyatt created a relaxing tropical setting for all attendees to enjoy. The 1997 Annual Meeting provided something for everyone. Thanks to all who participated in making the Meeting a success!

IAMFES 1997 Award Winners

Past President Ann Draughon (far left) and Wilbur Feagan, (far right) F & H Food Equipment Company, presented Ron Case (left) and Dave Rechsteiner (right) of Papetti's with the 1997 Black Pearl Award.



easy cleaning by the most modern methods. HACCP has been in operation since the plant was opened in 1991. Extensive small-group training improves the knowledge of the employees in good manufacturing practices, food safety, sanitation, HACCP, OSHA, chemicals, customer needs, process control, and personal safety. Papetti's of Iowa defines quality as "delighting the customer." Quality starts with a safe product.

Sanitarian Award — Randall A. Daggs

Randall Daggs attended the University of Wisconsin-Oshkosh and graduated with honors in 1971 with a bachelor of science in microbiology and public health. He began his career as a "Bench Microbiologist" at the State Laboratory of Hygiene in Madison, Wisconsin. In 1978, he began working for the Wisconsin Division of Health as a FDA certified Laboratory Evaluation Officer. In 1982, Randy started his work as a Field Sanitarian, and in 1984 assumed administrative responsibilities for Wisconsin's Grade A Milk Certification program. Randy continues to manage this program which comprises of approximately 21,000 farms, 150 dairy plants, and 3,500 licensed milk samplers. A staff of four full-time milk sanitation rating officers work for Randy to keep the program running smoothly. He also maintains his FDA certification as Milk Sanitation Rating Officer and conducts 6 to 8 field surveys each year.

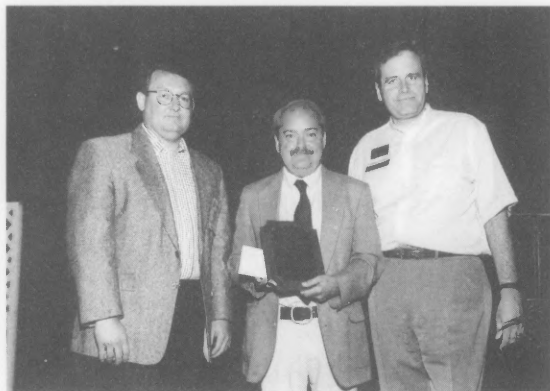
In 1983 Randy became a member of IAMFES, and has attended the Annual Meeting every year since 1985. He has presented several papers and convened dairy-related symposia at the Annual Meeting in 1990, 1992 and 1996. He currently serves on the Dairy Farm Quality and Safety Professional Development Group and the Constitution and Bylaws Task Force.

Black Pearl Award — Papetti's of Iowa Food Products, Inc.

Papetti's of Iowa Food Products, Inc. operates a state-of-the-art egg processing facility in the southwest Iowa farming community of Lenox. Papetti's of Iowa supplies pasteurized egg products to major food processors in the United States, Japan, Mexico, Philippines, Korea and other countries around the world. Pasteurized egg products are also supplied to restaurants, fast food operations, and bakeries. Most likely, you have eaten eggs from Papetti's of Iowa as an ingredient in the foods in your daily diet.

Because of the large exposure of the product, food safety is paramount in the operation. The plant design, sanitation, operating procedures, training, committed management, and employees are key in the outstanding record of safe, high quality product. The plant was designed and built using 3-A Egg Standards to make for

Randy Daggs (center) accepts the Sanitarian Award from Tom Bufford (left) of Ecolab Inc., Food and Beverage Division, and IAMFES Secretary Jack Guzewish (right).



Educator Award — Purnendu C. Vasavada

Dr. Purnendu Vasavada is a Professor of food science at the University of Wisconsin-River Falls. His courses include Introduction to Food Science, Quality Milk Production and Processing, Food and Consumerism, and Advanced Food Microbiology. In addition Dr. Vasavada serves as Extension State Specialist for food safety, microbiology, and quality of milk and milk products. He developed an annual food microbiology symposium at the University of Wisconsin-River Falls and has presented workshops and seminars on topics related to foodborne pathogens, food safety, total quality systems, and HACCP programs.

In 1989 and 1990, Dr. Vasavada spent a sabbatical at the Commonwealth Scientific and Industrial Organization — Dairy Research Laboratory in Melbourne, Australia, where he collaborated on various projects dealing with microbiological aspects of SiroCurd cheese manufacturing process; milk quality and shelf-life including the application of microwave processing in the dairy industry. He also participated in many industry activities and delivered lectures on topics pertaining to rapid methods and automation in food microbiology, microwave processing applications, and dairy research and education issues in Australia and New Zealand.

Dr. Vasavada is a long-time member of IAMFES and has received a Certificate of Merit Award from IAMFES. He serves on the *Dairy, Food and Environmental Sanitation* Management Committee.

P. C. Vasavada (center) accepts the Educator Award from Henry Atherton (left) of IBA and Vice President Robert Brackett (right).



Harold Barnum Industry Award — John G. Cerveny

Thirty-seven years ago, John Cerveny began his career at Oscar Mayer Foods and has held positions of Microbiologist, Senior Research Scientist, and most recently, Section Manager of Research and Development Microbiology. His vocation at Oscar Mayer was directed toward the safety and quality of ready-to-eat meat and poultry products. Among his contributions, was directing research that led to the use of sodium lactate as an antibotulinal agent in cooked poultry and fish. This preservative is now commonly used in precooked poultry products to inhibit botulinal toxin production should these products be temperature abused. In March of 1996, John retired from Oscar Mayer and began his newest pursuit as a Food Safety Consultant.

John has served on several advisory committees for the meat industry and for International Life Sciences Institute (ILSI) on microbiological food safety issues. His participation and leadership was instrumental in addressing critical issues of the safety of sodium nitrate in the 1970s, *Listeria monocytogenes* and *Escherichia coli* O157:H7 in the 1980s and 1990s. The University of Wisconsin-Madison uses his expertise in meat safety as a Lecturer in undergraduate and graduate courses.

As a Member of IAMFES since 1969, John has been active in many committees and professional development groups. He is currently serving a second consecutive term as Chair for the Program Advisory Committee. John served as the first Chair of the Meat Safety and Quality Professional Development Group, Chair of the Developing Scientist Competition, and a member of the Long Range Planning Task Force. As a liaison between IAMFES and ILSI, he has helped foster their continued affiliation through annual sponsorship of cutting-edge food safety programs at the IAMFES Annual Meeting.



President Michael Brodsky (left) and President-Elect Gale Prince (right) presented John Cerveny (center) with the Harold Barnum Industry Award, sponsored by NASCO and a plaque recognizing his leadership as Program Advisory Chair.

Earl Wright (center) accepts the Citation Award from Past President Ann Draughon (left) and Carl Groenewegen (right) of DiverseyLever.



Harry Haverland Citation Award — Earl O. Wright

Earl Wright received his bachelor of science degree in agriculture from the Wisconsin State University-Platteville in 1941. After three and a half years in the army during World War II, he became Extension Director of Lincoln and Clark County, Wisconsin. Earl received his masters degree from the University of Wisconsin-Madison in agriculture education and dairy & food industries. He joined the faculty of Iowa State University in 1954 as an Extension Specialist in Dairy Manufacturing. Earl initiated a bacteriological testing program for the important manufacturing grade segment of the Iowa Dairy Industry. He was instrumental in setting minimum standards for milk in Iowa by working with the Iowa Department of Agriculture and the Iowa Legislature.

He helped train fieldmen and plant personnel in proper milk quality testing methods, advised dairy plants on the selection of equipment, processing techniques, product development, and in quality control methods.

Earl joined IAMFES in 1950 and has attended the past 36 consecutive Annual Meetings. He has published several papers, served on many committees, was elected to the Executive Board in 1971, and served as President in 1974. For 10 years he served as Executive Secretary and oversaw the move of the office from Shelbyville, Indiana to Ames, Iowa. Earl remains active by serving as the Secretary-Treasurer of the 3-A Sanitary Standards Symbol Administrative Council and is on a special Past Presidents' Task Force to identify sources for funds to help further IAMFES educational programming.

Honorary Life Membership — Frank L. Bryan

Dr. Frank Bryan currently works as a Private Consultant developing HACCP systems for private companies and governmental agencies in the United States as well as for many other countries through the Pan American Health Organization (PAHO) and the World Health Organization (WHO). He conducts training on HACCP and foodborne disease investigation techniques, and provides expert consultation to companies in food safety and related litigation.

Dr. Bryan spent most of his career as a Trainer for the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. He conducted CDC-sponsored courses and lectured at many other courses sponsored by federal, state, and local governmental agencies, professional organizations, universities, and private industry. In 1952, Dr. Bryan became a member of IAMFES. He has chaired the Committee on Communicable Diseases Affecting Man since 1970. During this tenure, the committee has published and updated two editions of the manual, *Procedures to Investigate Foodborne Illness*. The committee also published two editions of *Procedures to Investigate Waterborne Illness*, an edition of *Procedures to Investigate Arthropod-borne and Rodent-borne Illness* and *Procedures to Implement the Hazard Analysis Critical Control Point System*. The manuals have been translated into other languages in efforts led by Dr. Bryan to promote the availability of this valuable information internationally.

Dr. Bryan has also published numerous peer-reviewed journal articles during his career with many of them appearing in the *Journal of Food Protection* and *Dairy, Food and Environmental Sanitation*. He regularly attends the Annual Meeting and has presented workshops and several papers.



President Michael Brodsky (left) honors Frank Bryan (right) by presenting him with an Honorary Life Membership Award.

Developing Scientist Winners (left to right) Michael Cirigliano, Developing Scientist Competition Committee Chair, Paris Leggitt, Soraya Rosenfield, Jeffrey Semanchek, Lisa Lucore, and Kunho Seo (Doris D'Souza not pictured).



Developing Scientist Awards

Presentation of awards in two categories of the IAMFES Developing Scientist Competition were made by Michael Cirigliano of Lipton, Inc., Developing Scientist Competition Committee Chair. The awards included an engraved plaque and \$500 for first place, an award certificate and \$300 for second place and an award certificate and \$100 for third place in each category.

Oral Presentation Award Winners

First Place – Doris D'Souza of the University of Georgia, Griffin, Georgia, USA with "Reducing Conditions and Seryl and Sulphydryl Inhibitors on Aflatoxin B₁ Degradation by *F. aurantiacum*," co-authored by R. Brackett, University of Georgia, Griffin, GA, USA

Second Place – Paris Leggitt, North Carolina State University, Raleigh, North Carolina, USA for "Rapid Molecular Method for Detection of Human Enteric Viruses in Prepared Hamburgers and Leaf Lettuce," co-authored by L. Jaykus, North Carolina State University, Raleigh, NC, USA

Third Place – Kunho Seo of the University of Georgia, Griffin, Georgia, USA for "Immunomagnetic Separation and Flow Cytometry for Rapid Detection of *E. coli* O157:H7," co-authored by R. Brackett and J. Frank, University of Georgia, Griffin, GA, USA

Poster Presentation Award Winners

First Place – Lisa Lucore, North Carolina State University, Raleigh, North Carolina, USA, with "Concentration of Pathogenic Microorganisms from Dairy Products for Detection of PCR," co-authored by L. Jaykus, North Carolina State University, Raleigh, NC, USA

Second Place – Soraya Rosenfield of North Carolina State University, Raleigh, North Carolina, USA with "Multiplex PCR for the Detection of Human Enteroviruses, Hepatitis A Virus, and Norwalk Virus," co-authored by L. Jaykus, North Carolina State University, Raleigh, NC, USA

Third Place – Jeffrey Semanchek of the University of Tennessee, Knoxville, Tennessee, USA for "Influence of Package Atmosphere on Growth and Survival of Uninjured and Sublethally Heat-Injured *E. coli* O157:H7," co-authored by D. Golden, University of Tennessee, Knoxville, TN, USA

IAMFES extends hearty congratulations to the winners of the 1997 IAMFES Developing Scientist Competition and wishes continued success to all participants.

Norbert F. Sherman Award

The Norbert F. Sherman Award honors the late treasurer of the Educational Foundation of the National Restaurant Association, an advocate for improved industry food protection standards. The award is sponsored by the Educational Foundation of the National Restaurant Association and provides recognition for outstanding articles appearing in *Dairy, Food and Environmental Sanitation*.

This year's Norbert F. Sherman Award was presented to: Kermit M. McKemie for "First Things First: Supermarket Inspection Priorities" *Dairy, Food and Environmental Sanitation*, February, 1996. (Photo unavailable.)



The Crumbine Award

Leon Townsend, (center) representing the Crumbine Award Jury, presented Duane Jackson (left) and Greg Pallaske (right) from the Madison Department of Public Health, Madison, WI with the Crumbine Medallions. 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 enterprise, Inc., and Underwriters Laboratories, Inc.

IAMFES 1997 Affiliate Award Winners

C.B. Shogren Award

Affiliate Council Chair, John Bruhn, (right) presented the Florida Association of Milk, Food and Environmental Sanitarians' President Marian Ryan (left) with the C.B. Shogren plaque and \$100. 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.



Membership Achievement Award for Affiliates

Awarded to: California Association of Dairy and Milk Sanitarians

Best Communication Materials for Affiliates

Awarded to: Michigan Environmental Health Association

Best Education Conference for Affiliates

Awarded to: Ontario Food Protection Association

Best Annual Meeting for Affiliates

Awarded to: Michigan Environmental Health Association

A Message from the Past President



By MICHAEL H. BRODSKY
IAMFES Past President

“Annual Meetings don’t just happen”

Contrary to popular opinion, successful scientific meetings, such as the IAMFES 1997 Annual Meeting held at the Hyatt Grand Cypress Hotel in Orlando, Florida, don’t just happen. Planning for the Meeting usually begins with site selection about 3 to 4 years before the event. Selecting a suitable location which can meet all of the rigorous demands of IAMFES, including availability at a convenient time of

year; number of sleeping rooms at a reasonable price; exhibit space; number, location and size of rooms for scientific breakout sessions, poster sessions, meetings and special social events; and ample opportunity for guest/spouse activities, is no easy task. The office staff does the leg work, comes up with a number of possible locations and the Board of Directors makes the final selection. That’s the easy part!

Putting together a scientific program is the hard part. There are many scientific organizations competing for your time and we have to develop a unique program within our mission to attract our Members. Some of you may think that this daunting task is the sole responsibility of the Program Advisory Committee, but this is just not so. It is true that the Program Advisory Committee puts together the final scientific program; however, it is up to each of you to come up with the ideas for topics and develop the symposia that the Program Advisory Committee can use to formulate the scientific program. The program for the 1998 Annual Meeting, August 16-19, at the Renaissance Hotel in Nashville, Tennessee, is already being assembled. The Program Advisory Committee will finalize the program at its meeting in January 1998. Now is the time to be thinking about topics for the 1999 Annual Meeting to be held at the Hyatt Regency Dearborn in Dearborn, Michigan and the Meeting in Atlanta, Georgia, in 2000. When the Program Advisory Committee meets at the 1998 Annual Meeting, they need to be reviewing your suggestions for ‘99 and beyond.

IAMFES is fortunate to have forged an alliance with the International Life Sciences Institute (ILSI). Since 1993, ILSI scientists have been developing and submitting topics for symposia which have enriched and enhanced the scientific component of the IAMFES Annual Meeting. These programs are of interest to ILSI and that is why they are developed. While the subject matter has broad appeal, the topics may not be your cup of tea. What then is your recourse?

The answer should be clear. If you, your company, organization, or agency has a particular concern or area of scientific interest, then you should develop it as a poster, technical paper, workshop, symposium or round table discussion for presentation at the Annual Meeting. What greater justification can there be for attending the IAMFES Annual Meeting than being a part of it? What greater satisfaction can you have professionally than being actively involved in IAMFES?

If you find yourself complaining that there are no topics of interest for you at the Annual Meeting, you have no one to blame but yourself! If you are unable to come up with ideas independently, get involved with one of the Professional Development Groups (PDG) and help put together a program of interest to the PDG. IAMFES is your professional organization, but without you IAMFES is nothing!

If you have any comments on this column, please don’t hesitate to contact me (E-mail: brodskm@gov.on.ca; Phone: 416.235.5717, Fax: 416.235.5951).

Minutes of the 84th IAMFES Annual Business Meeting July 8, 1997 Orlando, Florida

President-Elect Gale Prince welcomed attendees and introduced President Michael Brodsky.

President's Report: President Brodsky reported on programs and activities of IAMFES over the past year. He cited numerous accomplishments and advancements made during his Presidency. President Brodsky 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.

An Affiliate Charter was presented to representatives from the newly formed Affiliate group in Korea. Choong-il Chung, President, and Deog-Hwan Oh, Director of Korean Association of Dairy, Food and Environmental Specialists, received the Charter from President Brodsky.

Call to Order: The Annual Business Meeting of the International Association of Milk, Food and Environmental Sanitarians was called to order by President Michael Brodsky at 4:18 p.m. at the Hyatt Regency Grand Cypress Hotel in Orlando, Florida. A quorum, as defined by the IAMFES Constitution, was determined to be present.

Moment of Silence: President Brodsky asked those present to stand in silence for a moment in memory of departed colleagues.

Minutes: Minutes from the 83rd IAMFES Annual Business Meeting appeared in the October 1996 *Dairy, Food and Environmental Sanitation*, therefore, it was agreed to forego reading the minutes of the 83rd IAMFES Annual Business Meeting. The minutes were approved as published, on a motion by David Fry and seconded by O.D. (Pete) Cook.

Teller's Report: Robert Tiffin reported results of the election of Jenny Scott for Secretary during the 1997-98 year. Authorization to destroy all

ballots was approved on a motion by O.D. (Pete) Cook and seconded by Harry Haverland.

Executive Director's Report: David Tharp reported on IAMFES office operations and plans for the next year. A financial analysis of revenues and expense for years 1993 through 1996 and budget information for 1997 and 1998 were distributed.

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 and a focus group held at this year's Annual Meeting. A summary of recommendations to the Executive Board was presented.

Foundation Fund Report: Harry Haverland reported on programs supported by the IAMFES Foundation. He announced the Foundation's goal of reaching \$100,000 in the year 2000.

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

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

New Business: There was no new business to be discussed.

Adjournment: President Brodsky adjourned the meeting at 5:10 p.m. on a motion by Charlie Price, seconded by Bob Sanders.

Respectfully Submitted,
Jack Guzewish, Secretary

Highlights of the Executive Board Meetings

July 4-10, 1997

Orlando, Florida

Following is an unofficial summary of Executive Board actions from their meetings at the IAMFES Annual Meeting:

The Board welcomed Incoming Secretary, Jenny Scott and Affiliate Council Chair, Lawrence Roth.

Approved the following:

- Minutes of the April, 1997 Executive Board Meeting.
- Notes of a May 28, 1997 Executive Board Teleconference call.
- Votes taken by E-mail since the April, 1997 Executive Board Meeting.
- The application of Korean Association of Dairy, Food and Environmental Specialist to become an IAMFES Affiliate.
- Charging registration fees to "Member" invited speakers at the Annual Meeting.
- Retirement plan contribution for IAMFES employees.
- Staff position of Administrative Assistant.
- Nominating Committee appointments of Dane Bernard, Randall Daggs, Ann Draughon, Linda Harris, Lawrence Roth, and Michael Wehr.
- Committee Chairs as presented by Gale Prince.
- Group registration discounts for Annual Meeting.
- Conference co-sponsorships.
- Revisions to the Awards Task Force structure.
- Program of sending Executive Board Members to Affiliate meetings.
- Pros and cons of changing the Association name.
- Website establishment.
- *Before Disaster Strikes... A Guide to Food Safety in the Home* pamphlet by Food Sanitation Professional Development Group.
- Support of the Crumbine Award.
- Future Annual Meetings.
- Combining efforts with ILSI.
- Joint efforts with Food Quality Magazine.
- Frank Bryan's concerns.
- Companies to replace IBA, Inc. as the sponsor for the IAMFES Educator Award.
- Financial report for May, 1997.
- Departmental reports from IAMFES staff.
- A letter from Sid Barnard.
- Establishing an IAMFES Fellows program.

Discussed the following:

- Update on international Affiliate joining IAMFES.
- Food Protection Register.
- Future IAMFES Workshops.

Future Executive Board meetings:

- October 26-28, 1997 – Des Moines, Iowa
- February 1-3, 1998 – Nashville, Tennessee
- May 17-19, 1998 – TBD
- August 14-19, 1998 – Nashville, Tennessee

For further information, contact President, Gale Prince or Executive Director, David Tharp.

M**I****N****U****T****E****S**

IAMFES 84th Annual Meeting

July 6 - 9, 1997

Held at the Hyatt Regency Grand Cypress
Orlando, Florida

STANDING COMMITTEES

Dairy, Food and Environmental Sanitation Management

Members Present: O. D. Pete Cook (Chair), Tom Gilmore, Robert Sanders, John Bruhn, Christine Bruhn, Linda Harris, Anna Lammerding, William LaGrange (Scientific Editor), Robert Gravani, P. C. Vasavada

Members Absent: William Coleman, Floyd Bodyfelt, Darryl Paulson, Chris Newcomer

Board Members/IAMFES Staff Present: Michael Brodsky, Jenny Scott, David Tharp, Carol Mouchka, Donna Bahun, Michelle Sproul

Meeting Called to Order: 1:33 p.m.

Recording Secretary of Minutes: O. D. (Pete) Cook

Old Business:

1. The agenda was modified to include discussion on invited letters to the editor, discussion of pages devoted to advertising & articles and an addition of a new series of columns on computers in food safety.
2. Minutes were reviewed including implementation of 1996 recommendations to the Executive Board. The proposed invited column of "In My Opinion" was added to the agenda. A motion by Sanders was made to approve the minutes. J. Bruhn seconded. Minutes were approved.
3. Scientific Editor William LaGrange's Report is attached. He also made a request for help with securing more reviewers for the *DFES* Editorial Board.
4. David Tharp provided a report of the IAMFES office.
 - He reported that the IAMFES office will be installing a new membership software that should provide great assistance to the staff for general operations.
 - He thanked the staff for all their efforts and good work throughout the year.
 - He reported there will not be a dues increase this year.
 - He also explained that advertising sales have been outsourced in hopes of increasing advertising sales.
5. Carol Mouchka presented the Managing Editor's report.
 - She reported that she has appreciated all the efforts she has received from Donna, Michelle, and other staff.
 - She explained that there will be a focus group conducted on Tuesday morning as an effort to gain some insights on members' perspectives regarding *DFES*. The hope is for this to help guide future planning for *DFES*.
 - There was a discussion regarding the breakdown of pages for advertising, articles, and other items. The consensus was that there needs to be a push to get more articles submitted to increase the number per issue.
 - Carol also brought up a request from Doug Powell to post *DFES* abstracts on his Food Safety Network listservice. John Bruhn moved. Gravani seconded. Motion approved.

New Business:

1. A discussion was held about adding a column on food safety and computers. It was agreed that Linda Harris would develop this column and work with the staff to get everything coordinated. Vasavada moved. Lammerding seconded. Approved.
2. There was a discussion on getting the "In My Opinion" column suggested from last year moving. Christine Bruhn and Bob Gravani agreed to help identify potential columnist.
3. A motion was made to recommend to the Board that the Scientific News Editor be established to assist with selecting items for the news section. J. Bruhn moved, Gravani seconded. Approved.

Recommendations to IAMFES Board:

- A. To approve allowing Doug Powell to post *DFES* abstracts on his listserv.
- B. To approve establishing a News Science Editor.
- C. To approve adding a column to *DFES* on computers and food safety to be directed by Linda Harris.
- D. To approve another 3-year appointment of Christine Bruhn, Robert Sanders, and Linda Harris.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 3:00 p.m.

Journal of Food Protection Management Committee

Members Present: Anna Lammerding (Chair), Larry Beuchat, John Sofos, Don Schaffner, Isabel Walls, Jim Dickson, John Bruhn, Don Conner, Ewen Todd

Members Absent: Joe Frank

Board Members/IAMFES Staff Present: Jenny Scott, Michael Brodsky, Michelle Sproul, Carol Mouchka, David Tharp

Meeting Called to Order: 3:10 p.m.

Recording Secretary: Don Conner

Old Business: 1996 minutes approved and accepted

New Business:

Editors' Report: Scientific Co-Editors Larry Beuchat and John Sofos presented the 1996-97 *JFP* Report to the Committee. Size of each issue is increasing. Publishing schedule is improving due to higher quality and improvements at technical editing stage. The number of international submissions has increased. Managing Editor Carol Mouchka updated the Committee on improvements implemented during the past year that will reduce the optimal turn-around time from manuscript submission to publication from 9 to 10 months

to 7 to 8 months. Cost cutting measures are being investigated. Larry Beuchat and John Sofos will work with Carol and Michelle Sproul to update Instructions to Authors.

Based on a reader's input, a suggestion was put forth to include the journal name and volume number on each page of *JFP* articles. The Committee/Editors agreed to include "*JFP*: (Vol.)" in the header of each page. IAMFES intends to establish a Website by the fall of 1997. Future plans to post abstracts of *DFES* and *JFP*, and subscriber-only access to journal articles, are being discussed.

Summary of Activities:

Call to order and introductions. Appointment of Recording Secretary. Approval of 1996 Meeting minutes. Report of Scientific Co-Editors (Larry Beuchat & John Sofos) accepted. Report of Managing Editor (Carol Mouchka) accepted. Suggested format changes discussed. Amount of ads discussed. All recommendations to the Board unanimously approved. Don Conner was elected as Vice-Chair of the committee for 1997-98.

Recommendations to IAMFES Board:

On the issue of advertising in *JFP*, the Committee recommends that:

1. The Table of Contents should always be the first inside page;
2. All advertisements accepted must be minimum of one-half page;
3. Except for inside front cover, all ads will be placed in back of journal.
4. The Committee recommends the re-appointment of Larry Beuchat as Scientific Co-Editor for another 4-year term.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 4:30 p.m.

Program Advisory Committee

Members Present: Stan Bailey, John Cerveny, Michael Cirigliano, Jeff Farber, Sonya Gambrel-Lenarz, Kathy Glass, David Golden, Paul Hall, Wally Jackson, Peter Slade, Susan Sumner (Chair), John Bruhn, Don Breiner

Members Absent: Ann Marie McNamara

Meeting Called to Order: 4:35 p.m.

Recording Secretary of Minutes: Jeff Farber

New Business: Accepted topics for symposia and workshops for 1998 Meeting

Summary: Workshop committee: Jeff Farber, Peter Slade, David Golden

Next Meeting Date: Wednesday, July 9, 1997.

Adjourned: 5:19 p.m.

Proposed Symposium Topics

Dairy:

1. Dairy Computerized Process Control and Recordkeeping
2. Basic Dairy Field Workshop Part I
3. Basic Dairy Field Workshop Part II
4. Dairy Sensory

Seafood:

1. Mandatory Sanitation SSOPs: A Review
2. HACCP Reflections: One Year After Implementation

Meat and Poultry:

1. Factors Affecting Bacterial Attachment to Meat Surfaces
2. Farm to Table: Ecology of Pathogens Associated with Poultry
3. Issues of Concern to the Pork Industry
4. Moving Meat Inspection into the Future
5. Process Design and Validation for Meat Products
6. Verotoxigenic *E. coli*

Food Service:

1. Bringing Science to Restaurant Inspection
2. Foodworker Hand Hygiene: A Factor in Foodborne Illness
3. Pest Control as We Approach 2000

Produce:

1. Food Safety Issues in the Produce Industry

ILSI:

1. ILSI North America-Sponsored Research Update
2. *Cyclospora*
3. Anticipating Risks in the Farm-to-Fork Continuum
4. Antibiotic Resistance—Current Perspective on the Use of Antibiotics in Animal Production

Other:

Proposed Egg Workshops

1. Methodology
2. Risk Assessment
3. Dealing with the Media
4. Responding to Consumer Complaints
5. Crisis Management
6. ISO 900 Guidelines
7. Laboratory Guidelines (Certification)
8. Computer-based Workshop
9. Training Tools and Techniques
10. Microbiological Methods for HACCP: PR Reg

SPECIAL COMMITTEES

Communicable Diseases Affecting Man

Members Present: Frank L. Bryan (Chair), O. D. (Pete) Cook, Jack J. Guzewich, Richard Swanson, Ewen C. D. Todd, Leslie Wisniewski, Mike MacFarland

Members Absent: Bonnie J. Humm, Lee Ann Jaykus, Daniel Maxson, Charles A. Bartleson

Board Members/IAMFES Staff Present: Jack Guzewich

Meeting Called to Order: 8:00 a.m.

Recording Secretary of Minutes: Frank Bryan

Old Business:

The final draft of the 5th edition of the manual "*Procedures to Investigate Foodborne Illness*" has been sent out for peer, final Committee review and grammar editing. Final editing will be done within a few months.

A four-part series on foodborne surveillance, which was developed by a subcommittee, was submitted to the *Journal of Food Protection*, and was published in the May and June issues.

An article on the history of the Committee was done, but there is controversy about its full publication in the *Dairy, Food and Environmental Sanitation* journal. Most of the Committee members recommend that it be published in its present version, subject to routine editing, in either that journal or the *Journal of Food Protection*.

Once again, the prices of the manuals are creeping higher. The price of the manuals has increased throughout the years of their development. The manuals became larger and printing cost increased, but some see them as a means to generate income for the organization. The Committee objects to excessive cost and the continued price increases.

The Committee thanks the Executive Board for supporting subcommittee or editorial group meetings to facilitate development of Committee projects.

New Business:

Discussions have begun on revision of the manual, "*Procedures to Implement the Hazard Analyses Critical Point System*." An outline has been prepared, background material collected, and writing assignments made.

The challenge for the Committee in the future is to continue to develop and revise guidelines on surveillance and prevention of communicable diseases of concern to sanitarians in a timely fashion, but yet to be responsive to providing other forms of advice to members about these issues. Possibilities based on historical activities of the Committee are:

- Reviews of communicable diseases of contemporary concern to sanitarians.
- Epidemiologic reviews of national surveillance data. In recent years, U.S.A. and Canadian

foodborne disease surveillance data have been published by personnel from national health agencies. Waterborne, vector-borne and other disease data are usually published in other journals that focus specifically on diseases, vehicle or vector. The patterns seem to be set.

- Information on prevention and control could be summarized in some form or reviews of the value, limitations and recommendations for improvements prepared, but this could be controversial, and there may be difficulty in reaching consensus.
- Upon request of the Executive Board of IAMFES, the Committee could respond to matters relating to communicable diseases and their surveillance, prevention and control on behalf of the Association. Unless this information is written and reviewed by the Committee membership and approved by the Executive Board, it could not, however, be considered an official statement. Such responses would only be the opinions of the person or persons answering the request, and as such may.
- Short, subject-focused articles have been done and could be continued when there is either interest or demand. These have taken about as much time as the manuals for the authors. Also, these have not had the full interest of Committee members, and have lacked the quality that have been enjoyed with the manuals.
- Procedural manuals are the mainstay of the Committee's activity. Manual development takes considerable time for all members, and there is a limit on what can be done and coordinated. If other projects are to be done, members must become more involved and responsive. Selection of projects must be done wisely.

Summary of Activities and Actions Taken:

Discussions were held on:

- (a) Diseases of concern and activities that should be addressed by the Committee. Discussed, need Executive Board consideration.
- (b) Communications with the Executive Board and IAMFES staff members.
- (c) The history of the Committee and its publication in an IAMFES journal.
- (d) Facilitating publication of our manuals and articles.
- (e) Pricing of the manuals.
- (f) Updates on status of "Procedures to Investigate Foodborne Illness, 5th Edition" and a four-part series on foodborne disease surveillance.
- (g) Initial action on development of the second edition of "Procedures to Implement the Hazard Analysis Critical Control Point System." Discussed revisions needed and gave assignments for writing and revision.

- (h) Suggest symposia on Surveillance of Foodborne Diseases for next year's Annual Meeting.

Recommendations to IAMFES Board:

- (1) Communicate with Committee Chairs about action taken as a result of recommendations made or other Committee-initiated communications.
- (2) Develop a more effective means of communication with Committees. This could be brief individual meetings during the Annual Meeting; it could even replace the breakfast.
- (3) Reconsider the pricing of the manuals so they are sold to all at as low a price as feasible without a financial loss.
- (4) The Committee requests that Professional Development Groups, which relate to the various food industries, review Table F of the HACCP manual and provide input for revision on hazards, critical control points, control criteria and monitoring procedures for the Committee to use. These can be sent directly to the Chair of the Committee on Communicable Diseases Affecting Man or to the Executive Director.
- (5) Combine the four-part series on surveillance of foodborne diseases, add a cover and sell it at a nominal price and promote its availability.
- (6) Committees need a medium, for communication to Members and other interested persons about technical aspects related to their objectives. *Dairy, Food and Environmental Sanitation* could serve this purpose, but the *Journal of Food Protection* could offer this service if page charges were waived.
- (7) Promote the availability of the Manuals in columns and articles, during discussions with colleagues, in training courses, at professional meetings, through advertisements in journals of related associations, and in other appropriate ways.
- (8) The IAMFES staff should sell the manuals at the Annual Meetings.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 6:00 p.m.

Committee on Sanitary Procedures

Members Present: Dan Erickson (Chair), Ron Schmidt, Member; Randy Daggs, Observer; Charles Price, Advisor; and Joe Huseman, Observer

Members Absent: Sherry Roberts, Dale Chilton, Randy Chloupek, Dale Cooper, Richard Gleason, Everett Johnson, Steven Sims, Stanley Welch, Don Wilding, and Phillip Wolf

Board Members/ IAMFES Staff Present: Gale Prince

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

Recording Secretary of Minutes: Dan Erickson

Old Business:

- (1) Recap of May '97 3-A Sanitary Standards Annual Meeting, Milwaukee, WI. Representative from NSF, observation of 3-A process; ANSI certification of 3-A standards; discussion of metals other than stainless steel; and cleanliness study protocols should be better outlined.
- (2) Next scheduled meeting October 29, 1997 at Worldwide Food Expo, McCormick Place, Chicago, IL. This meeting is also held in conjunction with an IMS rating officer training seminar held at the same time.
- (3) Updated Sanitary Standards to IAMFES library. Standards being mailed from IAMFES are not always the most current edition. (What can CSP do to help situation?) Mr. Prince stated that he would report back to the Committee Chair if assistance was needed.

Recognition of contributing Members of IAMFES with regard to the long-time commitment which promotes consistency in standards development. A list will be prepared to present to IAMFES to recognize those Members who have served.

Recognition of past members of committee. (List of past membership needs to be obtained.)

New Business:

Relay established committee name to IAMFES and its connection with the 3-A Sanitary Standards development organization. Committee name should remain the IAMFES Committee on Sanitary Procedures.

Summary of Activities and Action Taken:

No official actions were taken. No submission for symposia made at this time.

Recommendations to IAMFES Board:

As this committee interacts directly with the 3-A Sanitary Standards Committees and U.S. Public Health Service, it is a unique and large part of what IAMFES does as the exclusive publisher of the 3-A Sanitary Standards and Practices. It is important that IAMFES support and publicly recognize the work and accomplishments of this committee.

Next Meeting Date: October 29, 1997, Chicago, IL.

Meeting Adjourned: 2:30 p.m.

PROFESSIONAL DEVELOPMENT GROUPS

Applied Laboratory Methods Professional Development Group

Members Present: Beth Johnson, James S. Dickson, Shelagh McDonagh

Members Absent: Mary Ann Barrow, Donna Christianson, Musa Dahdal, Lee Ann Jaykus, Lee Jensen, Claire Lee, Bob Marshall, Doug McDougal, Linda Polgin, Lawrence Roth, Mary Robart

Board Members/IAMFES Staff Present: Michael Brodsky

Meeting Called to Order: 1:45 p.m.

Recording Secretary of Minutes: S. McDonagh

Old Business:

Standard Methods for Examination of Dairy Products Revision—No information has been received from APHA. Symposium proposal for 1997 was covered under another proposal.

New Business:

Acceptance of New Method for compositing flat lids for testing. We discussed a resolution to discontinue container testing. Discussed ways to revitalize the Applied Lab Methods Prof. Dev. Group. (1) Identify members working with lab methods specifically; (2) send a letter to these people seeking their participation; (3) send an agenda with meeting topics ahead of time; and (4) establish better link between AOAC and this committee.

Summary of Activities and Action Taken:

Michael Brodsky will contact Mary Robart to determine if she is able to be the new Chair. If not, James Dickson has volunteered to be the Chair and Shelagh McDonagh volunteered to be Vice Chair.

Recommendations to IAMFES Board:

To reschedule this committee meeting prior to the other conflicting groups including Poultry Quality & Safety, the Meat Quality & Safety, and Seafood Quality & Safety and reduce time to 1 hour, after which Members could attend other groups.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 3:00 p.m.

Audio-Visual Library Professional Development Group

Members Present: Thomas Gilmore (Chair), Alice Haverland, Harry Haverland, P. C. Vasavada, Ron Schmidt

Members Absent: Sidney Barnard, Bob Sanders, John Christy, Charles Felix, Debbie Cherney, Thomas McCaskey, David McSwane, Marsha Robbins

Old Business:

IAFIS Foundation grant was discussed. The committee will send a letter to John Martin (IAFIS President) outlining history of Lending Library, justification allocation of funds, one proposal will include offer of Sustaining Membership. IAMFES support will be publicized.

New Business:

Discussed current holdings and usage data, backlog of requests much improved. Reevaluation of materials

5 years and older ongoing. Discussed problems with mail out and return of materials. Discussed suggestions for acquiring new materials.

Summary of Activities and Action Taken:

1. Accepted staff budget recommendation 1997-1998 – \$9,000.
2. John Bruhn and Gale Prince will develop a formal proposal to be presented to the IAFIS Foundation Board for partial funding and AV library.
3. Explore the copying and donating of materials for overseas requests.
4. Obtain the Silliker tapes.
5. IAMFES staff will compile, with committee help, a list of providers of AV materials.

Recommendations to the Board:

1. IAMFES Board approved FY 1997-1998 budget of \$9,000.
2. Continue to pursue the IAFIS Foundation partial funding of the AV Lending Library.
3. Thanks to IAMFES Staff for their excellent work.

Dairy Quality and Safety Professional Development Group

Members Present: Gaylord Smith (Acting Chair), Don Kimball, Kenneth Kirby, Wally Jackson, Eugene Frey, Daniel Erickson, Helene Uhlman, Joseph Huseman, Charles Price

Members Absent: Sidney Barnard, Jeffery Bloom, Donald Brienner, John Burke, Randy Daggs, James DeTolla, Ellen Fitzgibbons, C. R. Gilman, Ted Hickerson, R. E. Kastendieck, Ronald Weiss, Darwin Kurtenbach, W. Thomas Moore, Terry Musson, Paul Nierman, Allen O'Hara, Allen Saylor, Joe Scolaro, Duane Spomer, Gary Trimmer, Carl Webster, Kenneth Anderson, Matthew Andrews, Richard Bakka, Vince Mills, Chris Newcomer

Board Members/IAMFES Staff Present: Gale Prince, Jack Guzewish, Rick McAtee

Meeting Called to Order: 10:05 a.m.

Recording Secretary of Minutes: Donald Kimball

Old Business: (1996 Minutes Approved—Hand outs.) (1) Progress report on tank truck guideline/manual, etc. given by Gaylord Smith; joint effort with IAMFES, DPC, IMS, FDA, USDA, OSHA & DFISA/3A. Progress slow—maybe a 1st draft by fall; (2) Committee mixed but really noncommittal on term lengths for Chairpersons; (3) Charles Price stated that no progress has been made on "A Dairy Fieldman's Pocket Guide" and would like some help. Ken Kirby volunteered.

New Business: An announcement of a PanAmerican Conference on Mastitis Control and Milk Quality was circulated. Discussed in detail the proposals for Dairy Sessions at the 1998 Meeting of IAMFES (Farm & Plant). Gale Prince asked the committee; "Does IAMFES have the right name?" and asked for feedback.

Summary of Activities and Action Taken:

To present to the PAC Committee for 1998 program: (1) A symposium proposal from Joseph F. Schlessler, FDA, called Computerized Process Control and Recording in the Dairy Industry (1/2 day); (2) A symposium proposal drafted at this meeting for a farm-related workshop directed to plant and regulatory field service persons.

Recommendations to IAMFES Board:

(1) That Gaylord Smith be the new Chairperson and that a Vice Chairman/Sec. also be named; (2) That the Sub-committee on "Education Development" be eliminated; (3) Donald Briener is representing the committee on the PAC Committee and we request this continue; (4) Recommend the executive board ask NMP not to meet at the same time as the Dairy Committee.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 11:55 a.m.

Food Sanitation Professional Development Group

Members Present: Harry Haverland (Chair), Peter Snyder, Gloria Swick

Members Absent: Howard Malberg, Tom Schwarz

Board Members/IAMFES Staff Present: Rick McAtee

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

Recording Secretary of Minutes: Kathy Jones

Old Business:

Final Publication of "Before Disaster Strikes...A Guide to Food Safety in the Home." Praised Committee for excellent work on this publication.

New Business:

Discussion on handwashing—what the committee wanted to do, target audience, development and distribution of an IAMFES approved guideline for handwashing.

Summary of Activities and Action Taken:

Committee agreed to review/revise "Before Disaster Strikes...A Guide to Food Safety in the Home" every five years. Peter Snyder will write an editorial requesting feedback on his research on handwashing from IAMFES Members. With Board approval, this will appear in an upcoming journal.

Recommendations to IAMFES Board:

The IAMFES Board will send complimentary copies of "Before Disaster Strikes...A Guide to Food Safety in the Home" to key organizations who could benefit from this information. The Board accepts Peter Snyder as Chair of the Food Sanitation Committee and Alice Haverland as Vice Chair.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 3:30 p.m.

Meat Safety and Quality Professional Development Group

Members Present: Robert Tiffin (Chair), Ivan Linjacki, Robert Charleois, Jim Dickson, Margaret Hardin, Isabel Walls, Tom McMeekin, Jenny Scott, Dane Bernard, Larry Mendes, Jean Allen, Kathy Glass, John Cerveny, Anna Lammerding, Lynn McMullen, Frances Nattress

Board Members/IAMFES Staff Present: Michael Brodsky, Rick McAtee

Meeting Called to Order: 10:05 a.m.

Recording Secretary of Minutes: Kathleen Glass

Old Business: None

New Business:

Introduction of new Chair for 1997-99, Dr. Ivan Linjacki. Selection of new Vice Chair: Dr. James Dickson, Iowa State University; Jim will serve as the Vice Chair for two years and will then move into the Chair position.

Summary of Activities and Action Taken:

Three symposia were developed and will be submitted to the Program Advisory Committee for consideration to be presented at the 1998 Annual Meeting.

1. Potential Foodborne Pathogens Associated with Pork; Margaret Hardin, Organizer
2. Process Design and Validation for Meat Products, Robert Charlebois and Anna Lammerding, Organizers
3. Moving Meat Inspection into the Future-Equivalency; Ivan Linjacki and Tom Ross, Organizers

Recommendations to IAMFES Board:

Recommend that Poultry Safety and Quality and Meat Safety and Quality Committee meetings not be held at the same time. Recommend that there be a liaison between the two committees to coordinate symposia.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 12:00 p.m.

Microbial Food Safety Risk Assessment Professional Development Group

Members Present: Allan Hogue (Chair), Michael Cassin, Don Schaffner, Frank Yianas, Pete Snyder, Deog Hwan Oh, Roberta Morales, Paul Vanderlinde, Alex von Holy, Suzanne V. Gerwen, Servé Notermans, Anna Lammerding, Tom Ross, Tom McMeekin, Richard Whiting, Ewen Todd, Jenny Scott, Lee Ann Jaykus

Members Absent: Robert Buchanan, Kathy Christiansen, Musa Dahdal, Trish Desmarchelier, Jeff Farber, Bob Hartog, Maria Lordes Costarrica, Arthur Miller, Lisa Nesbitt, Chris Newcomer, Pekka Pakkala, Nina Parkinson, Morris Potter, Bohdan Slabyi, David Vose, Isabel Walls, Marion Woodridge

Board Members/IAMFES Staff Present:

Jack Guzewich

Meeting Called to Order: 4:30 p.m.

Recording Secretary of Minutes: Roberta Morales

Old Business:

The minutes from last year's meeting were approved. The mission and goals from the minutes were adopted by the group.

New Business:

Ideas for a symposium on risk assessment were discussed. The group reached a consensus that issues and dilemmas in risk management is a topic that should be proposed for a symposium in 1998. Some of the aspects of this topic include the following: acceptable risk (how do we define what is safe?), due diligence, equivalence, and prioritization.

The group discussed a workshop in conjunction with the '98 IAMFES meeting and decided to propose a comparison of risk assessments of *Salmonella enteritidis* in eggs and egg products. Canada, U.S., and U.K. have risk assessments in progress or completed. The workshop will compare the technical approaches used and the results and conclusions reached.

Summary of Activities and Action Taken: Two subcommittees were appointed to continue developing ideas for a symposium and workshops for IAMFES '98. Pete Snyder, Frank Yianas, Jenny Scott, and Servé Notermans will propose a symposium on Risk Management: Issues and Dilemmas. Allan Hogue, Don Schaffner, Lee Ann Jaykus, Richard Whiting, Roberta Morales, Mike Cassin, and Ewen Todd will propose a workshop on *Salmonella enteritidis* in shell eggs and egg products.

Recommendations to IAMFES Board: IAMFES should consider identifying IAMFES Members involved in Risk Assessment in the Food Protection Register to facilitate information exchange.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998 (subgroups will be meeting throughout the year).

Meeting Adjourned: 6:20 p.m.

Poultry Safety and Quality Professional Development Group

Members Present: Stan Bailey, Don Conner, Nelson Cox, Joe Huseman, Charles Page, Brian Sheldon (Chair), Susan Sumner

Members Absent: Neal Apple, Hillary Fagan, Eric Line, Chris Newcomer, Amy Waldroup, Norman Stern

Board Members/IAMFES Staff Present: Robert Brackett, Rick McAtee

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

Recording Secretary of Minutes: Brian Sheldon

Old Business:

- A. Reviewed charges of Professional Development Groups.
- B. Overview of "Mega Reg" (HACCP) presented by Brian Sheldon and Don Conner; training efforts of Texas A & M International HACCP Alliance and U.S. Poultry & Egg Association reviewed; Critical Control Points as suggested by USPEA and National Advisory Committee were discussed for primary processing (final washer, chiller; scalding, final washer, chiller, respectively); an increase in the number of Process Deficiency Reports issued by FSIS Inspectors has been seen; *E. coli* and *Salmonella* performance standards were discussed; questions were raised by the group on the sampling protocol recommended by FSIS.
- C. Lab Certification: The group discussed the withdrawal of USDA Certification of poultry labs; symposium at this year's Meeting will address lab certification (Tuesday a.m., S25, Russell Flowers).

New Business:

- A. Egg Chilling Regulations: A Summary was presented on the recent activities of the United Egg Producers in taking their fight for a national refrigeration law for eggs to Capitol Hill. The UEP requested Congress to prohibit FSIS from spending any funds to develop regulations, rulemaking or programs relating to shell eggs until the 1991 egg refrigeration bill is implemented (45°F ambient temperature required for eggs during transportation and storage to prevent *Salmonella* growth).
- B. Food Safety Initiative: The Clinton Administration's 5-point "Food Safety Initiative—From Farm to Table" was presented and discussed.
- C. 1998 Symposia Recommendations
 1. Title: "Farm to Table—Ecology of Pathogens Associated with Poultry."
 2. Pathogens to be discussed include *Salmonella*, *Campylobacter*, *Listeria*, *Clostridium perfringens*, Verotoxigenic *E. coli*, plus a wrap-up on USDA (FSIS) baseline studies.

Recommendations to IAMFES Board:

Our group recommends that in future years the meetings of the Poultry Safety and Quality and Meat Safety and Quality Professional Development Groups not meet at the same time and that instead of separate groups, one separate muscle foods PDG be formed to create a critical mass of participants.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 11:50 a.m.

Seafood Safety and Quality Professional Development Group

Members Present: Yao-wen Huang, Roy Martin (Chair), Custy Fernandes, Ann Draughon, Carlos Abeyta, Jr. and Deog Hwan Oh

Members Absent: Ngoc-Lan Dang, Bob Hartog, John Kuenberg, Mike Moody, Ranzell Nickelson, Bob Price, Donn Ward

Board Members/IAMFES Staff Present: Rick McAtee

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

Recording Secretary of Minutes: Roy Martin

Old Business:

Review of this year's symposium: Implementation in the Seafood Industry: Are You Prepared?

New Business:

Symposium for next year: (1) HACCP Reflections after Implementation; (2) SSOP—A Review of the Eight Mandatory Requirements.

Summary of Activities and Action Taken:

Discussed Emerging Issues: Pfisteria—A Potential Problem?; Globalization—Effects on Seafood Safety; International Regulatory Equivalency; and Seafood Oriented Videos.

Recommendations to IAMFES Board:

Support irradiation as a technology that should be approved for certain seafood.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 2:55 p.m.

Viral Foodborne Disease Professional Development Group

Members Present: Lee-Ann Jaykus (Chair), Ivan Linjacki, Jack Guzewich, Ann Draughon, Dan Maxson, Mark Sobsey (by proxy)

Members Absent: Mosfer Al-Dagal, Bert Bartleson, Dean Cliver, Jim Hartman, Christine Moe

Board Members/IAMFES Staff Present: Ann Draughon, Jack Guzewich

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

Recording Secretary of Minutes: Lee-Ann Jaykus

Old Business:

Approval of 1996 minutes. Review of 1997 Symposium agenda.

New Business:

Discussion to petition IAMFES Executive Board to include parasitic agents in the PDG charge. Discussion of Symposium topic for 1998 Annual Meeting; Discussion of detection methods workshop for subsequent meetings; Request for Fact Sheet on Viral Foodborne Diseases for publication in *DFES*.

Summary of Activities and Action Taken:

The committee put together a proposed symposium for the 1998 Annual Meeting titled "Viral & Parasite Pathogens in Fresh Produce." The need for a workshop on detection methods for these emerging foodborne agents is recognized; however, the committee decided to wait 1 to 2 years until methods are more fully developed. Lee-Ann Jaykus and Dan Maxson will work together to prepare a fact sheet on foodborne viruses for *DFES*.

Recommendations to IAMFES Board:

The Viral Foodborne Disease PDG recommends incorporation of parasitic agents into the committee charge, thereby changing the PDG name to Viral & Parasitic Foodborne Disease Group.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 4:00 p.m.

TASK FORCES

Constitution and Bylaws Task Force

Members Present: Charles D. Price (Chair), Randall A. Daggs

Members Absent: Alan Saylor

Board Members/ IAMFES Staff Present: Robert Brackett, David Tharp

Meeting Called to Order: 11:10 a.m.

Recording Secretary of Minutes: Charles Price

New Business:

The first proposal was made at the request of the former Executive Director and changed established time guidelines for appointment of committees, Professional Development Groups, Task Forces and Support Groups for ease in completing business associated with the Annual Meeting.

The second proposal dealt with changing Article 5, Section 2D of the Bylaws to specify that sealed ballots be used during election of officers and that sealed ballots be forwarded to the tellers committee.

Executive Director David Tharp reported in May that the Board had not yet determined which direction they would propose for committee appointments and that the Board felt they did not have time to propose amendments this year.

The Committee discussed the possibility of adding criteria to the Bylaws that would require affiliate members to have Constitution and Bylaws that did not conflict with the goals and mission of IAMFES. No action was proposed at this meeting.

No proposed amendments were presented to IAMFES Members in advance of this meeting.

Proposals under consideration will be held over for presentation before the next Annual Meeting.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 12:00 p.m.

Education Task Force

Members Present: Bruce Langlois (Chair), Jennifer Quinlan, Dorothy Wrigley, Joe O'Leary

Members Absent: Joseph Andrade, Carl Custer, Linda Harris, Marilyn Lee, David McClure, Tara Renner, O. Peter Snyder, Jr., and Margy Woodburn

Board Members/IAMFES Staff Present: Jack Guzewish

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

Recording Secretary of Minutes: Bruce Langlois

Old Business:

Discussed the status of recommendations made at the 1996 Meeting.

New Business:

Discussion of food safety educational materials presently available on the web and how to categorize them as resources for teachers.

Summary of Activities and Action Taken:

1. Increase the active membership of the committee.
2. Develop guidelines for categorizing food safety educational materials as to content, age group and cost.
3. Begin to categorize the food safety education materials available on the web.
4. Establish a site under IAMFES web page to list the websites of the food safety education materials categorized.

Recommendations to IAMFES Board:

1. Establish a site under IAMFES web page to list the websites of food safety education materials.
2. Develop a list of IAMFES Members willing to serve as resources for teachers.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 3:00 p.m.

SUPPORT GROUPS

Affiliate Council

Members Present: Lawrence Roth, Alberta; John Bruhn (Chair), California; Beth Johnson, Carolinas; Marian Ryan, Florida; David Fry, Georgia; Charles Price, Associated Illinois; Helene Uhlman, Indiana; Deog-Hwan Oh, Korea; Randy Hanson, Iowa; Fred Weber, Metropolitan; Ron Holben, Michigan; Paul Nierman, Minnesota; Dianna Pasley, Missouri; Fred Cook, Nebraska; Steven Murphy, New York; Gloria Swick, Ohio; Jean Allen, Ontario; Eugene Fry, Pennsylvania; Ruth Fuqua, Tennessee; Janie Park, Texas; Joseph Muller, Washington; Randy Daggs, Wisconsin

Guests Present: Joe Huseman, Georgia; Dan Erickson, Minnesota; Craig Weaver, Pennsylvania

Board Members/IAMFES Staff Present: Michael Brodsky, Robert Brackett, Gale Prince, Jack Guzewich, Jenny Scott, Ann Draughon, Michelle Sproul, David Tharp, Carol Mouchka

Meeting Called to Order: 7:00 a.m.

Recording Secretary of Minutes: Lawrence Roth
Old Business:

Moved by Helene Uhlman, seconded by Paul Nierman to approve the minutes of the 1996 Affiliate Council Meeting as printed in the Oct. 1996 *DFES*. Motion carried.

New Business:

Chair Bruhn introduced two IAMFES staff members: David Tharp, Executive Director, and Michelle Sproul, Publication Assistant and Affiliate Liaison.

1. David Tharp discussed the IAMFES staff positions and named the individuals in them. He discussed staff's efforts at streamlining the journal publication process.
2. Board approval of a new member database to be installed this fall.
3. In the process of updating computer equipment.
4. Membership retention and recruitment plans are being revised.
5. Establishing a website after Sept. 1997.

Michelle Sproul discussed:

1. Plans to continue publication of the Affiliate newsletters.
2. Need materials from Affiliates for the *DFES* Affiliate News column.
3. Availability of IAMFES printed material for display and distribution at Affiliate meetings.
4. IAMFES Food Protection Register.

IAMFES President's Report:

Chair John Bruhn introduced IAMFES President, Michael Brodsky. Michael presented a report which included:

1. Executive Board satisfaction with the Staff's activities and work performance.
2. Registration of the IAMFES name for a website.
3. Crumbine Award being given International Status. 1998—available to Canadian Health Authorities; near future—available internationally.
4. Introduction of the new Affiliate Representative, Dr. Deog-Hwan Oh, from the Korean Affiliate that will be officially recognized as a new affiliate at this year's Business Meeting.
5. Planned recovery of IAMFES office and staff costs for Annual Meetings.
6. Future Annual Meeting sites: 1998 Nashville, Tennessee; 1999 Dearborn, Michigan; 2000 Atlanta, Georgia.
7. Introduction of Jenny Scott as the Incoming Secretary.

8. Availability of Board Members to speak at Affiliate Meetings.
9. Plan to discuss with Members the appropriateness of name change for IAMFES.

Affiliate Delegate reports:

All affiliate delegates in attendance presented a report on the activities of their affiliates for 1996-97. Discussion which followed the reports indicated:

1. Potential of linking websites of affiliates with the IAMFES site.
2. IAMFES regional workshops and co-sponsored scientific meetings to allow members unable to travel to our Annual Meeting to benefit from IAMFES Membership. Meetings should complement Affiliate Meetings and should not be competitive.
3. Need to ensure that Annual Meeting technical programs will include topics of interest to a wide variety of Members. "Hot Topics" section is intended to provide information of current interest to members.

Affiliate Council Secretary:

Moved by Charles Price; seconded by David Fry to nominate Elizabeth (Beth) Johnson (Carolinas delegate) for the position of Affiliate Council Secretary for 1997-98. Motion carried.

Moved by Helene Uhlman; and seconded by Ruth Fuqua that nominations cease. Motion carried.

Moved by David Fry, and seconded by Janie Park that Beth Johnson be elected to the position of Affiliate Council Secretary for 1997-98 by unanimous vote. Motion carried.

Award Committees:

John Bruhn presented a proposal for restructuring the Association Awards Committee. They were as follows:

- I. Association Awards Committee
 - (a) The Association Awards Committee consists of the Chair of the Affiliate Council, the Immediate Past Chair of the Affiliate Council, (Chair), and the Secretary of the Affiliate Council.
 - (b) The Association Awards Committee is responsible for overseeing the progress and activities of the individual awards committee, including the *Sanitarian Award*, the *Educator Award*, the *Harold Barnum Industry Award* and the *Harry Haverland Citation Award*.
 - (c) The Association Awards Committee will determine the affiliate awards.

II. Individual Awards Committees

- (a) There will be a committee for each of the following awards: (1) *Sanitarian Award*; (2) *Educator Award*; (3) *Harold Barnum Industry Award*; (4) *Harry Haverland Citation Award*.
- (b) A committee member, except the chair, will serve anonymously and in rotation for three years. On the fourth year the member will serve as the Committee Chair. The IAMFES President-Elect appoints a new Member to each committee annually in consultation with the Affiliate Council Chair.

The Affiliate delegates were in general agreement with the proposal provided that the awards committee be representative of the membership at the Affiliate level. To encourage this, volunteers and recommendations for membership will be received from the Affiliate Council delegates.

John Bruhn proposed a new Affiliate Membership Achievement Award to complement the existing Membership Award which is based on the greatest numerical increase in IAMFES Members within an affiliate from June 1 through May 31.

The new Membership Award would be given to the Affiliate showing the greatest percentage increase in IAMFES Members for the twelve month period from May 1 through April 30.

Moved by Helene Uhlman; and seconded by Charles Price to present the New Membership Award for Executive Board approval. Motion carried.

Award Winners:

To recognize the excellent contributions and activities of the affiliates, John Bruhn encouraged delegates to submit their affiliate materials for consideration of next year's awards.

He announced this year's award winners who are:

- Membership Achievement Award—California
- Best Communication—Michigan
- Best Education Conference—Ontario
- Best Annual Meeting—Michigan
- C. B. Shogren Award—Florida

John Bruhn presented a gavel to Lawrence Roth, symbolizing the beginning of his term as Chair. Lawrence extended the Affiliate Council's appreciation to John for his service as Affiliate Council Secretary and Chair. There being no further business, a motion for adjournment was called. Moved by Paul Sherman; seconded by Fred Weber.

Recommendations to IAMFES Board:

To establish a second affiliate membership award based on a percentage increase.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 10:00 a.m.

Foundation Fund Support Group

Members Present: Michael Brodsky, Harry Haverland (Chair), Gale Prince and Earl Wright

Members Absent: C. Dee Clingman, Bob Marshall

Board Members/IAMFES Staff Present: Robert Brackett, David Tharp, Lisa Backer

Meeting Called to Order: 11:05 a.m.

Recording Secretary of Minutes: Harry Haverland

Old Business:

Each of the activities currently being supported by the Foundation Fund were reviewed in light of current funding and existing protocols.

Ivan Parkin Lecture: Very positive comments.

Lending Library: Substantial improvement in overall operations—Valuable source to the Membership. Developing Scientist/Poster Program—very well received—30 plus participants this year.

Shipment of Journals to FAOUN, Rome, for further distribution to developing countries. This is a well received activity and shows our generosity in trying to improve the world's food supply.

Speaker(s) Travel: There will continue to be a need to support selected speakers on a first-come, first-served basis. Criteria are being utilized for selection.

Crumbine Award: Continued support. This award is in the process of expanding to Canada, then becoming global. Minutes of the 1996 Meeting were approved.

New Business:

Budget - 8/31/98

Revenue:

Interest income	\$4,500.00
Contributions/Sustaining Members	10,500
Other	1,000
Total Revenue	\$16,000

Expense:

Postage/Shipping	700
Speaker Travel (Transfer of funds 1996 \$1,000)	3,000
Awards	2,500
Ivan Parker Lecture	1,800
Lending Library (Increase \$1,000)	9,000
Crumbine Award	1,000
	\$18,000
	(\$2,000)

Recognizing contributors to the Foundation Fund. For the first time the names of contributors were published in the *DFES* journal. It was agreed that this practice should continue and in addition, a list of the contributors and sustaining members be included in the 1998 registration packets.

The slogan \$100,000 in 2000 was introduced and was well received. The idea of a silent and live auction was explored as a means of meeting the year 2000 goal. The 1998 Annual Meeting would serve as an evaluation of the effectiveness of this type of fundraiser. Articles would be donated to the Foundation Fund for the auction. All proceeds go to benefit the Membership through the Foundation.

Summary of Activities and Action Taken:

The programs currently being funded will continue at the budgeted level. The slogan \$100,000 in 2000 will become a "buzz phrase" for the next three years. Individual donations will still be encouraged and the names published periodically. The staff at the IAMFES office is doing a great job on behalf of the Foundation Fund. Excellent discussion occurred throughout the Meeting.

Recommendations to IAMFES Board:

1. In the future a list of all the supporters of the Foundation Fund, including Sustaining Members, be inserted in each registration packet.

2. The protocol of annually identifying supporters of the Foundation Fund in the *DFES* journal be continued.
3. For the next three years the Foundation Fund's slogan will be \$100,000 in 2000. Periodically a thermometer of progress will be published.
4. To meet the Foundation's goal in 2000, a silent/live auction be permitted during each Annual Meeting.
5. The Foundation Fund budget of \$18,000 for the year ending 08-31-98 be approved. This includes \$1,000 in support of the Crumline Award.
6. Express the Foundation Fund's appreciation for the work carried out by the staff.

Next Meeting Date: IAMFES Annual Meeting in Nashville, August 1998.

Meeting Adjourned: 12:00 p.m.

IAMFES Procedure Manuals

Procedures to Investigate Arthropod-borne and Rodent-borne Illness

Contains step-by-step procedures for use in investigating cases and outbreaks of suspected or confirmed arthropod- and rodent-borne illnesses and in maintaining and improving surveillance of vector-borne disease.

Procedures to Investigate Foodborne Illness

A guide for public health personnel who investigate reports of illnesses alleged to be foodborne related. This guide is based on epidemiologic principles and investigative techniques found to be effective in determining causal factors of disease outbreaks. Designed to improve the quality of investigation of outbreaks and disease surveillance.

Procedures to Investigate Waterborne Illness

A guide for public health, environmental protection, engineering, and other personnel who investigate reports of illnesses alleged to be waterborne related. Based on epidemiologic principles and investigative techniques found to be effective in determining causal factors of disease outbreaks. Designed to improve the quality of investigation of outbreaks and disease surveillance.

Procedures to Implement the Hazard Analysis Critical Control Point System

Describes procedures to implement the hazard analysis critical control point (HACCP) system designed to ensure food safety by reducing the likelihood of foodborne illness. Developed for use by food safety, regulatory official and food industry personnel who have knowledge of food microbiology and technology and are concerned with food safety.

See pricing information and order form on Page 699 or contact:

The International Association of Milk, Food and Environmental Sanitarians
6200 Aurora Ave., Suite 200W
Des Moines, IA 50322-2863
Phone: 515.276.3344 or Fax: 515.276.8655
E-mail: iamfes@iamfes.org

IAMFES 1997 Annual Meeting

EXHIBITORS

3-A Sanitary Standards

Symbol Council

3020 Bluff Rd.
Columbia, SC 29209
Phone: 803.783.9258
Fax: 803.783.9265

The 3-A Symbol Council authorizes the voluntary use of the 3-A Symbol for use on dairy equipment (1) assures processors that equipment meets sanitary standards, (2) provides accepted criteria to equipment manufacturers for sanitary design and (3) establishes guidelines for uniform evaluation and compliance by sanitarians.

3M Microbiology Products

3M Center, Bldg. 275-5W-05
St. Paul, MN 55144
Phone: 800.228.3957
Fax: 612.737.1994
Website: www.mmm.com

Control costs and reduce waste with the help of 3M Microbiology Products. Let us show you how 3M Petrifilm Plates and 3M Redigel Tests can make your laboratory more productive and your business more profitable.

3M's expanding line of microbiology products include Petrifilm Plates for aerobic, coliform, *E. coli*, *Enterobacteriaceae*, yeast and mold, high-sensitivity coliform and Series 2000 rapid coliform count plates. 3M also features Redigel Orange Serum test, Redigel MRS test, Redigel Baird-Parker test and Redigel Potato Dextrose with Antibiotic test among others.

Now 3M also provides additional products to help you manage your lab resources more effectively: the new 3M Electronic Pipettor and Tips is pre-programmed for diluting and pipetting onto Petrifilm plates for greater efficiency and precision. And the 3M Laboratory Equipment Start-up Packages let you do micro testing without a macro investment.

ABC Research Corporation

3437 S.W. 24th Ave.
Gainesville, FL 32607
Phone: 352.372.0436
Fax: 352.378.6483
Website: www.abcr.com

Full service laboratory providing expert analytical, research and consulting services in areas of chemical and microbiological quality, safety and preservation of foods. Microbiological services include enumeration, isolation and identification of pathogen and spoilage organisms; safety and stability assessments; and inoculated pack studies. Investigations of the effects of microbiological barriers on microbial growth and toxin production through challenge studies in products prepared either by you or in our USDA-inspection pilot plant. Process validation studies; efficacy studies on food additives, sanitizers and disinfectants; and shelf life evaluations are all offered. HACCP training and plant sanitation inspections tailored to your needs. Using a multi-disciplinary approach, we provide rapid solutions for processing problems or consumer complaints.

Advanced Instruments, Inc.

Two Technology Way
Norwood, MA 02062
Phone: 800.348.0202
Fax: 617.320.8181
E-mail: mail@aitests.com
Website: www.aitests.com

Advanced Instruments displays cryoscopes for detection of added water in milk, and the Fluorophos® ALP Test, a three minute quantitative alkaline phosphatase assay that detects as little as 0.006% raw milk contamination in finished dairy products, the Fluorophos® ACP Meat Test, a NEW three-minute acid phosphatase assay to determine end-point temperature in poultry and beef products, and the BetaScreen tests for U.S. and International use to determine the presence of antibiotic drug residues in milk.

American Egg Board

1460 Renaissance Dr.
Park Ridge, IL 60068
Phone: 847.296.1007
Fax: 847.296.7046
E-mail: aeb@aeb.org
Website: www.aeb.org

American Egg Board, the National Egg Promotion Organization, displayed the following materials: egg safety and quality posters, brochures on egg care and

handling, camera-ready egg safety and handling materials, brochures on *Salmonella* and egg safety, egg product materials, egg preparation information, and video ordering information.

Applied Research Institute

P.O. Box 810
Newtown, CT 06470
Phone: 888.324.7900
Fax: 888.324.7911

Applied Research Institute has supplied the dairy, food and environmental industries with innovative testing and laboratory products for nearly 50 years. The Rutgers Pasteurization and Scharer Rapid Phosphatase Test Kits, Gerber Babcock Fat Test, Glassware, Chemical Reagents, California and Wisconsin Mastitis Tests, Vials and Sampling Jars, Dairy Thermometers, Hormone/Antibiotic/Mycotoxin Tests, and general laboratory accessories are available in ARI's "1997 Sourcebook." The product line is continually being expanded.

Atkins Technical, Inc.

3401 S.W. 40th Blvd.
Gainesville, FL 32608
Phone: 352.378.5555
Fax: 352.335.6736

Atkins Technical is a manufacturer of hand-held digital thermometers, recorders, and temperature probes for the food industry. The booth will feature water-tight thermometers and Record-On-Demand thermometers, ideal for use in HACCP programs.

Becton Dickinson Microbiology Systems

7 Loveton Circle
Sparks, MD 21152
Phone: 410.316.4472
Fax: 410.316.4906

Becton Dickinson Microbiology Systems has merged with Difco Laboratories, Inc. to provide you a partner in microbiology, backed with over 160 years of experience. Our BBL™ Crystal™ Identification Systems, Laboratory Reagents and other products to help your lab run at peak efficiency were on display.

BioControl Systems, Inc.

19805 North Creek Pkwy.
Bothell, WA 98011
Phone: 425.487.2055
Fax: 425.487.1476

BioControl introduces VIP™ for *Listeria* – the one-step test “built for speed” for food screening and HACCP applications. Other innovative rapid test kits are VIP™ for EHEC, the 1-2 Test® for *Salmonella*, Assurance® ELA's for *Salmonella*, *Listeria* and *E. coli* O157:H7, ColiComplete® and ColiTrak tests for *E. coli* and coliforms detection.

BioLab Associates

P.O. Box 307
Glencoe, MD 21152
Phone: 410.584.1221
Fax: 410.584.8279

BioLab Associates is a market research firm actively involved in the biomedical sciences. BioLab also conducts discussion groups on new product concepts and trends in industrial microbiological testing.

Biolog, Inc.

3938 Trust Way
Hayward, CA 94545
Phone: 510.785.2565
Fax: 510.782.4639
E-mail: info@biolog.com
Website: www.biolog.com

Biolog produces microbial identification systems utilized in all types of microbiology laboratories. Biolog's organism database is over eleven-hundred species of bacteria and yeast. Organism databases can be customized and expanded by the user. New for 1997 is an anaerobic database, Rainbow® Agar *Salmonella* and UTI agars and expansion of the MicroLog™ ecology program.

bioMérieux Vitek

595 Anglum Dr.
Hazelwood, MO 63042
Phone: 314.731.8500
Fax: 314.731.8678
E-mail: bmxvitek@vitek.com
Website: www.biomerieux-vitek.com

bioMérieux Vitek features the fully automated mini VIDAS® for rapid pathogen screening of *Salmonella*, *Listeria*, *Listeria monocytogenes*, Staphylococcal enterotoxin, *Campylobacter*, and *E. coli* O157 using enzyme-linked fluorescent assays. We displayed fully automated VITEK® and Bactometer® instruments for detection, enumeration and identification of microorganisms. Shelf-life

determination on food and dairy products may also be performed.

Bioscience International, Inc.

11607 Magruder Ln.
Rockville, MD 20852-4365
Phone: 301.230.0072
Fax: 301.230.1418

Bioscience featured innovative microbiology products which increase lab productivity: Autospiral™ DW and AP spiral platers, Protos automated colony counters, SAS Super 90 microbial air samplers, RABIT impedance systems, MACS gloveless anaerobic chambers, unique environmental and food sampling tools and the latest media preparation and filling equipment.

Biosynth International, Inc.

1665 W. Quincy Avenue, Suite 155
Naperville, IL 60540
Phone: 630.305.8400
Fax: 630.305.8420
E-mail: welcome@biosynth.com
Website: www.biosynth.com

Bioluminescent, fluorescent and chromogenic ENZYME SUBSTRATES suitable for ATP determinations, microbial ID, reporter gene assays, in-vitro diagnostics, ELISA and EIA (e.g. BCIG, MUG, Luciferin, Luciferase, etc.). BCM™ O157:H7(+) is a new culture medium for selection and identification of *Escherichia coli* O157:H7. New catalog available.

Brevis Corp.

3310 South 2700 East
Salt Lake City, UT 84109
Phone: 801.466.6677
Fax: 801.485.2844

Brevis Corporation features GlitterBug Potion, Powder and the new Maxi GlitterBug View Box. Posters, signs, buttons, t-shirts and videos combine with GlitterBug to provide creative and memorable products that teach good hand-washing procedures. Newest addition to the line is the WASH stickers for mirrors.

Capitol Vial, Inc.

P.O. Box 446
Fultonville, NY 12072
Phone: 518.853.3377
Fax: 518.853.3409

Capitol Vial, Inc. is an ISO 9001 certified company. Vials are manufactured in FDA approved Class 10,000 clean rooms from FDA approved food grade polypropylene and meet or exceed NIDA standards. The patented flip top vial is

tamper evident, sterile and provides an airtight positively leak-proof seal.

Celsis-Lumac

1801 Maple Ave.
Evanston, IL 60201
Phone: 847.467.6600
Fax: 847.467.6602

Celsis·Lumac develops and supplies rapid diagnostic and monitoring systems for use in detection and measurement of low-level microbial contamination in a wide range of manufacturing processes and end products. Celsis·Lumac microbial screening systems offers a range of rapid testing kits to dramatically reduce total microbial testing time which in turn reduces warehousing and inventory costs.

Charm Sciences, Inc.

36 Franklin St.
Malden, MA 02148
Phone: 617.322.1523
Fax: 617.322.3141
E-mail: charm1@world.std.com
Website: world.std.com/~charm1/

Charm Sciences is pleased to introduce the Luminator-T (LUM-T), a hand held Luminometer capable of running Charm luminescence tests (Lite series). The LUM-T weighs just 2 lbs, stores 5000 data points, and holds up to 300 alphanumerically named locations customized for plant, foodservice, and retail operations. New Generation Charm tests include a one-step, single-use 5-minute screen for 6 beta-lactam target drugs in milk, and PATHOGEL, a single step enumeration or presence/absence of Coliform, *E. coli* and sulfite-producing bacteria like *Salmonella*. Also featured was AFLITE 6-minute multi-matrix aflatoxin screen; CHEF & PASLITE – 4-minute verification of meat cooking efficiency and pasteurization in dairy products; POCKETSWAB 40-second ATP hygiene test; and SOMALITE – 2-minute somatic cell screen.

Chemunex Inc.

1 Deer Park Dr., Suite H-2
Monmouth Junction, NJ 08852
Phone: 908.329.1153
Fax: 908.329.1192

The dream of ultra-sensitive microbial results within minutes is now a reality with the introduction of ChemScan and ChemFlow. Combining fluorescent labeling with laser scanning allows the detection and counting of single microorganisms in as little as 30 minutes. Since no cell multiplication is required, a true “real time” result is available to the microbiologist.

Cogent Technologies Ltd.

11140 Lushek Dr.
Cincinnati, OH 45241
Phone: 513.469.6800
Fax: 513.469.6811

Cogent Technologies Ltd. introduces an innovative ATP bioluminescent system for sterility testing of UHT dairy products. The MNLS System employs a unique, patented luminometer, incorporating microwell technology and a versatile, Windows-based software package. This robust system has proven dependability and the necessary flexibility to accommodate the testing requirements of both high and low volume laboratories. Also featured were innovative instruments for the microbiology laboratory from IUL. The New CounterMat and Eddy Jet offer the latest advancements in automated colony counting and spiral plating. The CounterMat is the first automated colony counter to provide a differential count of colonies based on colonial color. The Eddy Jet spiral plater utilizes disposable tips, eliminating the rinsing and cleansing step required by other spiral platers.

Copesan Services

3490 North 127th St.
Brookfield, WI 53005
Phone: 800.267.3726
Fax: 414.783.6267
E-mail: jonb@opesan.com
Website: www.copesan.com

Copesan Services provides documented, quality-assured pest management services to businesses with regional and/or national facilities throughout the United States, Canada and Mexico. We support our service with the largest group of technical experts in the industry, with over 100 degreed technical specialists. These specialists hold degrees in entomology, biology and other pest management-related disciplines. Our vast network of technical specialists applies its expertise at the local level, solving your uniquely local challenges.

Decagon Devices

P.O. Box 835
Pullman, WA 99163
Phone: 509.332.2756
Fax: 509.332.5158
E-mail: debbie@decagon.com

AquaLab[®] and ThermoLink from Decagon Devices aid in food safety, predicting microbial growth and improved shelf-life.

Currently using water content to assess your food product's safety? You ought to be measuring water activity for microbial growth prevention and the best shelf-life instead. AquaLab[®] is a research-

grade water activity meter. Microprocessor control and internal chilled-mirror dewpoint measurement of a 7 ml sample keep AquaLab precise; ± 0.003 accuracy on samples from 0.030-1.000_{aw}. In five minutes or less! AquaLab[®] accessories include AquaLink[®] to record data and Verification Standards for calibration.

ThermoLink: A hand-held, dual-pronged device measuring thermal properties: heat capacity, thermal conductivity and diffusivity. Applications include food product design, thermal analysis of foods and oven programming.

Difco Laboratories

P.O. Box 331058
Detroit, MI 48232
Phone: 313.462.8501
Fax: 313.472.8517

Difco Laboratories presents quality products for industrial microbiology and food testing. Products featured included an Automated Industrial Microbial (AIM) testing system for faster detection of organisms inherent to spoilage in aseptic food processing. Also featured was the EZ Coli Rapid Test System for the detection of *E. coli* O157 which received AOAC-RI Performance Tested Status in 1996. New food testing culture media are now available to meet new FDA procedures. For sanitation testing, Difco offers the Hycheck paddle system which provides flexibility for sampling liquids and surfaces and the CultureSwab Transport System for swab sampling.

DiverseyLever

46701 Commerce Center Dr.
Plymouth, MI 48170
Phone: 313.414.5032
Fax: 313.414.5010
E-mail: Carl.Groenewegen@DiverseyLever.com

Complete supplier of sanitation and cleaning programs, food grade lubricants, process water treatment, and other specialty chemicals to the following markets: canning, dairy, frozen foods, processed meats, snack foods, bakery, poultry, seafood and egg processing as well as beverage, brewing, and bottled water.

DQCI Services, Inc.

5205 Quiney St.
Mounds View, MN 55112
Phone: 612.785.0484
Fax: 612.785.0584

DQCI Services, Inc. provides standards for the calibration of electronic milk testing equipment. A wide range of standards are available for different milk/food products. Chemical and microbiologi-

cal analyses are provided for proprietary products. HPLC analysis for carbohydrates and antibiotic residues in milk is now available.

DYNAL, Inc.

5 Delaware Dr.
Lake Success, NY 11042
Phone: 516.326.3270
Fax: 516.326.3298
E-mail: hisrael@dynalusa.attmail.com
Website: dynal.no

Dynadeads[®] Microbiology Products provide rapid results with culture confirmation. The technology of ImmunoMagnetic Separation (IMS) using Dynabeads[®], is essentially a rapid culture technique for the isolation of *Salmonella*, *E. coli* O157:H7 and *Listeria*. This is accomplished by using Dynabeads[®] as a replacement for traditional media-based selective enrichment. Culture results are obtained within 24 to 48 hours from receipt of sample. This rapid method, in contrast to other presumptive tests, has the benefit of concurrent colony acquisition and thus saves time in confirmation procedures. The technique is simple, sensitive and cost effective. Dynabeads[®] anti-*Salmonella* has been evaluated by the AOAC Research Institute and has achieved AOAC Performance Tested Status. The use of Dynabeads[®] anti-*E. coli* O157 is featured in the 8th edition BAM and the Health Canada Compendium of Methods.

Ecolab Inc.

370 Wabasha St. N.
St Paul, MN 55102
Phone: 612.293.2549
Fax: 612.293.2260

Ecolab Inc. provides sanitation products, systems and services including ATP bioluminescence testing systems and pest elimination services.

The Educational Foundation of the National Restaurant Association

250 S. Wacker Dr., Suite#1400
Chicago, IL 60606
Phone: 800.765.2122
Fax: 312.627.2432
E-mail: jherand@foodtrain.org
Website: foodtrain.org

The Educational Foundation of the National Restaurant Association is recognized as the nation's leader in providing food safety education and training for the food service industry. Over 500,000 food service managers have been certified through The Foundation's SERV-SAFE program and another one million employees have received training using these materials.

Electro-Steam Generator Co.

1000 Bernard St.
Alexandria, VA 22314-1299
Phone: 703.549.0664
Fax: 703.836.2581

All-Electric Steam Generators, 98% efficiency. Point-of-use placement. No water treatment chemicals, Culinary grade steam. 316-316L Stainless steel available. No flame, flue or fumes. ASME National Board of PVI, UL, ETL, CSA.

Food Processors Institute

1401 New York Ave. N.W., Suite 400
Washington, D.C. 20005
Phone: 202.393.0890
Fax: 202.639.5932
E-mail: rfullem@nfpa-food.org
Website: www.nfpa-food.org

FPI is the education provider for the National Food Processors Association (NFPA), its members and affiliates. FPI presents courses that support the food processing industry, and develops publications, videos and other educational materials for the continuing education of food industry and related personnel. FPI also custom designs workshops for specific company training.

Food Quality Magazine

The Yardley Grist Mill
10 N. Main St.
Yardley, PA 19067
Phone: 215.493.7700
Fax: 215.493.4334
E-mail: foodqual@aol.com

Food Quality is written for the food industry quality assurance professional. Topics covered monthly include: food microbiology, plant sanitation, and HACCP. Edited in a "read it and do" format, many readers actually make immediate food safety improvements as a result of reading Food Quality. Subscriptions are free to qualified food industry professionals.

Foss North America, Inc.

10355 West 70th St.
Eden Prairie, MN 55344
Phone: 612.941.8870
Fax: 612.941.6533
E-mail: 104042.1635@compuserve.com

Advanced Infrared & FTIR analyzers for milk and dairy product analysis. Aromascanner for automated detection of aroma. Automatic somatic cell counters.

GENE-TRAK Systems

94 South St.
Hopkinton, MA 01748
Phone: 508.435.7402
Fax: 508.435.0025

GENE-TRAK® Systems introduced several new products to the U.S. food testing market through the reciprocal marketing agreement recently signed with Diffchamb AB of Europe. As "Partners in Food Diagnostics" GENE-TRAK Systems and Diffchamb offers the U.S. food testing market practical solutions for their testing needs. Transia Card™ tests for the detection of *Salmonella* and *E. coli* O157 are single-use assays that are easy to perform and read and require minimal laboratory equipment. Transia Tube™ and Transia Plate™ tests for the detection of *Salmonella*, *Listeria*, Staphylococcal enterotoxins and other food contaminants are based on proven antibody-based technologies. The specificity of the GENE-TRAK DNA probe-based assays for *Salmonella*, *Listeria* and *Listeria monocytogenes* minimizes false-positive results saving time and labor involved in laborious confirmation work.

Gist-brocades

N93 W14560 Whittaker Way
Menomonee Falls, WI 53051
Phone: 800.423.7906
Fax: 414.255.7732

Gist-brocades showed the new Delvotest P-5 Pack which is approved for PMO Section 6 testing requirements. Also we demonstrated printer equipment for the Delvo X-PRESS 8-minute test for the detection of antibiotics in bulk milk, as well as displaying the Delvotest P/SP standard diffusion tests for determining the presence of antibiotic residues in individual cow samples.

Glo-Germ Company

P.O. Box 537, 150 E. Center
Moab, UT 84532
Phone: 801.259.5931
Fax: 801.259.5930
E-mail: moabking@sisna.com
Website: www.glogerm.com

In this age of concern over many types of infectious diseases, Glo-Germ stands out as an effective way to teach workers in hospitals, long-term care facilities, restaurants, day care centers, public school systems, clinics and other institutions proper handwashing, isolation techniques, aseptic techniques, and general infection control. Since 1968 Glo-Germ has been used to demonstrate and test for proper handwashing and surface cleaning. By simply applying Glo-Germ to

hands or surfaces, cleaning thoroughly, then exposing area to ultraviolet light, residual "germs" can easily be seen. Place Glo-Germ on one's hands then shake hands with others, and the ultraviolet light reveals how easily "germs" are transmitted.

GOJO Industries

1115 Broadway
Piqua, OH 45356
Phone: 800.321.9647
Fax: 800.329.4656

Hand Sanitization · Presentation of Products, Regimens and Research in Foodservice.

Great Western Chemical Company

5700 N.W. Front Ave.
Portland, OR 97210
Phone: 503.227.1616
Phone: 800.547.1400
Fax: 503.227.7377
E-mail: dennisbogart@gwchem.com

Great Western Chemical Company is the fastest growing cleaning and sanitation company in the country. From potato processing, meat processing to dairy plants, Great Western is the supplier of choice for great solutions and incredible results.

Hardy Diagnostics

1430 W. McCoy Ln.
Santa Maria, CA 93455
Phone: 800.266.2222
Fax: 805.346.2760

Hardy Diagnostics is a full-service culture media manufacturer. Custom media to your specifications is offered as well as a full line of stock products for the dairy, water, food, cosmetics and pharmaceutical industries. Our line includes products for sterility testing, surface monitoring, contact plates, dilution bottles, *Listeria* and *E. coli* kits, collection swabs and sponges, stomacher bags, sample bags, etc.

ICP Ltd.

P.O. Box 1607
Auckland, New Zealand
Phone: 011.64.9.8150624
Fax: 011.64.9.8150623

IDEXX Laboratories

One IDEXX Dr.
Westbrook, ME 04092
Phone: 207.856.0300
Fax: 207.856.0630

LIGHTNING™, an ATP-bioluminescence assay, is the most portable and easy-

to-use cleaning validation system available. LIGHTNING will prove your plant is ready for production and is an important component of HACCP.

SNAP™ is a simple and portable antibiotic residue test for milk. SNAP Beta Lactam, an AOAC licensed product, will assure your milk meets Appendix N requirements.

Parallux™ is a solid-phase fluorescence immunoassay system for antibiotic residue detection in milk. Parallux can analyze multiple analytes in a single test cartridge at the same time, and give accurate results in just 4 minutes. The automatic processor requires minimal hands-on time and makes your tests simple.

SimPlate™ is a microbial testing kit to be used for routine microbiological testing such as total counts, coliforms, *E. coli*, yeast and mold. The test correlates with standard methods but is faster, easier to read, and easier to run.

International BioProducts, Inc.

14780 N.E. 95th St.
Redmond, WA 98052
Phone: 800.729.7611
Fax: 425.881.6880
E-mail: ibpwash@wolfenet.com

International BioProducts offers a wide range of microbiology products, superior in quality and value, to the industrial laboratory. TECRA® diagnostic kits employ the most advanced methods for the rapid detection of *Salmonella*, *Listeria*, *E. coli* O157, and Staphylococcal and Bacillus Diarrhoeal Enterotoxins. Our TimeSaver and Flip-Top™ Disposable Dilution Bottles save you time and money. BioPro® Premium Dehydrated Media and BioPro® Pre-Poured Plates and Contact Plates offer outstanding quality and convenience. Our unique and extensive line of environmental sampling products, designed specifically in accordance with USDA regulations, provide straightforward solutions to all your HACCP needs.

Kalyx Biosciences Inc.

20 Camelot Dr.
Nepean, ON K2G 5X8 Canada
Phone: 613.723.1114
Fax: 613.723.8777
E-mail: sales@kalyx.ca
Website: www.kalyx.ca

Kalyx Biosciences Inc., a company committed to the development of diagnostic tests for the agri-food industry, presented a range of products for the testing of food samples, for screening and identification of common food pathogens, and also for toxin deduction. Rapitest® kits for rapid microbial screening and the

MICROBACT™ range for biochemical confirmation for food pathogens will be presented.

The Pulsifier®, the latest instrument for food sample preparation that prepares samples for testing without excess food debris that may be inhibitory to certain tests, will be demonstrated. A new rapid ELISA kit for the screening of *Salmonella* sp. was also introduced.

Lloyd's Register Quality Assurance

33-41 Newark St.
Hoboken, NJ 07030
Phone: 201.963.1111
Fax: 201.963.3299

LRQA is one of the leading Registrars in the Food Industry worldwide. LRQA offers information on ISO 9001 and ISO 9002 for your Certification requirements. Guidelines for the use of ISO 9001:1994 in the Design and Manufacture of Food and Drink are available. Representatives are available to answer your questions in detail about the audit process. Pick up brochures on a wide range of Training Programs and Courses as well as on Research showing the impact of ISO 9000 on Business Performance demonstrating the benefits in becoming certified.

Malthus Diagnostics, Inc.

35888 Center Ridge Rd.
North Ridgeville, OH 44039
Phone: 216.327.2585
Fax: 216.327.7286

The Malthus System-V: an automated microbial growth analyzer based on conductance technology. This versatile system, widely used in the food industry, provides fast, accurate results for a wide range of applications including total counts, coliforms, an AOAC approved method for *Salmonella*, and yeasts and molds. Malthus Diagnostics, Inc. also offers a complete line of high quality growth media for all food and environmental needs.

Medallion Laboratories

9000 Plymouth Ave.
Minneapolis, MN 55427
Phone: 612.540.4453
Fax: 612.540.4010

Medallion Laboratories, the analytical service of General Mills, has provided the food industry with quality results for over twenty years. Services include; full microbiological analysis, pesticides and mycotoxins, complete nutritional labeling, amino acids, food additives, and special projects.

Michelson Laboratories, Inc.

6280 Chalet Dr.
Commerce, CA 90040
Phone: 562.928.0553
Fax: 562.927.6625

Full-service analytical laboratory specializing in food and environmental testing. We offer nutritional labeling programs, QA, QC programs, complete chemical and microbiological analysis. We are recognized by the FDA and certified by the USDA and the Japanese Ministry of Health and Welfare. We work closely with the dairy, produce, seafood, processed food and meat industries.

Minnesota Valley Testing Labs

1126 N. Front St.
New Ulm, MN 56073
Phone: 507.354.8517
Fax: 507.359.2890
E-mail: kmpmvtl@newulmtel.net

Minnesota Valley Testing Laboratories (MVTL) is an independent laboratory which offers confidential microbiological and chemical analyses of food, water, agricultural, and environmental samples. *Listeria*, *Salmonella*, *E. coli*, proximates, dry milk grading, nutrition labeling, fatty acid profiles, cholesterol, minerals, metals and vitamins are just a few of the analyses that can be performed. With MVTL you get competitive fees, rapid turn around, in-house analyses, a modern facility with state-of-the-art equipment, and a professional staff of highly skilled, dedicated people.

NASCO

901 Janesville Ave.
Fort Atkinson, WI 53538
Phone: 414.563.2446
Fax: 414.563.8296

Nasco exhibited Whirl-Pak laboratory sample bags, which feature patented Puncture Proof Tabs and sterility documentation. New items that were on display include an extra large, 7 1/2" x 15" bag, a bag containing a filter to be used in homogenizers, blenders to separate liquids from solids, and a group of bags featuring a flat wire in the closing tab; and a bag containing 10 sponges for composite environmental surface sampling. A new Meat Carcass Sampling Kit was also shown along with a special bag for poultry rinse sampling for the detection of *E. coli*.

The National Food Laboratory, Inc.

6363 Clark Ave.
Dublin, CA 94568
Phone: 510.551.4211
Fax: 510.833.8795
E-mail: the-nfl@ix.netcom.com
Website: www.thenfl.com

Food processors and ingredient suppliers can capitalize upon the one-stop-shopping concept for contract and consulting services offered by The National Food Laboratory, Inc. They include Analytical Chemistry, Microbiology, Food Technology, Processing and Sensory Evaluation & Marketing Research.

Nelson-Jameson, Inc.

2400 E. 5th St.
P.O. Box 647
Marshfield, WI 54449
Phone: 800.826.8302
Fax: 800.472.0840
E-mail: nelson-jameson@tznnet.com

Nelson-Jameson, Inc. offers a wide range of unique products to help food processors integrate QA/QC with plant operations. Featured at the exhibit will be the Nelson-Jameson M926 Chloride Analyzer and its new RS232 interface running DataGate Laboratory Information Management Software. The Touchless Hand Sanitizing Dispensers utilizing Alpet Hand Sanitizer, the only USDA-approved lotionized E3 sanitizer, was displayed. Over 8000 products are featured in the Nelson-Jameson Buyers Guide, a catalog free to qualified buyers. Expert technical support, competitive prices, same-day shipping policy and toll-free fax and phone ordering are provided.

Neogen Corporation

620 Leshler Pl.
Lansing, MI 48912
Phone: 517.372.9200
Fax: 517.372.0108
E-mail: neogencorp@aol.com
Website: www.neogen.com

Neogen Corporation manufactures and markets diagnostic testing products for food safety. These tests detect foodborne bacteria, natural toxins and pesticide residues. Used for screening and quantitative purposes, Neogen's diagnostic tests are needed in the meat, poultry, egg and seafood industries as well as in the grain, nut and spice markets. In addition, Neogen markets sanitation and hygiene monitoring devices used in compliance with processors' HACCP plans. Specifically, Neogen markets foodborne pathogen rapid testing products for *Listeria*, general *E. coli*, *E. coli* O157:H7, *Salmonella* and total plate count.

NET/TECH International, Inc.

1 West Front St., Ste. 30
Red Bank, NJ 07701
Phone: 732.345.1100
Fax: 732.345.0113
E-mail: Net.Tech@Ix.netcom.com

The Hygiene Guard individually identifies employees who fail to wash

their hands after using the restroom facilities, prior to returning to the work place. The Hygiene Guard system also monitors hand washing at any hand washing station (i.e., health care applications, kitchens, food preparation and processing areas, cleanrooms, etc.).

The Hygiene Guard Monitoring System provides a solution with its hands on method for safeguarding patients and customers. It has the potential to save lives, break the chain of hand spread illnesses and reduce expenses to corporations significantly.

Norton Performance Plastics Corp.

2664 Gilchrist Rd.
Akron, OH 07470
Phone: 330.798.9240
Fax: 330.798.0358
Website: www.tygon.com

As the inventor of clear, flexible plastic tubing over fifty years ago, Norton Performance Plastics continues to lead in the development and production of specialty tubing. Engineered to meet precise performance needs, Norton Flexible tubing is the first and only choice for applications requiring flexibility, mechanical strength, chemical resistance, food and biological compatibility, inertness, pumpability, low absorption and visual clarity.

Tygon® tubing, the world's number one brand of clear flexible tubing, is produced in more than 500 custom formulations. In addition to Tygon®, other special tubings include Norprene® for longer life and better wear-resistance than rubber tubings and Pharmed® for better performance than silicone in peristaltic pump applications in the pharmaceutical, biotechnology, food and beverage markets.

NSF International

3475 Plymouth Rd.
Ann Arbor, MI 48105
Phone: 313.769.8010
Fax: 313.769.0109
E-mail: info@nsf.org
Website: www.nsf.org

NSF International offers certification and registration services.

Organon Teknika

100 Akzo Ave.
Durham, NC 27712
Phone: 919.620.2000
Fax: 919.620.2615

Organon Teknika Corporation has been a leader in the development of rapid methods for the food microbiology

laboratory since 1985. The application of its revolutionary ELISA technology for the detection of foodborne pathogens has offered the food industry unparalleled accuracy, speed, and efficiency. *Salmonella* Capture-Tek™, our newest addition, combines the proven technology of the *Salmonella*-Tek™ ELISA with a patented immunomagnetic separation technology. By eliminating the need for selective enrichment, *Salmonella* Capture-Tek™ reduces your supply and disposal costs and allows you to release *Salmonella*-negative samples in 24 hours. We also offer *Listeria*-Tek™ and EHEC-Tek™ (the only test for *E. coli* O157:H7). Walk-away automation is available with the TekTIME™ microplate processor and BacT/Alert®, microbial detection system for sterility testing of aseptically processed foods.

Oxoid, Inc.

800 Proctor Ave.
Ogdensburg, NY 13669
Phone: 613.226.1318
Fax: 613.226.3728

Oxoid, Inc. is an international supplier of prepared and dehydrated culture media. The company also supplies rapid food tests for *Listeria*, *Salmonella* and Enterotoxins, as well as a full line of diagnostic reagents for the identification of pathogenic bacteria.

PRISM

8300 Executive Center Dr.
Miami, FL 33166
Phone: 800.888.5777
Fax: 305.594.9280

Gold Medal Program by PRISM is the only ISO 9002 registered pest elimination program. Gold Medal Programs are designed by PRISM's highly qualified technical experts and delivered by trained professionals in the industry. PRISM offers pest elimination service to a wide range of food processing, handling and serving establishments.

Qualicon, Inc. — A Dupont Subsidiary

P.O. Box 80357/1024A
Wilmington, DE 19880-0357
Phone: 302.695.2356
Fax: 302.695.9027

The Qualicon™ BAX™ Pathogen Detection Systems use Polymerase Chain Reaction (PCR) to detect pathogenic bacteria (*Salmonella*, *E. coli* O157:H7, *Listeria*, and *Listeria monocytogenes*) in food samples. The BAX™ systems use a proprietary methodology and tableted, prepackaged reagents to simplify the PCR technique so plant QA/QC labs get rapid, definitive screening results.

The RiboPrinter™ Microbial Characterization System is the only fully-automated instrument that can perform the complex process of ribotyping. Until now, this labor-intensive, time-consuming, unreliable and often subjective process has taken as long as 5 to 10 days. Now an operator with no more than a high school education can generate in only eight hours a detailed genetic "fingerprint" that can characterize and identify an organism below species level.

R-TECH Laboratories

P.O. Box 116
Minneapolis, MN 55440-0116
Phone: 800.328.9687
Fax: 612.481.2002
E-mail: info@rtechlabs.com
Website: www.rtechlabs.com

R-TECH® Laboratories, a business unit of Land'O Lakes, is a full-service food science and technology laboratory providing for all your Analytical, Sensory, Marketing and Marketing Research, Pilot Plant and Nutrition Labeling needs. R-TECH® provides fast, accurate and reliable results, backed by a technical service group dedicated to customer service. The R-TECH® Analytical Laboratory is ISO 9002 Registered, and USDA Accredited. Our technical staff will assist you in determining solutions and interpreting results. Learn more about your product's sensory characteristics through the use of our state-of-the-art sensory facility and experienced staff. Sensory testing results may be used to determine consumer preference and acceptance, difference or descriptive profiles of your products.

REMEL, LP

12076 Santa Fe Dr.
Lenexa, KS 66215
Phone: 800.255.6730
Fax: 800.447.5750

REMEL is a leading manufacturer and distributor of quality products for the microbiology laboratory. Highlighted products include an extensive line of plated, lubed, bottled, and dehydrated culture media for the detection and enumeration of a broad scope of potential bacterial pathogens from food, dairy, and environmental sources. In addition, REMEL offers a comprehensive line of stains, reagents, and general microbiology supplies as well as an extensive line of identification kits. Our network of direct national distribution ensures products are delivered in a timely manner.

Silliker Laboratories Group

900 Maple Rd.
Homewood, IL 60430
Phone: 708.957.7878
Fax: 708.957.8449
E-mail: mktdept@ix.netcom.com
Website: www.silliker.com

Silliker Laboratories' exhibit highlighted the company's broad range of food testing, consulting, and educational services. No matter what type of product you make, Silliker scientists are familiar with the microbiological/chemical concerns you may encounter. The exhibit also presented our new GMP training video and laboratory performance programs.

Sparta Brush Co.

402 S. Black River St.
Sparta, WI 54656
Phone: 608.269.2151
Fax: 608.269.3293
E-mail: spartabrush@centuryinter.net

Sparta brushes, brooms and cleaning tools have played a major role in food and dairy plant sanitation since 1908. Today, Sparta offers more than 1,600 specialized and general tools designed to more easily and thoroughly clean specific applications. From pipe and vat brushes to brooms and scrubs, you'll find a Sparta brush for every cleaning job.

Use the Spectrum™ Color-Coded Brush System to eliminate potential bacterial and chemical cross-contamination by moving brushes and chemicals across hygiene zones. The Department of Agriculture, through its Hazard Analysis Critical Control Points (HACCP), has identified the need for a well organized and properly implemented sanitation program extending from receiving to packaging; floor to ceiling. Eight Spectrum™ brush bristles and/or handle colors let you segregate brushes by room, department or work zone. Properly applied, our Spectrum™ program will help you comply with stringent HACCP guidelines.

Spiral Biotech, Inc.

7830 Old Georgetown Rd.
Bethesda, MD 20814
Phone: 301.657.1620
Fax: 301.652.5036
E-mail: infosbi@spiralbiotech.com
Website: www.spiralbiotech.com

Spiral Biotech is pleased this year to feature the AUTOPLATE® 4000 spiral plater, recently accepted for raw milk testing by the NCIMS Lab Committee, providing major reductions in the cost and time associated with bacterial enumeration; the CASBA™4 system with bar code control for accurate, user-friendly and low-

cost colony counting and analysis; Gavimetric Diluter and sterile filter bags for solid and liquid sample dilution; the WALKAWAY AUTOPLATE for fully automated spiral plating; and cost-effective portable microbial air samplers.

Steritech Environmental Services

P.O. Box 472172
Charlotte, NC 28247
Phone: 704.544.1900
Fax: 704.544.8705
Website: www.steritech.com

Steritech is an environmental services company providing essential sanitation services to highly regulated industries. Our range of services includes pest elimination, safety and sanitation audits and technical support. Steritech's industry leading EcoSensitive technology for pest elimination was developed for sensitive environments such as health care and hospital facilities. Using mechanical, physical and biological controls we can eliminate pests without the reliance on routine pesticide treatments. This revolutionary program provides you with the means to end pest problems and eliminate your risk of exposure when toxic pesticides are used on your property. Call for a free survey and needs analysis for your facility.

TRI-DIM Filter Corporation

999 Raymond St.
Elgin, IL 60120
Phone: 847.695.2600
Fax: 847.695.7938

Air filtration products and systems; HEPA filtration units for positive pressurization of packaging/filling rooms, or positive pressurization of packaging/filling machines. Antimicrobial filters for general HVAC ventilation, and the reduction of microbial distribution through the air conditioning systems. Standard and custom systems available.

Troy Biologicals, Inc.

1238 Rankin St.
Troy, MI 48083
Phone: 810.585.9720
Fax: 810.585.2490

VICAM LP

313 Pleasant St.
Watertown, MA 02172
Phone: 617.926.7045
Fax: 617.923.8055
E-mail: vicam@vicam.com
Website: www.vicam.com

VICAM products are used with confidence and in confidence around the world. VICAM develops and manufactures rapid mycotoxin and microbial testing systems for the food and feed industries. VICAM has established itself as the industry leader in rapid mycotoxin testing. Building on the success of AflaTest, a rapid detection test for Aflatoxin, we offer similar tests for Vomitoxin, Fumonisin, Ochratoxin, Zearlanone, as well as microbiological tests for *Listeria*, *Salmonella*, and SE. Each of our tests provides important advantages: speed, sensitivity, ease-of-use, accuracy, and safety. VICAM's commitment to developing innovative and useful tests is marked by our dedication to quality. Our products are protected by worldwide patents and trademarks.

Warren Analytical

650 'O' Street, P.O. Box G
Greeley, CO 80632
Phone: 800.945.6669
Fax: 970.351.6648
E-mail: tony.vagnino@warrenlab.com
Website: www.warrenlab.com

Warren Analytical is a full-service facility specializing in four areas of expertise: Microbiology (food safety, HACCP, bacteria identifications), residue chemistry (pesticides, hormones, antibiotics, heavy metals), nutrition labeling, and general food chemistry. We are anxious to demonstrate our unsurpassed dedication to customer service.

Weber Scientific

2732 Kuser Rd.
Hamilton, NJ 08691
Phone: 609.584.7677
Fax: 609.584.8388
E-mail: info@weberscientific.com
Website: www.weberscientific.com

Introducing the new Angstadt-Weber[™] Milk Smear Slide with indicator marks for enhanced strip counting accuracy of bacteria or somatic cells. According to leading dairy quality control professionals, this new slide addresses two primary concerns in obtaining reproducible strip counting results: correct

identification of the circle's diameter and precise smearing of the 1 cm² area with milk sample. Also featured is the Orion Research Salt Analysis System. At a cost of just pennies per sample, this ISE-based system offers the capability of high volume sodium and/or chloride testing of food with results provided in less than two minutes.

ZEP Manufacturing Company

1310 Seaboard Industrial Blvd.
Atlanta, GA 30318
Phone: 404.352.1680
E-mail: food_division@zepamfg.com

National manufacturer of specialty chemicals for all food industries for over sixty years. Zep has approximately 1,400 sales/service full-time representatives working out of forty-eight branch office/distribution centers in North America. ZEP is a major supplier of handsoaps, drain maintenance, restroom disinfectants, insecticides, cleaners, foaming and C.I.P. acid sanitizers throughout the world.

Surveillance of Foodborne Disease

- Part 1—Purposes and Types of Surveillance Systems and Networks
- Part 2—Summary and Presentation of Descriptive Data and Epidemiologic Patterns; Their Value and Limitations
- Part 3—Summary and Presentation of Data on Vehicles and Contributory Factors; Their Value and Limitations
- Part 4—Dissemination and Uses of Surveillance Data

Written by: Frank L. Bryan, John J. Guzewich, and Ewen C. D. Todd

Now Available

A four-part series, published in the May and June 1997 issues of *Journal of Food Protection*, has been packaged as a set and is now available for purchase. This series provides a comprehensive guide to foodborne disease surveillance. The set is \$18.75 including shipping and handling.

To order, contact Karla Jordan at 800.369.6337; 515.276.3344 or Fax 515.276.8655.

NewMembers

CANADA

Brad Colpitts
Yellowknife Health & Social Service
N.W. Territories, Yellowknife

Peter Kastoris
Halton Regional Health Dept.
Toronto, Ontario

DENMARK

Inge Knap
A/S Foss Electric
Hilleroed

GREECE

Daniel Sergkelidis
Komotini

KOREA

Han-Joon Hwang
Korea University, Seoul

MEXICO

Ing. Alma Rosa Lugo Anzaldo
Sarormex S.A. C.V.
Puebla

UNITED STATES

CALIFORNIA

Lonny W. Antrim
Pneumatic Conveying, Inc.
Ontario

Damon C. Johnson
Golden Valley Produce
Buttonwillow

Nate Esformes
Triple E Produce, Tracy

Brandi Starjack
CSUN, Canoga Park

CONNECTICUT

Kathryn L. Kotula
University of Connecticut
Storrs

DISTRICT OF COLUMBIA

Steven Grover
National Restaurant Association
Washington

Barbara J. Petersen
Novigen Sciences, Washington

ILLINOIS

Michael G. Boyle
Village of Wheeling, Wheeling

Bernard Charpentier
French Scientific Service
Chicago

IOWA

Kurt A. Rueber
Iowa Dept. of Public Health
Des Moines

MASSACHUSETTS

Assem A. Sayed Ahmed
Univ. of Massachusetts
Amherst

MINNESOTA

Nancy Nielson
Lake City

Anand Rao
Davisco Foods Int'l., Inc.
Le Sueur

Ken Valley
Gold'N Plump Poultry
Saint Cloud

NORTH CAROLINA

Donnie R. McFall
Durham Co. Health Dept.
Durham

PENNSYLVANIA

John H. Ames
Hershey Foods, Hershey

Okkyong Judy Rho
Philadelphia City Health Dept.
Philadelphia

VERMONT

Abdel Aziz M. Aboueleinin
University of Vermont
Burlington

VIRGINIA

Sharma Pulela
Gwaltney of Smithfield
Portsmouth

WASHINGTON

Diana McNamara
Tree Top Inc., Selah

WISCONSIN

Robert Bagley
City of Racine Health Dept.
Racine

Terry L. Brandenburg
West Allis Health Dept.
West Allis

Dan Pelgrin
Rhone Poulenc, Madison

New Officers of the American Dairy Science Association

The American Dairy Science Association (ADSA) has announced a new slate of officers for 1997-1998. Announcement of the newly elected ADSA Board of Directors was Sunday, June 22, 1997 at the Opening Session of the 92nd Annual Meeting of ADSA.

Lawrence D. Muller, Professor of Dairy Science in the Department of Dairy and Animal Science at The Pennsylvania State University, was named Vice President. New Directors to the ADSA Board are R. K. (Ken) McGuffey, Research Scientist at Lilly Research Laboratories, a division of Eli Lilly and Company, who will represent the ADSA Production Division, and Joseph A. O'Donnell, Executive Director of the California Dairy Research Foundation, who will represent the Dairy Foods Division.

Charles H. White, Professor and Head of the Department of Food Science and Technology at Mississippi State University, is the new ADSA President, and Larry D. Satter, U.S. Dairy Forage Research Center, USDA, ARS, University of Wisconsin, is Past President. Robert L. Sellars, Robert L. Sellars & Associates, Inc., continues as ADSA Treasurer. 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 were Ronald L. Richter, Texas A&M University, Past President, and Roger P.

Natzke, University of Florida, and Genevieve L. Christen (deceased), Directors.

Captive Plastics Appoints Marcia Lange Western Region Account Manager

Captive Plastics, Inc., has appointed Marcia Lange as Account Manager serving the Western Region.

Ms. Lange brings with her an extensive background in the plastics industry. Her experience includes over 11 years in new business development and sales; specializing in bottles, closures, and decorating. Ms. Lange comes to Captive Plastics, Inc., from Owens-Brockway, in Southern California.

New Health Commissioner at Perry Co. Health Dept.

Gloria I. Swick, M.S.A., R.S., formerly the Administrator of the Marion County Health Department in Marion, OH, has accepted the position of Health Commissioner of the Perry County Health Department in New Lexington, OH. Ms. Swick graduated from the Ohio State University with a B.S. in agriculture having a triple major in animal science, agricultural education, and biology. She earned a Master of Science in administration, with a concentration in health services administration, from Central Michigan University.

Gloria is currently serving as the Past President of the Ohio Association of Milk, Food and Environmental Sanitarians, where she has been a Board member for eight years and the Ohio Delegate to the IAMFES Affiliate Council for

six years. She is also on the Food Sanitation Committee of IAMFES, a member of the Ohio Environmental Health Association, and in the Association of Ohio Health Commissioners.

Steritech Hires Director of Quality Control and Sanitation

The Steritech Group, Inc., recently hired Tom Ford to head up its sanitation and audit programs of commercial accounts. Ford will assume the position of Director of Quality Control and Sanitation. He will be responsible for the development and implementation of food protection and quality assurance programs for food manufacturers and retailers.

Steritech, known for their commercial pest elimination services, also provides sanitation audits and sanitation and safety training to the food industry.

A & B Names Linzmeier President-COO

A & B Process Systems Corp. announces the promotion of Glenn R. Linzmeier to President and Chief Operating Officer. Linzmeier's responsibilities will include the overall leadership and direction of corporate operations, domestically and abroad.

Linzmeier, who joined the company in 1974, held several key positions at A & B, most recently as Vice President of Operations. He will remain based in Stratford, WI, where he will oversee activities at the company's corporate headquarters, as well as at A & B's regional office in Milwaukee, WI.

Co-founder Anthony J. (Ajay) Hilgemann, who served as President prior to Linzmeier's appointment, will now serve as Chairman and Chief Executive Officer.

Bray Selected to Replace Martin at IAFIS

The International Association of Food Industry Suppliers (IAFIS) is proud to announce the appointment of Charles W. (Charlie) Bray to the position of President. Bray, who has spent much of his 26-year professional career in association management, was selected after a six-month search to replace John M. Martin, who will retire in November.

Bray's responsibilities have included strategic planning, membership development, convention management, public relations and business development. In recent years he has spent considerable time developing international membership and trade show opportunities.

Bray, who began his career with Arthur Anderson and Co. in 1971 where he earned his CPA, accepted a position in the Controller's office at The American University, Washington, D.C. in 1973. This was the beginning of Bray's nonprofit organization affiliations, and he spent five years serving first as an Assistant Controller and then as Associate Controller.

In 1978, Bray joined the Food Marketing Institute, a trade association representing food retailers and wholesalers worldwide. During the next 17 years, he rose to the position of Senior Vice President and his responsibilities included Chief Financial and Administrative Officer, convention management, membership development, strategic planning and business development.

In 1996, Bray was appointed President and CEO of NIMA International, a trade association representing companies in the electronic retailing industry. His responsibilities encompassed managing the day-to-day operations of the association, including implementation of the strategic plan, membership development, public affairs and media relations.

Osmonics Appoints Tom Trautwein General Manager of Vista Operations

Dean Spatz, Chairman and CEO of Osmonics, Inc., has announced the appointment of Tom A. Trautwein to the position of General Manager and Chief Operating Officer of the Osmonics/Desal Operations in Vista and Escondido, CA. These facilities are the primary sites for research, development and manufacturing of the DESAL™ membrane elements.

Trautwein most recently served as General Manager of Manufacturing for Petco Animal Supplies. Prior to this position, he spent 22 years with Procter & Gamble Company. During his career with Procter & Gamble, he worked in plant management, strategic planning, distribution, industrial engineering, plant engineering and as General Manager of the Procter & Gamble plant in Anaheim, CA. Trautwein has a bachelor of science degree in industrial engineering and business administration from the University of California, Berkeley. He is also a Rear Admiral with the U.S. Navy Reserve and has completed graduate work in policy and decision-making with the Naval War College.

Fifield Named President and CEO

Rochester Midland has named James A. Fifield, President and CEO of Rochester Midland Limited, the firm's Canadian subsidiary located in Oakville, Ontario.

A graduate of Indiana University, he came to Rochester Midland in 1980. In 1990 Fifield served as a Regional Vice President in the Southwest and most recently as Midwest Regional Vice President. Mr. Fifield is an IAMFES Member and a professional member of the Institute of Food Technologists.

Fruit and Vegetable Supply

Two produce industry organizations joined the California Secretary of Agriculture and the Secretary of Health and Welfare to announce the completion of the first-ever voluntary food safety guidelines for the fresh produce industry. Ann Veneman, California Secretary of Food and Agriculture, and Sandra Smoley, R.N., California Secretary of Health and Welfare, joined Patricia Ziobro, District Director for San Francisco with the U.S. Food & Drug Administration, in announcing the completion of voluntary food safety guidelines initiated by the International Fresh-cut Produce Association (IFPA) and Western Growers Association (WGA). The completion of the guidelines marks an effort by the produce industry to work proactively with government in developing key steps to monitor food safety practices in produce production.

In this alliance of industry and government produce industry representatives from growing operations, processing facilities, precooling plants, transportation companies and food safety laboratories united with participants from state and federal agriculture and health departments to draft the guidelines, which will help improve monitoring of potential points of foodborne contamination in produce. Even so, the Centers for Disease Control and Prevention reports that 97 percent of foodborne illness is associated with the handling of food as opposed to farm practices.

IFPA and WGA first joined forces in December 1996 to respond to a growing concern among consumers about the safety of fresh fruits and vegetables. The alliance named a Steering Committee of industry leaders who could participate and provide policy guidance on the Initiative. In addition to the steering committee,



NEWS

eight subcommittees were formed and charged with studying an element of the growing/packing/shipping/processing system of fresh produce production and developing voluntary guidelines for each one of these steps.

"These voluntary guidelines are designed to be practical, economical, and yet effective," said Basil Mills, WGA Chairman, and President of Mills Distributing Co., Salinas, CA.

Industry leaders joined representatives from both state and federal government, including: the U.S. Food & Drug Administration; the U.S. Department of Agriculture; the California Department of Health Services; the California Department of Food and Agriculture; and the Arizona Department of Agriculture.

While the Initiative has completed the tools to help prevent food safety risks in fresh produce, the final and most vital aspect of the project will occur this year, when representatives from IFPA and WGA meet with industry members and media outlets to educate these audiences on the voluntary guidelines and the consumption of fresh produce. The first educational seminar was scheduled in California in September, and the second set in Arizona in November.

The fresh produce on display for the press conference will be donated to Food Link, which distributes food directly to food banks in the Sacramento area.

IFPA is the international trade association that provides technical expertise and represents commercial suppliers of fresh-cut produce, as well as companies affiliated with the fresh-cut industry, including equipment manufacturers, retailers and foodservice operations. WGA is an agriculture trade association whose 3,100 members grow, pack and ship 90 percent of the fresh vegetables, and about 60 percent of the fresh fruits and nuts in Arizona and California.

Food Safety Expert Dr. Ranzell Nickelson and Investment Advisor Richard Grubman Join Odwalla

Odwalla Inc., is pleased to announce the appointment of Dr. Ranzell "Nick"

Nickelson and Richard Grubman to its Board of Directors. "I am extremely proud that Dr. Nickelson and Mr. Grubman have chosen to join our company's board," said Greg Steltenpohl, Odwalla's Chairman. "Each of these individuals adds considerable strength and value to our team."

Dr. Nickelson is President of Red Mesa Microbiology and a well published and widely recognized expert in food science and safety. His appointment follows a relationship with the company where Dr. Nickelson served as a key advisor on crisis management and food safety. Mr. Grubman is a managing member of Development Capital, LLC (a private direct investment firm) and a general partner of its affiliate, Corporate Value Partners, LP, a partnership that specializes in undervalued special situation investing. Mr. Grubman is also President of Sycamore Capital Management, Inc.

Odwalla also announced the resignation of two board members: Lauren Doliva, a partner with the executive search firm, Heidrick & Struggles; and Kenneth Ausubel, a social entrepreneur and writer. Odwalla is the leading supplier of nourishing beverages in the western United States, serving thousands of accounts in California, Nevada, Texas, New Mexico, Colorado, Oregon and Washington from its production facility in Dinuba, CA.

An Award of Excellence in Technological Innovation and Two Scholarships

A research team made up of researchers from Hydro-Quebec's LTÉE (Laboratoire des technologies électrochimiques et des électrotechnologies —electrochemical technology and electro-technology lab) and from Agriculture and Agri-Food Canada's Food Research and Development Centre (FRDC) has won the Governors' Foundation's Innovation Award. This award, worth \$5,000, is given to reward excellence in research, development or technology transfer in the area of food.

The award-winning innovative project is called "Electro-acidification with bipolar membranes: and environment-friendly electro-technology for the production of high-added-value soya isolates." This new clean technology can precipitate protein by adjusting the pH of the solution to the point where the protein is least soluble (the isoelectric point). Electro-acidification generates within the solution itself the acidic and basic substances required to adjust the pH. In this way, the environmental risks inherent in the transportation of concentrated acids and bases are avoided. The purity and functional

properties of these protein isolates meet or exceed commercial standards.

The process consumes little energy and can easily be scaled to various sizes of company. It should find applications in the food and pharmaceuticals industries, and in fact technology transfer activities have already begun. The research team's success has now been enhanced by the Innovation Award, the only such prize granted in Canada.

The Governors' Foundation also granted two scholarships. The first, worth \$3,000, went to Ms. France Côté, a doctoral student at Laval University. Her project, which is co-directed by Claude Wilemot, Researcher, and Francois, Cormier, Head of the Bioingredients Section, deals with the purification and characterization of the glucosyltransferases involved in the synthesis of the yellow pigment of saffron, crocin. The second scholarship, valued at \$2,000, was granted to Ms. Marylène Lagacé, a master's student at McGill University. Her study, of the effect of different storage conditions on the quality of orange juice, is being carried out under the direction of Dr. V. Yaylayan, an Associate Professor at McGill University, and Dr. E. Farnworth, a Researcher at the FRDC's Bioingredients Section.

Quality Assurance Programs Key to Market Success for Meat, Poultry Producers

As the newly passed HACCP, or Hazard Analysis Critical Control Point, rule takes effect in the meat and poultry industries, those producers who adhere to quality assurance programs will have a distinct advantage in the marketplace, says Gary E. Stefan, Deputy Director of the

Animal Production Food Safety Program, Food Safety and Inspection Service, USDA.

"If producers follow the guidance of quality assurance programs, they'll be reasonably likely not to encounter any problems," Stefan stated at the July meeting of AHI's Food Safety Network. Quality assurance programs are developed for specific food animal species groups by various commodity organizations. These programs offer practical information for making farm management efficient and optimizing animal health.

According to Stefan, those animal suppliers who comply with assurance programs will have a market advantage over those producers who do not. They may be able to command higher prices for their animals, and will likely see more buyers for them, he said. He suggested that such programs are important to both domestic and international markets.

The most important component to a successful transition process for HACCP systems, according to Stefan, is effective communication. He stressed the importance of a consistent educational message — delivered by all parties involved in the food animal production process, from feed mills to veterinarians to neighbors and government agencies — to help the HACCP process run smoothly and successfully.

According to Stefan, the HACCP process consists of seven main principles. These include hazard analysis; identification of critical control points; establishment of critical limits; monitoring procedures; corrective actions; record verification (to a third party); and verification of procedures.

While processors are implementing these aspects of the HACCP program in their plants, Stefan said, producers should learn

to look for signs of physical hazards, natural toxins, bacterial or parasitic zoonotic diseases (those which are communicable from animals to humans), and especially chemical contaminants, like drug residues.

Stefan explains that the role of FSIS in food animal production safety involves four main components: promoting voluntary food safety assurance programs; illustrating HACCP concepts to producers as a preventative framework; facilitating and coordinating research; and coordinating the link of animals from the farm to the plant door.

<WWW.FOODTECHEXPO.COM> to a PC Near You

Effective August 1, 1997, the latest in food products, ingredients, technologies, and services worldwide will be featured on a new virtual website, <<http://www.FoodTechExpo.com>>, developed by the Institute of Food Technologists (IFT) and Chapman & Hall publishing company of London.

This on-line trade show will allow information to be retrieved by company, product, or service round the clock and round the world. More than 800 exhibitors will be "virtually" accessible in September, including those that exhibited at IFT's 1997 Food Expo in Orlando, FL. New companies will be added on a monthly basis; all that sign up to exhibit at IFT's 1998 Food Expo in Atlanta, GA will automatically receive a standard virtual booth.

Other features of the site include a Visitor's Center, where users can learn how to use the site and subscribe to targeted mailing lists; and IFT Member Center with information about IFT's services; a Student Center for food science students with information on universities and courses, a job

center, chat room, library, and bookstore; a Conference Room for users to participate in on-line conferences with exhibitors or third parties; and a library and bookstore featuring more than 500 Chapman & Hall books, journals, and CD-ROMs.

1997 Distinguished Service Award of the American Dairy Science Association Presented to George A. Muck

George A. Muck, Vice President of Research and Development, Dean Foods Company, Rockford, Illinois, received the 1997 Distinguished Service Award from the American Dairy Science Association (ADSA) for his valuable contributions to the dairy processing industry.

Both Dean Food Company, his employer for more than 35 years, and ADSA have benefited greatly from his efforts. His abundance of knowledge of dairy product chemistry and microbiology, his amiable personality, and his ability to reason through difficult industry problems, have caused him to be in great demand for university and industry-sponsored short courses and conferences. Dean Foods Company has been in the forefront with new processing and training innovations largely because of Muck's creativity. He has always been willing to share these innovations, even with his competitors. His attitude has always been that improvement in one segment of the industry will benefit the entire industry. In 1975, Muck established a quality control training program for Dean Foods. In this program, a recent graduate would work in a training position for 6 to 9 months before being placed as a Quality Control Director. This program has benefited the person, the company, and the dairy

industry. Muck continues to be the person responsible for this method of career enhancement within Dean Foods.

Muck has been a member of ADSA since 1968 and has served the Association in many capacities. Within the Dairy Foods Division, he has been active in all aspects, served as Secretary, Vice Chair, and Chair. He has served on the Board of Directors of ADSA, Vice President of the Association in 1979, President in 1980, and Past President in 1981. He has continued to serve by judging both undergraduate and graduate paper presentation contests and currently serves on the ADSA Foundation Board of Trustees and the Long-Range Planning Committee. Muck's participation and contributions are not limited to ADSA. He is also a Member of the International Association of Milk, Food and Environmental Sanitarians, American Cultured Dairy Products Institute, Illinois Association of Milk and Food Sanitarians, National Dairy Council, National Dairy Board, Dairy Management, Inc., National Conference of Interstate Milk Shippers, Whey Products Institute, the National Center for Food Safety and Technology, and International Dairy Foods Association.

New Basic Guide to Processing Vegetables

A higher percentage of vegetables are being commercially processed than ever before. This increased demand for processed vegetables results, in large part, from the desire of the consumer to reduce preparation time; the need for a more diversified diet throughout the year; the increase in urban population; and the rising standard of living.

Now published, *Processing Vegetables: Science and Technology* provides a detailed, expert guide to current methods of vegetable processing.

The book was edited by Durward S. Smith, Department of Food Science, University of Nebraska; Jerry N. Cash, Department of Food Science, Michigan State University; Ai-Kit Nip, Department of Food Science and Human Nutrition, University of Hawaii at Manoa; and Y. H. Hui, American Food and Nutrition Center.

The book discusses how the vegetable industry, utilized mass production to process the large quantities of product demanded by consumers. Recent advances in vegetable processing include improved packaging systems, minimal processing technologies, high-temperature agitating retorts, and improved frozen food systems, along with greater use of automation, mechanical harvesting, and bulk handling of produce during continuous process operations.

Vulcan Chemical Technologies Receives Commercial Approval for RioLinda®

The USDA has approved the RioLinda® chlorine dioxide generator supplied by Vulcan Chemical Technologies' (VCT) Food and Beverage business for applications in poultry chill water. Approval was given after a review of data collected from five separate generator trials illustrating ability to operate well within the FDA guidelines.

Chlorine dioxide has a number of substantial advantages in disinfection of poultry chill water. Because it does not react with organic material in process water, residuals can be maintained that aggressively reduce water microbiology, which in turn improves carcass quality. *E. coli* and coliform

counts can be reduced by 1 to 3 logs in most instances. *Salmonella* incidents can be reduced by at least 50%. Chlorine-dioxide reacts almost exclusively by oxidation, and does not chlorinate organic compounds.

Ecolab to Acquire Chemidyne Marketing Cleaning and Sanitizing Business

Ecolab, Inc., announced it has agreed to purchase the Chemidyne Marketing Division of Chemidyne Corp., of Macedonia, OH. Chemidyne Marketing is a provider of cleaning and sanitizing products and equipment to the meat, poultry, and processed foods market in the U.S.

Ecolab is a global developer and marketer of premium cleaning, sanitizing and maintenance products and services for the hospitality, institutional and light industrial markets.

American Dairy Science Association Foundation Awards First Foundation Scholar Award

Susan E. Duncan, Virginia Polytechnic Institute and State University in Blacksburg, has been awarded the first ADSA Foundation Scholar Award.

The award recognizes young scientists with demonstrated excellence in research that focuses on critical issues facing the dairy industry. Duncan's research falls in four dairy processing areas. These include fat globule envelopment and emulsion technology in dairy product systems, sensory evaluation of dairy products, nutritional enhancement of dairy products, and dairy product safety.

Duncan received the award in recognition of her timely research focusing on the need of the dairy industry to alter the image of dairy products through technological advancements. Her understanding of the advances the dairy industry requires in the four processing areas of her research is complemented by her excellent capabilities in project design, experimentation, and analysis.

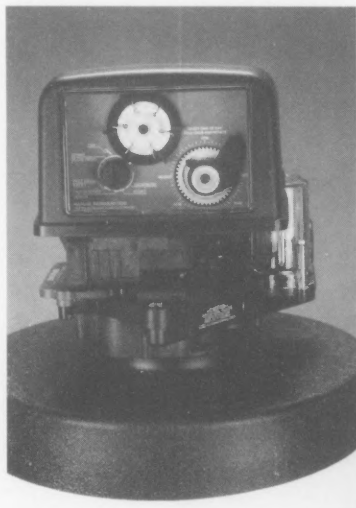
Duncan received her B.S. with honors in food technology and science from the Ohio State University; her M.S. degree in foods and nutrition from Indiana University of Pennsylvania; and her Ph.D. degree in food technology and science in 1989 from the University of Tennessee. She is also a Member of the International Association of Milk, Food and Environmental Sanitarians.

Walker Stainless Equipment Co., Inc. Acquires Norman Machinery Company, Inc.

Walker Stainless Equipment Co., Inc., a subsidiary of Carlisle Companies, Inc. (NYSE: CSL), announced that it has completed the acquisition of Norman Machinery Company, Inc. of Newark, NJ. Norman Machinery specializes in the manufacture of high speed mixer/liquifiers serving the leading food and beverage companies.

Walker Stainless Equipment Co., Inc., is a supplier of stainless steel tanks and equipment for transportation, receiving, processing and storage of food, dairy, beverage, pharmaceutical, chemical, cosmetic and biotech products.

IndustryProducts



Osmonics

New Low-Voltage Clock Timer Improves On Time-Tested Design

Osmonics has introduced the new Autotrol low-voltage 440i clock timer. This improved timer control continues to be available for both six-d or seven-d operation. The timer is easily set by positioning pins on the skipper wheel. The actual time of day is programmed with a 24-h timer knob. The new 440i has a modern appearance with a quick-fit, snap-together assembly.

A wall-mounted 12-volt transformer is standard with an extra-long 10-foot cord. To simplify installations, optional 15-foot extension cords are available and three cords can be linked together for a total length of up to 55 feet. Although the Autotrol 440i timer

control has a new modern look, the proven gear train design is unchanged. The outside dimensions of the control remain the same as the previous model, making the new 440i low-voltage timer control completely interchangeable with all previous 440 timer controls.

Osmonics, Minnetonka, MN

Reader Service No. 320

Tri Reagents for Specific Starting Sources

Sigma introduces two new Tri Reagents™; Tri Reagent™ BD and Tri Reagent™ LS, formulated for specific starting sources. Tri Reagent™ BD is optimized to work with blood derivatives such as whole blood, plasma or serum. It is also the most effective of the three formulations for isolating viral RNA. Tri Reagent™ LS is formulated to work with liquid samples such as biological fluids or tissue suspensions.

Like the original Tri Reagent™, both new formulations simultaneously isolate RNA, DNA and proteins from large or small amounts of tissues or cells. Source material can be from human, animal, plant, yeast, bacterial, or viral samples. In one hour, you will have pure RNA ready to use in Northern blots, mRNA isolation, *in vitro* translation, RNase protection assays, or PCR. In three hours, you will have DNA for PCR, restriction enzyme digestion or Southern blots, and protein for probing in Western

blots. All three formulations of Tri Reagent™ are offered in 25, 100 and 200 ml package sizes.

Sigma, St. Louis, MO

Reader Service No. 321

ESS Laboratories Accepted in FSIS Laboratory Recognition Program

ESS Laboratories has been accepted into the FSIS Laboratory Recognition Program for performing *Salmonella* analysis on official liquid pasteurized egg product surveillance samples.

Serving the food industry since 1978 with microbiological, chemical, and physical analyses, ESS Laboratories is available to meet your analytical needs. With services ranging from the manufacturing of Drag Swabs, to analyzing official egg samples, ESS Laboratories provides quality testing in a prompt and professional manner.

ESS Laboratories, Culpepper, VA

Reader Service No. 322

PCR-based Bacterial Screener Gets AOAC Approval

BAX™ for Screening/*Salmonella*, a rapid, genetics-based pathogen detection test manufactured by DuPont subsidiary Qualicon, Inc., has earned Performance Tested Certification from the AOAC Research Institute.

The publishers do not warrant, either expressly or by implication, the factual accuracy of the products or descriptions herein, nor do they so warrant any views or opinions offered by the manufacturer of said articles and products.

BAX™ for Screening/*Salmonella* is the first PCR-based test to earn this important endorsement from the AOAC, an independent association of scientists in the public and private sectors that is devoted to promoting methods validation and quality measurements in the analytical sciences.

An AOAC international subsidiary, AOAC Research Institute, administers the Performance Tested Test Kit Program. It arranges third party review of proprietary commercial test kit methods in order to confirm the manufacturer's performance claims. By passing this rigorous review process, BAX™ for Screening/*Salmonella* test kits are now entitled to display the AOAC Performance Tested Logo.

Qualicon™ also offers BAX™ for Screening/*E. coli* O157:H7 and BAX™ for Screening/*Listeria monocytogenes*. The company is also developing a detection test for *Listeria*.

Qualicon, Wilmington, DE

Reader Service No. 323

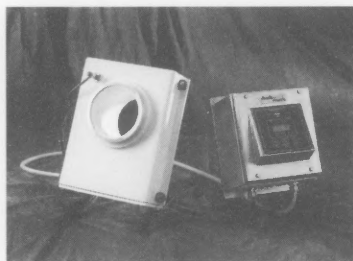
Whatman LabSales HACCP Workbook

Whatman LabSales recently printed and released a new Informational Workbook for Hazard Analysis Critical Control Point Planning. Perfect for any facility conducting food testing, analysis and quality control, this 20 page manual offers a complete guide to creating a HACCP Program. This workbook introduces a step-by-step planning approach that can be customized to the specific needs and requirements of any facility. The booklet also includes sample worksheets for documentation purposes plus a comprehensive HACCP list of related interest groups and informative organizations that includes locations, web-

sites and telephone numbers. The instructional manual also features a brief history of the development of HACCP and news regarding its future.

Whatman LabSales, Inc., Hillsboro, OR

Reader Service No. 324



Ramsey

MetalScout IIe "VF" Vertical Form Fill Seal Metal Detector Now Available

Ramsey/Icon introduces its most advanced metal detector ever; the MetalScout IIe. The metal detector is a micro processor-based instrument designed for use in the food processing, food packaging and pharmaceutical industries. The MetalScout IIe provides the user with progressive metal detection technology.

The MetalScout IIe "VF" Vertical Form Fill Seal model is a superior metal detection system designed specifically for use in applications where space is very limited. This compact design can be easily installed between a combination scale and bagger in vertical form fill seal applications. With its special design the MetalScout II "VF" offers superior performance while inspecting products in a gravity fed operation.

The MetalScout IIe offers a "complete metal detection solution" with several new features.

These features include AuditCheck-Automatic Performance Verification System, Digital Signal Processing for maximum sensitivity in difficult applications, and the MetalNet communications package. The MetalScout IIe also features an enhanced Autolearn capability for easy operator setup. Other features include stainless steel construction, automatic balance control, auto tracking, design for USDA approval, 50 product setups and password protection.

Ramsey-A Thermo Sentron Co., Minneapolis, MN

Reader Service No. 325

Pest Service with ISO-9002 Registration Now Available

Quality assurance in pest management no longer has to mean "take our word for it." PRISM's Gold Medal Program™ is ISO-9002 registered, so independent auditors verify that the program meets world-class quality assurance standards on an ongoing basis. The first Integrated Pest Management (IPM) program to receive ISO-9002 registration in North America, Gold Medal was developed to meet the demanding needs of the food processing industry. It is available from PRISM Integrated Sanitation Management, Miami, FL, and PCO Services, Inc., Toronto, Canada.

Gold Medal is a true IPM program. It is based on the six critical IPM steps – monitoring, pest identification, sanitation, exclusion, extermination and verification. Gold Medal programs are customized for each client and include 24-h technical support, full documentation and 100 percent satisfaction guaranteed.

PRISM, Miami, FL

Reader Service No. 326

Organon Teknika ELISA Technology Offers Unparalleled Accuracy

Organon Teknika Corporation has been developing rapid methods for the food microbiology laboratory since 1985. The application of its revolutionary ELISA technology for the detection of foodborne pathogens has offered the food industry unparalleled accuracy, speed, and efficiency. *Salmonella* Capture-Tek™, our newest addition, combines the proven technology of the *Salmonella*-Tek™ ELISA with a patented immunomagnetic separation technology. By eliminating the need for selective enrichment, *Salmonella* Capture-Tek™ reduces your

supply and disposal costs and allows you to release *Salmonella*-negative samples in 24 h. We also offer *Listeria*-Tek™ and *EHEC*-Tek (the only test for *E. coli* O157:H7). Walk-away automation is available with the BacT/Alert®, microbial detection system for sterility testing of aseptically processed foods.

Organon Teknika, Durham, NC

Reader Service No. 327

Oil/Water Separator for Contaminated Air Compressor Condensate

New Balston® Oil/Water Separator for contaminated air compressor condensate is now available from Whatman Inc.

The Balston Oil/Water Separator offers proven technology which exceeds present and future standards. The Oil/Water Separator exceeds 10 ppm storm water regulations and produces the cleanest water of any system available.

The Balston Oil/Water Separator offers hands-off operation; unattended 24-h operation is the standard. Control systems monitor and announce conditions.

The system also offers low-cost processing and the lowest disposal cost. Operating cost is half that of competitive systems. The Balston system reduces waste volume by 98% while concentrating compressor lubricant for easy disposal.

Whatman, Inc., Haverhill, MA

Reader Service No. 328

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Reader Service No. 124

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"Our Experience Is Your Protection."

Reader Service No. 163

Amendment 1 to 3-A Sanitary Standards for Refractometers and Energy Absorbing Optical Sensors for Milk and Milk Products Number 46-00

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

- | | | | |
|--------|--|-------|---|
| A2 | In order to conform with these 3-A Sanitary Standards, refractometers and energy absorbing optical sensors shall comply with the following design, material, and fabrication criteria and the applicable documents referenced herein ¹ . | D3 | Bonded Materials |
| C1.5 | Rubber and rubber-like materials, glass materials, and plastic materials having product contact surfaces shall be of such composition as to retain their surface and conformational characteristics and be thermally stable when exposed to the conditions encountered in the environment of intended use and in cleaning and bactericidal treatment or sterilization. | D3.1 | Bonded glass, sapphire, quartz, fluorospar, or spinel having product contact surfaces shall be bonded in such a manner that the bond is continuous and mechanically sound so that when exposed to the conditions encountered in the environment of intended use and in cleaning and bactericidal treatment or sterilization, the optical material does not separate from the base material to which it is bonded. |
| C1.6 | The final bond and residual adhesive, if used, of bonded rubber and rubber-like materials, glass materials, and bonded plastic materials shall be nontoxic ² . | D10.2 | Bonded rubber and rubber-like materials and bonded plastic materials having product contact surfaces shall be bonded in a manner that the bond is continuous and mechanically sound so that when exposed to the conditions encountered in the environment of intended use and in cleaning and bactericidal treatment or sterilization, the rubber or rubber-like material or the plastic material does not separate from the base material to which it is bonded. |
| C1.7.3 | The final bond and residual adhesive, if used, of bonded glass or other material listed in C1.7 shall be nontoxic. | | |

Editorial changes to renumber alphanumeric designations, footnote references, and references to 3-A documents (e.g. 609-) are also included.

These amendments to 3-A Sanitary Standards for Refractometers and Energy Absorbing Optical Sensors for Milk and Milk Products, Number 46-00 are effective November 23, 1997.

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

²Adhesives shall comply with 21 CFR 175 - Indirect Food Additives: Adhesives and Components of Coatings. Document for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402; 202.512.1800.

Dairy, Food and Environmental Sanitation, Vol. 17, No. 10, Pages 696
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Amendment 1 to 3-A Sanitary Standards for Diaphragm-Type Valves for Milk and Milk Products Number 54-01

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

It is the purpose of the IAMFES, USPHS, DIC and FIC in connection with the development of the 3-A Sanitary Standards Program to allow and encourage full freedom for inventive genius or new developments. Diaphragm-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, DIC and FIC 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.

D10 The valve shall be of such design as to be self draining in its installed position. Diaphragm valves shall be permanently marked with either a descriptive stainless steel permanent and corrosion-resistant mounting instruction plate or label on the bonnet or a drain mark on the valve body to show and describe positively the self-draining angle when the valve is placed in service. An information mounting plate

or label permanently attached to the valve shall have a statement that only sterile food grade lubricant shall be used on the valve stem. The lubricant information and mounting instructions may be placed on the same plate or label. Lubricants complying with the Food, Drug, and Cosmetic Act as amended (CFR Title 21, Part 178.3570) meet the requirements of this section.

This amendment to 3-A Sanitary Standards for Diaphragm-Type Valves for Milk and Milk Products, Number 54-01 is effective November 23, 1997.

Coming Events

NOVEMBER

• **3-4, International Dairy Federation Symposium on Standards and Trade**, at the Palmer House Hilton Hotel in Chicago, IL. The symposium will examine the role of Codex Alimentarius, its relationship with the World Trade Organization (WTO) and its impact on dairy product standards – both national and international. For further information, contact Anne Divjak at the International Dairy Foods Association, 1250 H Street N.W., Suite 900, Washington, D.C. 20005; Phone 202.737.4332; Fax: 202.331.7820; E-mail: adivjak@idfa.org.

• **5-7, The Dairy Practices Council 1997 Annual Conference**, at the Harrisburg East Holiday Inn, Harrisburg, PA. For further information, contact The Dairy Practices Council, P.O. Box 866, Barre, VT 05641-0866; Phone/Fax: 802.476.3092; E-mail: Dairyipc@aol.com.

• **10-12, Drug Product Stability and Shelf Life**, New Brunswick, NJ. The intent of this course is to explore fundamentals of current principles and practices concerning the stability of pharmaceutical and cosmetic products, degradation of such products by chemical, physical and microbiological factors, and the development, validation and application of a stability indicating assay. For further information, contact Registrar, The Center for Professional Advancement, P.O. Box 1052, East Brunswick, NJ 08816; Phone: 908.613.4500; Fax: 908.238.9113.

• **12-13, Food and Drug Administration's Veterinary Medicine Advisory Committee Meeting**. The topic will be veterinary medical issues related to the quality standards for the manufacture of animal drugs, such as

current good manufacturing practices (CGMPs). For further information, contact Ms. Jacquelyn Pace, FDA/Center for Veterinary Medicine (HFV-200), 7500 Standish Place, Rockville, MD 20855; Phone: 301.594.5920; Fax: 301.594.4512.

• **17-18, Transmissible Spongiform Encephalopathies: Managing Risk in Mammalian Organs, Cells and Sera**, to be held at the Sheraton City Centre Hotel, Washington, D.C. Sponsored by NMHCC, BioTechnology Conference Division. For additional information, Phone: 888.882.2500; Fax: 941.365.0157; Outside the U.S. 941.957.0301.

• **17-20, ASI Fall Workshop, Food Safety and Sanitation**, in Chicago, IL. For information, contact Vicki Bodrow, ASI Food Safety Consultants, 7625 Page Blvd., St. Louis, MO 63133; Phone: 800.477.0778.

• **18, The 1997 Maryland Dairy Industry Association Annual Meeting**, at the Holiday Inn near Francis Scott Key Mall in Frederick, MD. We strive to secure speakers that deliver a valuable and timely message that producers can take home and put into practice. For additional information, contact Myron Wilhide, 1271 Keysville Road, Detour, MD 21757; Phone: 410.775.7201.

DECEMBER

• **3-5, 3rd Annual SERDP Symposium**, at the Washington Hilton Hotel, Washington, D.C. For the first time, it will sponsored in cooperation with the Environmental Security Technology Certification Program (ESTCP). For further information, contact SERDP Program Office, 901 N. Stuart St., Suite 303, Arlington, VA 22203; Phone: 703.696.2117; Fax 703.696.2114.

• **3-5, Good Clinical Practices**, San Francisco Bay Area, CA. This course will emphasize the specific responsibilities of those involved in clinical research along with the requirements by the federal agency to approve research developed for an NDA submission. For further information, contact Registrar, The Center for Professional Advancement, P.O. Box 1052, East Brunswick, NJ 08816; Phone: 908.613.4500; Fax: 908.238.9113.

• **8-10, Current Good Manufacturing Practice (cGMP) for the Pharmaceutical and Allied Industries**, Boca Raton, FL. For further information, contact Registrar, The Center for Professional Advancement, P.O. Box 1052, East Brunswick, NJ 08816; Phone: 908.613.4500; Fax: 908.238.9113.

• **9-10, Food Service HACCP**, New Brunswick, NJ. This two-day Hazard Analysis Critical Control Point (HACCP) approach is a unique management and inspection program based on the most frequent causes of foodborne disease outbreaks. For more information, contact Keith Wilson, Sr. Program Coordinator, Phone: 732.923.9271; Fax: 732.932.1187; E-mail: ocpe@aesop.rutgers.edu OR hill@aesop.rutgers.edu.

JANUARY 1998

• **5-9, Ice Cream Makers' Short Course**, Madison, WI. Offered by the University of Wisconsin-Madison. This 5-day short course is for those involved in or interested in the manufacture of frozen desserts or frozen novelties. Program Coordinator: Dr. Bob Bradley, 608.263.2007. For additional information, contact the Program Coordinators or Department of Food Science, University

of Wisconsin-Madison, Phone: 608.262.3046 or Fax: 608.262.6872.

• **12-15, Milk Pasteurization and Process Control School, Madison, WI.** Offered by the University of Wisconsin-Madison. This 4-day short course provides in-depth training for those dairy industry personnel involved with thermal processing of milk and milk programs. Program Coordinator: Dr. Bob Bradley, 608.263.2007. For additional information, contact the Program Coordinator or Department of Food Science, University of Wisconsin-Madison, Phone: 608.262.3046 or Fax: 608.262.6872.

• **27-28, Emerging Issues in Food Science, Nutrition and Technology,** sponsored by Southern California Chapter-Institute of Food Technologists. For more information, contact Mindy Reeves, Phone: 909.869.2200; Fax: 909.896.4454; E-mail: msreeves@csupomona.edu.

• **29, Feb. 2, INDPACK '98 International, International Exhibition**

& Conference for the Packaging Industry, in Mumbai (Bombay), India. For further information, contact Dusseldorf Trade Shows, New York, 70 West 36th St., Suite 605, New York, NY 10018; Phone: 212.356.0400; Fax: 212.356.0404; Website: http://www.dtsusa.com/dts/.

FEBRUARY

• **19-20, Concentrated & Dried Milk and Whey Products,** San Francisco Airport Hilton, San Francisco, CA. Review and update on science and technology of concentrated milk and whey products. Topics include the latest information on manufacture, performance and marketing trends including food applications and specifications of concentrated dairy ingredients such as concentrated milks, nonfat dry milk, whole milk powders and concentrates. For more information, contact Phil Tong, Phone: 805.756.6102; E-mail: ptong@calpoly.edu.

MARCH

• **23-27, PanAmerican Congress on Mastitis Control and Milk Quality,** Co-sponsored by IAMFES. Merida, Yucatan, Mexico. For more information contact: Dr. W. Nelson Philpot, P.O. Box 120, Homer, LA 71040, Phone: 318.927.2388; Fax: 318.927.3133.

APRIL

• **2-4, Introduction to Statistical Methods for Sensory Evaluation of Foods,** University of California-Davis, Davis, CA. This course introduces statistical analysis to the beginning sensory scientist with little or no statistical background and demonstrates how to perform the tests and provides a solid basis of understanding for sensory analysis. To register call 800.752.0881; after November 1, 1997, call 530.757.8777. For program information, contact Michael O'Mahony, at 916.752.6389; E-mail: maomhony@ucdavis.edu.

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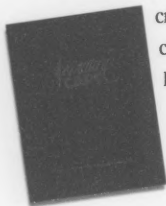
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