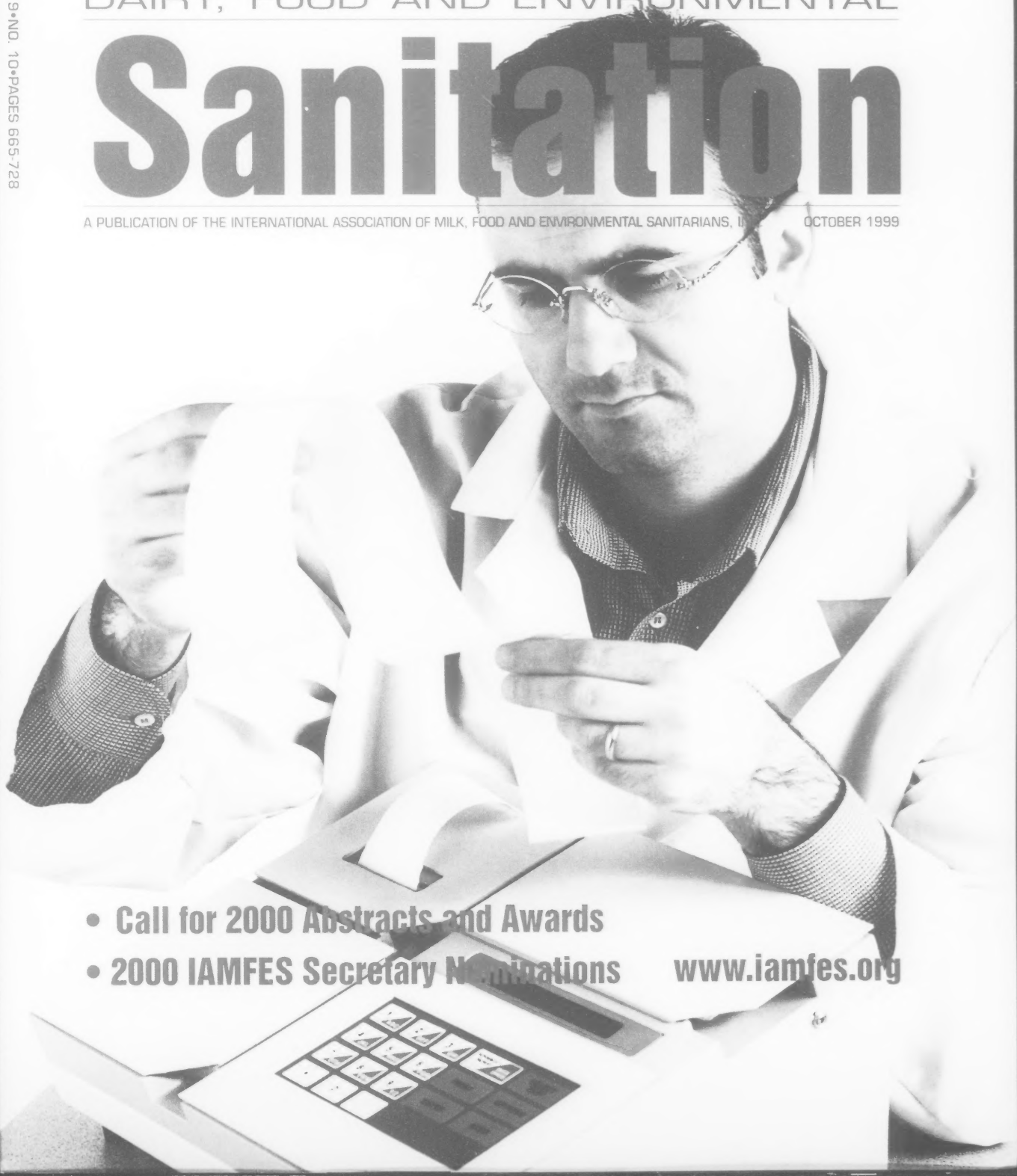
OCTOBER 1999•VOL. 19•NO. 10•PAGES 665-728

ISSN: 1043-3546
PERIODICALS
6200 Aurora Avenue•Suite 200W
Des Moines, Iowa•USA•50322

DAIRY, FOOD AND ENVIRONMENTAL

Sanitation

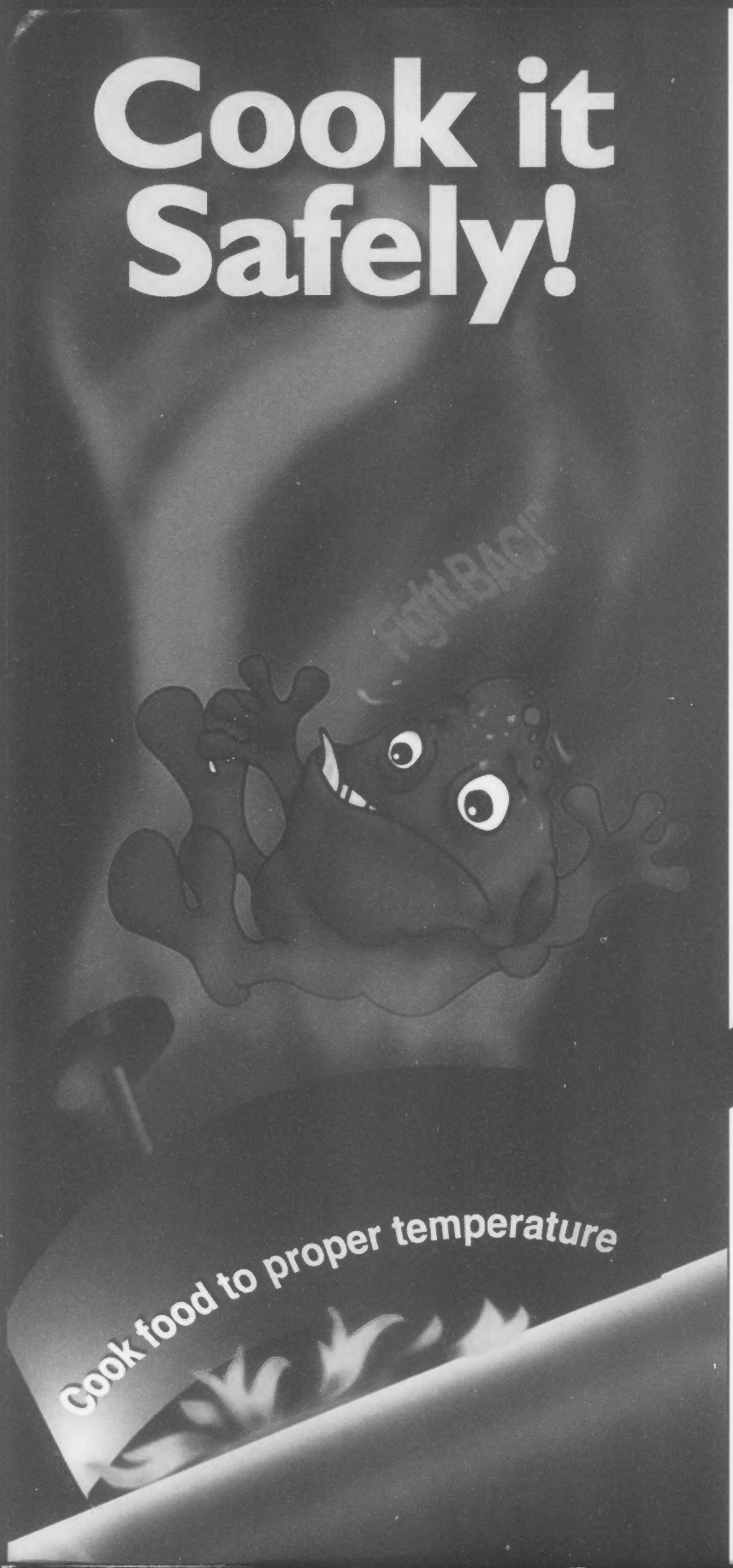
A PUBLICATION OF THE INTERNATIONAL ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, I OCTOBER 1999



- Call for 2000 Abstracts and Awards
- 2000 IAMFES Secretary Nominations

www.iamfes.org

Cook it Safely!



Cooking food to the proper internal temperature is one of four key steps to "**Fight BAC!**"™ and prevent foodborne illness. "Cook It Safely" – in September and every day of the year.

INTERNATIONAL FOOD SAFETY COUNCIL 1999

National Food Safety Education Month℠ was created by the International Food Safety Council, a restaurant and foodservice industry coalition committed to food safety education.

B220

ABOUT THE COVER...

Photo courtesy of VICAM, depicts their new T-2 TAG, o rapid test kit for detection of the toxic tricothecene mycotoxin T-2. VICAM olso hos o full line of existing mycotoxin kits for the detection of Aflotoxin, Deoxynivalenol, Fumonisin, Ochrotoxin, ond Zearalenone which con be used with HPLC or flurometric methods.

Use of this photo does not imply endorsement of ony product by IAMFES.

DAIRY, FOOD AND ENVIRONMENTAL

Sanitation

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

Articles

Association News

Departments

Extras

INTERNATIONAL ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, INC.
6200 Aurara Avenue, Suite 200W
Des Maines, Iowa 50322-2863, USA
800.369.6337 or 515.276.3344; Fax: 515.276.8655

DAIRY, FOOD AND ENVIRONMENTAL
Sanitation
A PUBLICATION OF THE INTERNATIONAL ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, INC.

Dairy, Food and Environmental Sanitation (ISSN-1043-3546) is published manthly beginning with the January number by the Internatianal Assaciatian af Milk, Faad and Enviranmental Sanitarians, Inc. 6200 Aurara Avenue, Suite 200W, Des Maines, Iawa 50322-2863, USA. Each valume camprises 12 numbers. Printed by Heuss Printing, Inc., 911 N. Secand Street, Ames, Iawa 50010, USA. Periadical Pastage paid at Des Maines, Iawa 50318 and additianal entry affices.

Manuscripts: Carrespandence regarding manuscripts shauld be addressed ta Danna A. Bahun, Praductian Editar, IAMFES, Inc.

News Releases, Updates, Coming Events and Cover Photos: Carrespandence far these materials shauld be sent ta Danna A. Bahun, Praductian Editar, IAMFES, Inc.

"Instructions for Authors" may be abtained fram aur Web site at www.iamfes.arg ar fram Danna A. Bahun, Praductian Editar, IAMFES, Inc.

Orders for Reprints: All arders shauld be sent ta **Dairy, Food and Environmental Sanitation,** IAMFES, Inc. Nate: Single capies af reprints are nat available fram this address; address single capy reprint requests ta principal authar.

Reprint Permission: Questians regarding permissian ta reprint any partian af **Dairy, Food and Environmental Sanitation** shauld be addressed ta: Danna A. Bahun, Praductian Editar, IAMFES, Inc.

Business Matters: Carrespandence regarding business matters shauld be addressed ta Lisa K. Havey, Managing Editar, IAMFES, Inc.

Membership Dues: Membership in the assaciatian is available ta individuals. Dues include a 12-manth subscriptian ta **Dairy, Food and Environmental Sanitation** at a rate af $85.00 US, $95.00 Canada/Mexica, and $110.00 Internatianal. Dues including **Dairy, Food and Environmental Sanitation** and the **Journal of Food Protection** are $140.00 US, $165.00 Canada/Mexica, and $210.00 Internatianal. Student memberships are available with verificatian af student status. Student rates are $42.50 US, $52.50 Canada/Mexica, and $67.50 Internatianal far **Dairy, Food and Environmental Sanitation**; $42.50 US, $57.50 Canada/Mexica, and $87.50 Internatianal far **Journal of Food Protection**; and $70.00 US, $95.00 Canada/Mexica, and $140.00 Internatianal far **Dairy, Food and Environmental Sanitation** and **Journal of Food Protection**. All membership dues include shipping and handling. Na cancellatians accepted. Carrespandence regarding changes af address and dues must be sent ta Julie A. Cattanach, Membership Services, IAMFES, Inc.

Sustaining Membership: A sustaining membership in IAMFES is available ta campanies at a rate af $525.00 per year. Far mare infarmatian, cantact Julie A. Cattanach, Membership Services, IAMFES, Inc.

Subscription Rates: Dairy, Food and Environmental Sanitation is available by subscriptian far $185.00 US, $195.00 Canada/Mexica, and $210.00 Internatianal. Single issues are available far $24.00 US and $33.00 all ather cauntries. All rates include shipping and handling. Na cancellatians accepted. Far mare infarmatian cantact Julie A. Cattanach, Membership Services, IAMFES, Inc.

Claims: Natice af failure ta receive capies must be reparted within 30 days damestic, 90 days autside US.

Postmaster: Send address changes ta **Dairy, Food and Environmental Sanitation,** 6200 Aurara Avenue, Suite 200W, Des Maines, Iawa 50322-2863, USA.

Dairy, Food and Environmental Sanitation is printed an paper that meets the requirements af ANSI/NISO 239.48-1992.

IAMFES Annual Meetings

2000

August 6-9

Hilton Atlanta
Atlanta, Georgia

2001

August 5-8

Hilton Minneapolis
Minneapolis, Minnesota

2002

June 30-July 3

Hyatt Regency
San Diego

San Diego, California

DAIRY, FOOD AND ENVIRONMENTAL

Sanitation

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

"The mission of IAMFES is to provide food safety professionals worldwide with a forum to exchange information on protecting the food supply."

Sustaining Members

3-A Symbol Council, 1500 Second Ave., SE, Suite 209, Cedar Rapids, IA 52403; 319.286.9221

3M Microbiology Products, 3M Center, Bldg. 275, St. Paul, MN 55144-1000; 612.733.9558

ABC Research, 3437 S.W. 24th Ave., Gainesville, FL 32607; 352.372.0436

Advanced Instruments, Inc., Two Technology Way, Norwood, MA 02062; 781.320.9000

Anderson Instrument Co., 156 Auriesville Road, Fultonville, NY 12072; 518.922.5315

ASI Food Safety Consultants, Inc., 7625 Page Blvd., St. Louis, MO 63133; 800.477.0778

Audits International, 1899 Second St., Highland Park, IL 60035-3113; 847.433.0900

Becton Dickinson Microbiology Systems, Inc., 7 Loveton Circle, Sparks, MD 21152-9212; 410.584.8959

Bentley Instruments, Inc., 4004 Peavey Road, Chaska, MN 55318; 612.448.7600

BioControl Systems, Inc., 12822 SE 32nd St., Bellevue, WA 98005; 425.603.1123

Biolog, Inc., 3938 Trust Way, Hayward, CA 94545; 510.785.2564

bioMérieux, Inc., 595 Anglum Road, Hazelwood, MO 63042-2320; 800.638.4835

Capitol Vial, Inc., 4525 E. Skyline, Suite 105, Tucson, AZ 85718-1600; 602.529.0788

Capitol Wholesale Meats, 911 W. 37th Place, Chicago, IL 60609-1412; 773.890.0600

Chr. Hansen, Inc., 9015 W. Maple St., Milwaukee, WI 53214; 414.607.5700

CIAD A.C., Carr. A La Victoria Km 0.6, Hermosillo, Sonora MEXICO 83000; 52.62.80.0057

Cogent Technologies Ltd., 11140 Luschek Dr., Cincinnati, OH 45241; 513.469.6800

DQCI Services, Inc., 5205 Quincy St., Mounds View, MN 55112-1400; 612.785.0484

DARDEN Restaurants, P.O. Box 593330, Orlando, FL 32859-3330; 407.245.5330

Darigold, Inc., 635 Elliott Ave. W., P.O. Box 79007, W. Seattle, WA 98119; 206.286.6772

Dean Foods, P.O. Box 7005, Rockford, IL 61101-7005; 815.962.0647

Decagon Devices, 950 N.E. Nelson Court, P.O. Box 835, Pullman, WA 99163; 509.332.2756

DiverseyLever DuBois, 255 E. Fifth St., Suite 1200, Cincinnati, OH 45202-4799; 513.762.6794

DonLevy & Associates, Inc., 1551 E. 89th Ave., Merrillville, IN 46410; 219.736.0472

DSM Food Specialties, N89 W14475 Patrita Dr., Menomonee Falls, WI 53051; 414.255.7955

Dynal, Inc., 5 Delaware Dr., Lake Success, NY 11042; 516.326.3270

Eaton Hall Expositions, 256 Columbia Turnpike, Florham Park, NJ 07932; 800.746.9646

Ecolab, Inc., 370 Wabasha St. N., St. Paul, MN 55102; 612.293.2364

Educational Foundation of the National Restaurant Assn., 250 S. Wacker Dr., Suite 1400, Chicago, IL 60606-3834; 800.765.2122

Electrol Specialties Company, 441 Clark St., South Beloit, IL 61080; 815.389.2291

Evergreen Packaging, Division of International Paper, 2400 6th St., S.W., Cedar Rapids, IA 52406; 319.399.3236

F & H Food Equipment Co., P.O. Box 3985, Springfield, MO 65808; 417.881.6114

FoodHandler, 514 Grand Blvd., Westbury, NY 11590; 800.338.4433

Foss North America, Inc., 7682 Executive Dr., Eden Prairie, MN 55344-3677; 612.974.9892

FRM Chem, Inc., P.O. Box 207, Washington, MO 63090; 314.583.4360

Gardex Chemicals Ltd., 7 Meridian Road, Etobicoke, ON M9W 4Z6; 800.563.4273

GENE-TRAK Systems, 94 South St., Hopkinton, MA 01748; 508.435.7400

Glo Germ Company, 150 E. Center St., Moab, UT 84532-2430; 800.842.6622

Great Western Chemical Co., 1717 E. Fargo, Nampa, ID 83687-6827; 208.466.8437

IBA, Inc., 27 Providence Road, P.O. Box 31, Millbury, MA 01527; 508.865.6911

IDEXX Laboratories, Inc., One Idexx Dr., Westbrook, ME 04092; 207.856.0300

Sustaining Members

Innovative Cleaning Equipment, 4445 44th St., Grand Rapids, MI 49512; 616.285.6055

International BioProducts, Inc., 14780 N.E. 95th St., Redmond, WA 98052; 425.883.1349

International Dairy Foods Association, 1250 H St. N.W., Suite 900, Washington, D.C. 20005; 202.737.4332

J. J. Keller & Associates, 3003 W. Breezewood Lane, Neenah, WI 54957-0368; 920.720.7625

KenAg Inc., 101 E. 7th St., Ashland, OH 44805; 800.338.7953

Kraft Foods, Inc., 801 Waukegan Road, Glenview, IL 60025; 847.646.3678

Land O'Lakes, Inc., P.O. Box 64101, St. Paul, MN 55164-0101; 612.481.2870

Malthus Diagnostics, Inc., 35888 Center Ridge Road, North Ridgeville, OH 44039; 440.327.2585

Maryland & Virginia Milk Producers Cooperative Assn., Inc., 1985 Isaac Newton Square, West, Reston, VA 20190-5094; 703.742.6800

Medallion Labs, 9000 Plymouth Ave., Minneapolis, MN 55427; 612.764.4453

Michelson Laboratories, Inc., 6280 Chalet Dr., Commerce, CA 90040; 562.928.0553

NSF International, 3475 Plymouth Road, Ann Arbor, MI 48105; 313.769.5523

NASCO International, 901 Janesville Ave., Fort Atkinson, WI 53538; 414.563.2446

The National Food Laboratory, 6363 Clark Ave., Dublin, CA 94568; 510.551.4231

National Food Processors Association, 1350 I St. N.W., Suite 300, Washington, D.C. 20005-3305; 202.639.5985

Nelson-Jameson, Inc., 2400 E. Fifth St., P.O. Box 647, Marshfield, WI 54449-0647; 715.387.1151

Neogen Corporation, 620 Lesher Place, Lansing, MI 48912; 517.372.9200

NESTLÉ USA, Inc., 800 N. Brand Blvd., Glendale, CA 91203; 818.549.5799

Norton Performance Plastics Corp., P.O. Box 3660, Akron, OH 44309-3660; 216.798.9240

Organon Teknika Corp., 100 Akzo Ave., Durham, NC 27712; 919.620.2000

Oxoid, Inc., 217 Colonnade Road, Nepean, Ontario, Canada K2E 7K3; 800.567.8378

PE Applied Biosystems, 850 Lincoln Centre Dr., Bldg. 400, Foster City, CA 94404; 650.638.5413

Penn State University, University Creamery, 12 Borland Laboratory, University Park, PA 16802; 814.865.7535

PestWest Electronics Ltd., Denholme Drive, Ossett, West Yorkshire, England WF5 9NB; 44.1924.277631

PRISM Integrated Sanitation Management, 8300 Executive Center Dr., Miami, FL 33166-4680; 305.592.6312

Process Tek, 1991 Big Bend Dr., Des Plaines, Il 60016; 847.296.9312

Qualicon, A DuPont Subsidiary, P.O. Box 80357, Wilmington, DE 19880-0357; 302.695.2262

R-Tech, P.O. Box 64101, St. Paul, MN 55164-0101; 800.328.9687

Raven Biological Labs, 8607 Park Dr., Omaha, NE 68127; 402.593.0781

REMEL, Inc., 12076 Santa Fe Dr., Lenexa, KS 66215-3594; 800.255.6730

Rhodia, Inc., P.O. Box 592, Madison, WI 53701; 800.356.9393

Rochester Midland Corp., 333 Hollenbeck St., Rochester, NY 14621; 716.336.2360

Ross Laboratories, 3300 Stelzer Road, Columbus, OH 43219; 614.624.3785

Seiberling Associates, Inc., 94 North High St., Suite 350, Dublin, OH 43017-1100; 614.764.2817

Silliker Laboratories Group, Inc., 900 Maple Road, Homewood, IL 60430; 708.957.7878

Universal Sanitizers & Supplies, Inc., P.O. Box 50305, Knoxville, TN 37950; 423.584.1936

Warren Analytical Laboratory, 650 'O' St., P.O. Box G, Greeley, CO 80632-0305; 800.945.6669

Weber Scientific, 2732 Kuser Road, Hamilton, NJ 08691-9430; 609.584.7677

West Agro, Inc., 11100 North Congress Ave., Kansas City, MO 64153; 816.891.1528

Zep Manufacturing Co., 1310 Seaboard Industrial Blvd., Atlanta, GA 30318; 404.352.1680

QUOTATIONS

FROM JACK

By JACK GUZEWICH
IAMFES President

"You may be able to help someone else with their career just by getting them to join our Association"

One of the constant challenges professional organizations face is maintaining and growing membership. Many of us are not naturally inclined to be sales people and to go out and find new members or we just do not have the time. Rather than trying the usual pep talk to encourage you to identify new members I thought I would share with you the impact Membership in IAMFES has had in one person's career. You may be able to help someone else with their career just by getting them to join our Association.

I started as a sanitarian in the Glens Falls District Office of the New York State Department of Health in the fall of 1970. Very early on I was given a stack of reference materials to become familiar with. One of those was a little booklet *Procedure for the Investigation of Foodborne Disease Outbreaks – Second Edition 1966* published by IAMFES. I still have that booklet. I actually enjoyed reading it as the subject was very interesting and the "how to" approach of writing was much more practical than most of the stuff I had to become familiar with. That winter and following spring I attended the 12-week Basic Environmental Health course all new sanitarians were required to take. At the end of that course the training officer gave us a "fatherly" talk about our careers and how to pursue them. One of his strongest pieces of advice was to join one or more of several professional organizations he named. We were to read their publications and become active members e.g., join committees, run for office. I joined the New York State Association of Milk and Food Sanitarians, IAMFES, and the National Environmental Health Association soon thereafter and I still belong to all three.

I soon began receiving the *Journal of Milk and Food Technology*, now called the *Journal of Food Protection*. Many of the articles were over my head, but it was a challenge to read them and to see all of the fascinating things going on in food safety. I took particular note of the articles written by Dr. Frank Bryan who had become the chair of the Committee for Communicable Diseases Affecting Man and a frequent author in the *Journal of Milk and Food Technology*. In 1973-74, I took a one-year leave of absence from my job to attend the University of Minnesota where I earned a master's of public health degree. One of the courses I took was food microbiology taught by Dr. Frank Busta, by no small coincidence a frequent contributor to articles I was reading in the *Journal of Milk and Food Technology*. I also learned about HACCP from Dr. Busta and decided that I would do everything I could do to encourage HACCP use in the food industry. In 1976 *Procedures to Investigate Foodborne Illness – Third Edition 1976* was published and became an important part of my reference materials.

In 1980, I moved to the central office of the New York State Department of Health where I took on the task of developing

an active foodborne disease surveillance program for the state. One of the first things I did was develop a policy that cited the IAMFES *Procedures to Investigate Foodborne Illness* as our official procedure for outbreak investigations and the forms in the book as the forms to be used. After collecting foodborne disease data for three years we had clear evidence of the contributing factors leading to outbreaks in the state and solid justification to move our regulatory program to HACCP. By that time I was also the lead person for the food service regulatory program in the state. I called on Frank Bryan, who I had gotten to know through his many IAMFES publications and subsequent phone conversations, to assist us in developing the program and train our staff in HACCP.

In the mid 1980s I attended my first IAMFES Annual Meeting in response to an invitation to speak about our New York program. I was thrilled! In later years I was able to attend IAMFES Annual Meetings on a regular basis and to join the Committee for Communicable Diseases Affecting Man. I am proud to have been a contributor to two editions of *Procedures to Investigate Foodborne Illness*, one edition of *Procedures to Investigate Waterborne Illness* and *Procedures to Implement the HACCP System*.

In 1997, I joined the FDA where I now am Foodborne Outbreak Coordinator for the Center for Food Safety and Applied Nutrition. I still refer to the *Procedures to Investigate Foodborne Illness* all the time.

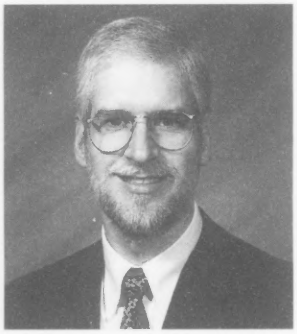
At the Annual Meeting in Pittsburgh, Past President Harold Bengsch asked me to run for secretary of the organization and to my surprise I was elected! One of the most gratifying experiences in my time as a Member of IAMFES has been being a Member of the Executive Board and helping to select Dr. Frank Bryan and Dr. Frank Busta as two of the first Members to receive our Fellows Award.

Over the many years, the IAMFES journals have been my monthly textbook on microbial food safety. The Annual Meetings have brought me up to date on breaking issues in food safety and have been an excellent opportunity to network with the movers and shakers in the food safety arena. Participation on the Program Committee, the Committee on Communicable Diseases Affecting Man and several Professional Development Groups have provided me with the opportunity to contribute as well as learn from other professionals who share common interests.

Now I am honored to be President of the Association and I am hoping that others early in their careers can be as fortunate as I have been in being a Member. Unfortunately, I do not know all of the potential Members out there, but you do. You can give these individuals the encouragement to join an organization that can help them on their road to a successful career. Take a minute to jot down the names of those folks and make it a point to ask them to join the Association as soon as possible. Some day they will thank you.

COMMENTARY

FROM THE EXECUTIVE DIRECTOR



By DAVID W. THARP
IAMFES Executive Director

"Ask yourself, how can I help the IAMFES Foundation achieve its goal of $100,000 in 2000?"

The IAMFES Foundation held its 2nd Annual Silent Auction at the Annual Meeting in Dearborn, Michigan August 1-4. For the second year in a row, we had excellent participation from individual Members, from our Affiliated Associations, and from many companies and organizations who contributed items to the Auction. This year, the Foundation's Silent Auction raised more than $2,700 to benefit activities supported by the Foundation.

In 1998, Fund Chairperson, Harry Haverland issued a goal to build the Foundation's assets up to $100,000 in the year 2000. The fund assets currently total just short of $85,000. During the past year, we received more than $2,000 in direct cash contributions from IAMFES Members and also received a $1,000 contribution from the California Affiliate. We have seen good growth in the Foundation's investments, but now it is time to plead with you to make a contribution to the Foundation Fund!

Let's take a look at the wonderful programs that the Foundation supports yearly. The Foundation supports 100% of the expense related to our Audiovisual Library of training and educational videotapes. There are over 75 titles in our Library and we have more than 300 tapes available for Member use, free of charge! Are you a regular user of the Library? If so, look at the value you receive at no cost and consider a small contribution so that others may enjoy the benefit as you do.

Travel funds to help support presentations at our Annual Meeting are also supported by the Foundation. This program is used where an urgent need is demonstrated and is monitored by our Program Committee and Executive Board. Also at the Annual Meeting, our Ivan Parkin Lecturer is supported by the Foundation. We have been fortunate to attract many well-known leaders in the arena of food safety and food protection. The Foundation's support of this Opening Lecture adds a nice touch to our Annual Meeting.

Other programs supported by the Foundation Fund include the Developing Scientist Competition for food science students, shipment of excess journals to developing countries, and support of the Crumbine Award, which is presented annually to a local health unit demonstrating excellence in food protection.

I hope that this helps you become more aware of the IAMFES Foundation and its activities. The Foundation truly helps IAMFES carry out our mission of "Providing food safety professionals worldwide with a forum to exchange information on protection the food supply."

Again, we encourage you to make a contribution to the Foundation in whatever amount is comfortable for you or your organization. Ask yourself, how can I help the IAMFES Foundation achieve its goal of $100,000 in 2000? You may include your contribution when paying your Membership renewal or simply send a contribution to the IAMFES office clearly marked "IAMFES Foundation." You might also consider whether your company or organization is able to contribute. Each Affiliate organization could ask their Board to consider making a contribution. All contributions will be put to good use, I assure you!

To conclude, we want to thank each of the individuals, Affiliate organizations and companies who contributed to the Foundation over the years and to those who contributed to this year's Foundation Fund Silent Auction. We also want to thank everyone who participated in the bidding process at this year's Auction. Thanks also to the highest bidder for each item. We hope that you enjoyed the Auction and we are looking forward to next year's Auction!

IAMFES FOUNDATION FUND SILENT AUCTION RESULTS

ITEM	SPONSOR	HIGHEST BIDDER
2000 Annual Meeting Registration #1	IAMFES	Anna Lammerding
2000 Annual Meeting Registration #2	IAMFES	Albert Espinoza
Amish Wall Hanging	Harry Haverland	Karl Olson
Antichi Edifizi Lithograph	F.A.O., Rome, Italy	Debbie Thompson
Antique Coffee Pot (1910-20)	Howard Hutchings	Anna Lammerding
Award Banquet Ticket	Harry Haverland	Fred Weber
Basilica Lithograph	F.A.O., Rome, Italy	Debbie Thompson
Bolo Tie Black Stone	Alice Haverland	Pete Cook
Bolo Tie Turquoise Stone	Alice Haverland	Pete Cook
Bruce Springsteen – Born to Run CD	Metropolitan Affiliate	John Johnson
Bruce Springsteen – Greetings from Asbury Park	Metropolitan Affiliate	Ken Tometsko
Bruce Springsteen – Born in the USA	Metropolitan Affiliate	John Johnson
Bruce Springsteen – The Wild, The Innocent	Metropolitan Affiliate	Ken Tometsko
Country Breakfast Kit #1 – 2 Mix 1 Syrup	Kathy Jones	M. Anderson
Country Breakfast Kit #2 – 2 Mix 1 Syrup	Kathy Jones	Gary W. Sherlaw
Darden Gift Certificate #1	Darden Restaurants Inc.	Albert Espinoza
Darden Gift Certificate #2	Darden Restaurants Inc.	Albert Espinoza
Darden Gift Certificate #3	Darden Restaurants Inc.	Dennis Westhoff
Darden Gift Certificate #4	Darden Restaurants Inc.	Dennis Westhoff
Food Quality '99 Full Meeting Registration	Food Quality Magazine	Bob Deibel
Edmund Fitzgerald Twilight Passage – Framed Print	Michigan Affiliate	John Bruhn
Loons – Framed Print	Michigan Affiliate	John Bruhn
GE 900MGZ Cordless Phone	Charles Price	Vicky Benesch
Gift Certificate	Mountain Jack's Restaurants	Charles Price
Gift Certificate	Mountain Jack's Restaurants	John Cerveny
Handmade Quilt	Georgia Affiliate	Harry Haverland
Missouri Country Sugar Cured Ham	Missouri Affiliate	Dennis Decker
Mole Adriana Lithograph	F.A.O., Rome, Italy	Debbie Thompson
Pearl Necklace	David and Connie Tharp	Dennis Westhoff
Piramide Sepolcrale Lithograph	F.A.O., Rome, Italy	Debbie Thompson
Proc. to Inv. Foodborne/Waterborne Illness #1	IAMFES	Ely P. Ramos
Proc. to Inv. Foodborne/Waterborne Illness #2	IAMFES	Hiroshi Takahashi
Screensaver Software	Charles Price	Albert Espinoza
Serv Safe Instructor Tool Kit	National Restaurant Association	Dennis Westhoff
Signed FPI HACCP Manual – 3rd Edition	Food Processors Institute	Anna Lammerding
Texas Basket (Austin Central Market, HEB)	Texas Affiliate	Anna Lammerding
Turquoise Bracelet	Alice Haverland	Angie Cummings
Ty Princess Beanie Bear	Jenny Scott	Unavailable
Quiet Grandeur – Unframed Print	Michigan Affiliate	Steve Ferreira
Western Tanager – Unframed Print	Michigan Affiliate	Shelagh McDonagh
Waterford Crystal Millennium Goblets	Jim Dickson	Robert Brooks
Wine – 1997 Chardonnay #1	Lemon Creek Wineries	Ruth Ann Rose Morrow
Wine – 1997 Chardonnay #2	Lemon Creek Wineries	Gaylord Smith
Wine – Bandiera '97 Chardonnay	California Affiliate	Debra Williams
Wine – Brindlewood '97 Pinot Noie	California Affiliate	Anna Lammerding
Wine – Cherry Juice Non-Alcoholic #1	Lemon Creek Wineries	John Bruhn
Wine – Cherry Juice Non-Alcoholic #2	Lemon Creek Wineries	Sharon Mammel
Wine – Columbia Winery '98 Riesling	California Affiliate	Frank Leonardo
Wine – ConCannon '97 Chardonnay	California Affiliate	Debra Williams
Wine – ConCannon '97 Sauvignon Blanc	California Affiliate	Scott Fritschel
Wine – David Bruce '97 Pinot Noir	California Affiliate	Suzanne Kidder
Wine – Geyser Peak '96 Malbec	California Affiliate	Ruth Ann Rose Morrow
Wine – Grape Juice Non-Alcoholic #3	Lemon Creek Wineries	John Bruhn
Wine – Grape Juice Non-Alcoholic #4	Lemon Creek Wineries	Amy Heiden
Wine – Handley '98 Gewurztraminer	California Affiliate	Harry Haverland
Wine – Hanna '96 Merlot	California Affiliate	Frank Leonardo
Wine – Jekel Vineyard's '96 Monterey	California Affiliate	Anna Lammerding
Wine – Kendall-Jackson '97 Chardonnay	California Affiliate	LeeAnne Jackson
Wine – Mill Creek '96 Merelot	California Affiliate	Paul Hall
Wine and Cheese Basket	Indiana Affiliate	Bob Marshall

Letter to the **Editor**

Dear Editor,

We would like to point out several glaring errors that appear in the article "ISO 9002 Labs Deliver Test Results You Can Trust," published in *Dairy, Food and Environmental Sanitation* (June 1999).

1. "ISO 9002 Certification is one surefire way to know that a lab will provide you with trustworthy results."

   This statement is false. There is no system that can guarantee laboratory results are accurate every time.

2. "Analytical testing laboratories that implement ISO 9002 systems typically follow Guide 25, a guideline designed to help interpret how to apply ISO 9002 principles to testing and calibration laboratories. Guide 25 is intended for specific tests and does not indicate quality procedures for the entire laboratory."

   This statement is also false. ISO/IEC Guide 25, "General Requirements for the Competence of Calibration and Testing Laboratories," is the internationally accepted standard for ensuring the validity of test data and is used internationally to accredit testing and calibration laboratories for specific tests and/or calibrations. ISO/IEC Guide 25 assessments are conducted by technical experts and include an assessment of both the quality system and the laboratory's technical competence. ISO/IEC Guide 25 has never been a "guideline designed to help interpret how to apply ISO 9002 principles." In fact, ISO/IEC Guide 25 was in existence before the ISO 9000 series of standards.
   To illustrate further, here are some of the fundamental differences between ISO 9000 and ISO/IEC Guide 25:

Quality System Registration auditors ISO 9000 asks:

- Have you defined your procedures?
- Are they documented?
- Are you following them?

Laboratory Accreditation (ISO/IEC Guide 25) assessors asks the same questions as ISO 9000 but then go on to ask:

- Are they the most appropriate test procedures to use in the circumstances?
- Will they produce accurate results?
- How have you validated the procedures to ensure their accuracy?
- Do you have effective quality control procedures to ensure ongoing accuracy?
- Do you understand the science behind the test procedures?
- Do you know the limitations of the procedures?
- Can you foresee and cope with the technical problems that may arise while using the procedure?
- Do you have all of the correct equipment, consumables and other resources necessary to perform these procedures?

In addition to its system requirements (which are compatible with ISO 9002), ISO/IEC Guide 25 emphasizes technical competence of personnel for their assigned functions, addresses ethical behavior of laboratory staff, requires use of well-defined test and calibration procedures and participation in relevant proficiency testing programs. ISO/IEC Guide 25 also provides more relevant equipment management and calibration requirements, including traceability to national and international standards for laboratory functions; identifies the role of reference materials in laboratory work; and provides specific guidance relevant to the output of laboratories – the content of test reports and certificates – together with the records requiring management within the laboratory.

In summary, the aims of ISO/IEC Guide 25 are to:

- Provide a basis for use by accreditation bodies in assessing competence of laboratories;
- Establish general requirements for demonstrating laboratory compliance to carry out specific calibrations or tests; and
- Assist in the development and implementation of a laboratory's quality system.

3. "In fact there is no certification or registration process for Guide 25."

   This statement is misleading as it implies that there is no conformity assessment process designed to identify compliance to ISO/IEC Guide 25. Three conformity assessment terms tend to be misused: certification, registration and accreditation. The correct term for

compliance to ISO/IEC Guide 25 is "accreditation." Accreditation (to ISO/IEC Guide 25) is recognized globally as a laboratory's ability to competently perform a specific test. It is unclear as to why the author feels that using the correct terminology of "ISO/IEC Guide 25 accredited" would "often cause confusion for the customer."

The ISO Council Committee on Conformity Assessment (CASCO) definitions of the three conformity assessment terms are noted below for your review:

accreditation: procedure by which an authoritative body gives formal recognition that a body or person is competent to carry out specific tasks.

certification: procedure by which a third party gives written assurance (certificate of conformity) that a product, process or service conforms to specified requirements.

registration: procedure by which a body indicates relevant characteristics of a product, process or service, or particulars of a body or person, in an appropriate publically available list.

4. Finally, we note that:

(1) AFDO (The Association of Food and Drug Officials) has designated ISO/IEC Guide 25 as the minimum standard to define laboratory operations and quality practices.

(2) Codex Alimentarius has stated that where there is an international trade dispute with regards to food, date from and ISO/IEC Guide 25 accredited laboratory would be preferred.

We trust that we have adequately illustrated why the information contained in the referenced article is incorrect. There is already quite a lot of confusion in the market place regarding these issues and we encourage you to take the time to help clarify these important issues to your many interested readers.

We also invite you to share this letter with the author. Thank you for your consideration.

Percy Pan
Business Development Manager
American Association for Laboratory Accreditation
Frederick, MD

Dear Mr. Pan:

I am sorry that you disagree with the information provided in the Article "ISO 9002 Labs Deliver Test Results You Can Trust." In response to your concerns, I agree that no laboratory can guarantee results to be always accurate: However, controlling all aspects of the laboratory's process is the hallmark of a good quality system. It is the system which will significantly enhance the probability of an accurate answer and the trustworthiness of the test information.

I also agree with your description of ISO Guide 25 and the importance of the technical requirements. However, ISO Guide 25 is not a quality system whereas ISO 9000 is. Our laboratory's quality system was set up using the technical requirements of ISO Guide 25 as a guide. In the scope of ISO Guide 25 it states, "This Guide is for use by calibration and testing laboratories in the development and implementation of their quality systems." ISO 17025, which is a combination of the ISO 9000 quality system and the technical requirements of ISO Guide 25, is in the process of being accepted as the quality system for testing labs. We will now have a definitive standard for the laboratory testing area.

It is important that everyone understand the terminology that is used to describe formal recognition to any system and to understand the difference between being "certified" to a standard versus "accredited" and what each means. Confusion abounds in this area and is partly due to the lack of a standardized quality system for testing laboratories. Currently an individual laboratory could be accredited to one test under ISO Guide 25 and subsequently proclaim to be ISO Guide 25 accredited or ISO certified without acknowledging the real scope of their accreditation. In addition, further ambiguity has been created by terminology such as being "complaint" to ISO Guide 25 or ISO 9000.

I believe the new standard, ISO 17025, will eliminate some of the terminology issues. However, I also believe that there will be continued confusion. It is our responsibility as an industry to provide consistent factual information about quality, otherwise the industry's creditability will suffer.

In summary, I believe quality systems that control all aspects of the laboratory operation for all testing performed within the laboratory is the most effective way to provide the maximum confidence in test results generated for the laboratory customer.

Edward Arnold
Manager
Analytical Services
R-TECH Laboratories
St. Paul, MN

Dairy, Food and Environmental Sanitation, Vol. 19, No. 10, Pages 680-684

Efficacy Evaluation of Four Hand Cleansing Regimens for Food Handlers

Daryl S. Paulson,[1] Carol Riccardi,[1] Christopher M. Beausoleil,[1] Eleanor J. Fendler,[2]*
Michael J. Dolan,[2] Lois V. Dunkerton,[2] and Ronald A. Williams[2]

SUMMARY

Effective handwashing by foodhandlers is an important control measure for preventing transmission of foodborne diseases in food-handling environments, including food-service establishments. Effective handwashing requires both effective methods and effective handwash formulations. Test methods for determining the effectiveness of antimicrobial formulations for healthcare workers can be modified and used to determine the effectiveness of hand-washing regimens recommended for use by foodhandlers. To date, the relative antimicrobial effectiveness of various hand-cleaning formulations and practices has not been established for foodhandlers. This study examined the ability of four handwashing regimens to reduce transient microorganisms on the skin of hands. The efficacy of these handwashing regimens was determined using a modified Health Care Personnel Handwash procedure and *Escherichia coli* as the transient marker organism. The regimens consisted of a non-antimicrobial hand cleanser, an alcohol gel hand sanitizer, an antibacterial soap, and an antibacterial soap plus application of an alcohol gel hand sanitizer. All four regimens significantly reduced *E. coli* populations from baseline values. The most effective regimen for antimicrobial control was clearly the combination of the antibacterial soap handwash followed by the alcohol gel application. This regimen demonstrated a high immediate reduction of the transient microorganism, with the potential for further reductions with multiple applications of the antimicrobial hand soap over a period of days.

INTRODUCTION

The continuing high incidence of foodborne illnesses has made food safety a global concern. The increase in foodborne diseases is due partly to the increased global trade of both raw and processed food materials. The potential for food handlers to act as vectors in the transmission of foodborne disease continues to be a significant issue. In combination with improper food-handling practices at any point in the food chain, the points of contamination become harder to track and eliminate. Improvements in the national food safety system have been recommended to reduce the incidence of foodborne illness *(3)*. The implementation of Hazard Analysis and Critical Control Point (HACCP) systems in the food-processing industry, increased inspections, improved pathogen detection methods, and educational improvements are just a few of the activities targeted at helping to reduce foodborne diseases *(6)*.

Foodhandlers can act as vectors of disease in several ways *(7)*. Foodhandlers who handle contaminated raw foods, cleaning aids, or surfaces and then, without washing their hands, handle foods that are not further heat-processed, are a source of cross-contamination.

A worker who handles foods that are not further cooked can transmit microorganisms from the hands to the food. These microorganisms come not only from contamination in the workplace, but also from contact with contaminated skin surfaces of pathogen-carrying individuals. A common cause of outbreaks caused by enterotoxins are foodhandlers who use bare hands on food without effectively washing their hands after defecating, performing related child-care tasks, or attending to an ill person *(4, 5)*. Effective handwashing methods using effective handwash formulations provide protection from disease transmission by foodhandlers.

Microorganisms found on the hand surfaces are classified in two general categories *(10)*. The first category consists of contaminating microorganisms that are picked up accidentally by foodhandlers and are transient in that they reside on the hands only temporarily. The second category consists of those microorganisms that permanently reside on the hand surfaces, the normal or resident microflora of the skin. For example, *Staphylococcus epidermidis* is a resident bacterium on the hands, and *Escherichia coli* generally is a transient or contaminative bacterial species. In the food industry, both categories are important *(8, 11)*.

Microorganisms that normally reside on the hands usually pose no threat of infectious disease to consumers. These microorganisms are more important in contributing to food spoilage, particularly in partially prepared foods such as precooked chicken and fish. Contaminating microorganisms, though, are responsible for outbreaks of infectious disease, often through passage from foodhandlers to consumers via food. In order that infectious diseases be spread to others via a carrier, the contaminating microorganisms must be transmitted physically, as can occur, for example, when food workers contaminate their hands during defecation and subsequently pass the disease-causing microorganisms to consumers via hand contact with food.

Effective handwashing disrupts the disease transmission process by removing the contaminating microorganisms from the hand surfaces so that they cannot be transmitted to the prepared food *(12)*. Designing an accurate and valid method of determining the effectiveness of hand-cleansing regimens for foodhandlers is critical. Instead of treating foodhandler risks separately from those of healthcare personnel, the Healthcare Continuum Model *(9)* includes foodhandler handwashes. The difference in evaluating the effectiveness of a foodhandler hand-cleansing regimen versus a health-care regimen lies mainly with the set of target microorganisms, rather than with the test methods. Thus test methods already established for evaluating the effectiveness of healthcare hand-cleansing regimens can be adapted for evaluation of foodhandler regimens *(1, 9)*.

This study utilized 20 human subjects to evaluate 4 different configurations of products intended for use in hand cleansing, 5 subjects per product configuration. The evaluation procedure was based on the *Standard Test Method for Evaluation of Healthcare Personnel Handwash Formulations*, ASTM Method E 1174-94 *(2)*, which is accepted by the US Food and Drug Administration for evaluation of handwash formulations intended for elimination of transient microoganisms in a healthcare environment. *Escherichia coli* (ATCC # 11229), a transient or contaminant bacterial species that has been associated with foodborne disease, was chosen for this study.

MATERIAL AND METHODS

Test products

This study used 1 non-antibacterial product and 3 antibacterial products manufactured by GOJO Industries, Inc., Cuyahoga Falls, OH, in the following four configurations. Configuration 1: DermaPro® Lotion Skin Cleanser, a non-antibacterial lotion soap; Configuration 2: Purell® Instant Hand Sanitizer (alcohol gel); Configuration 3: Micrell® Antibacterial Lotion Soap, PCMX active ingredient and; Configuration 4: Micrell and Purell.

Sampling solution

Sterile stripping suspending fluid was prepared by dissolving 0.4 g KH_2PO_4, 10.1g Na_2HPO_4 and 1.0 g isooctylphenoxypolyethoxyethanol (Triton X-100, Rohm and Haas Co., Philadelphia) in 1 liter of distilled water, and adjusting the pH to 7.8 with 0.1 N HCl or 0.1 N NaOH. Seventy-five milliliter aliquots of the stripping solution were dispensed into media bottles and sterilized for 20 minutes at 121°C.

Neutralizing fluid

The sterile neutralizing fluid was prepared with sterile stripping fluid containing 2.0% (v/v) Tween 80, 1.17% (w/v) lecithin, 0.5% (w/v) sodium thiosulfate, and 1.0% Tamol SN. A neutralization procedure was performed on each test product to ensure that the neutralizers employed were effective in neutralizing the biocidal activities of each of the antibacterial products.

Media

Tryptic Soy Broth (Difco Laboratories, Detroit) prepared according to label instructions was used as the growth medium for marker bacteria. MacConkey's Agar (Difco Laboratories, Detroit) containing 0.5% (v/v) Tween 80 and 0.07% (w/v) lecithin (MAC+) was used as a selective medium to enumerate the marker bacteria.

Pre-test period

During the pre-test period (the seven days prior to the test portion of the study) subjects were instructed to avoid the use of medicated soaps, lotions, deodorants and shampoos, as well as skin contact with solvents, detergents, acids and bases or any other products known to affect the normal microbial populations of the skin. Subjects were supplied a

personal hygiene kit containing non-medicated soap, shampoo, deodorant, lotion, and rubber gloves to be worn when contact with antimicrobials, solvents, detergents, acids, or bases could not be avoided. Subjects were instructed to use the contents of this kit for their personal hygienic needs exclusively during their participation in the study. Subjects were also instructed to avoid using UV tanning beds and swimming or bathing in biocide-treated pools or hot tubs.

Inoculum preparation

A 10-ml tube of Tryptic Soy Broth was inoculated, using aseptic technique with a loop of *Escherichia coli* (ATCC # 11229) stock culture. The inoculated tube was incubated at 30° ± 2°C for 24 ± 2 hours; 1.0 ml of the broth culture was then aseptically transferred to a 2 liter flask containing 1 liter of Tryptic Soy Broth. The flask was incubated at 30° ± 2°C for 20 ± 2 hours. Prior to testing, the culture was streaked for isolation of colonies, which were Gram-stained to check for culture purity. Two flask cultures were used for testing, and both were homogeneous. The cultures were assayed for the number of organisms/ml at the beginning and end of the use-period and were not used for more than 6 hours. Before culture was withdrawn for application to subjects' hands, the culture was gently swirled.

Test period

Each subject was employed for one test day. Subjects clipped their fingernails to a free-edge of ≤ 2 mm, if they had not already done so. All jewelry was removed from the hands and arms prior to washing.

A practice wash was performed using a non-medicated soap and a standard wash procedure. The practice wash ensured that the subject understood the wash procedure. The temperature of the water used for this and for all subsequent wash cycles was controlled at 40° ± 2°C.

Baseline bacterial count

A 5.0-ml aliquot of the inoculum suspension containing approximately 1.0×10^8 CFU/ml of *E. coli* was transferred into each subject's cupped hands in 2-ml to 2.5-ml aliquots. Subjects distributed the inoculum evenly over both hands, not reaching above the wrist, via gentle continuous massage for 45 seconds. After a timed 2-minute air dry, the Glove Juice Sampling Procedure was performed. This first inoculation cycle provided baseline inoculation recovery data and was followed with a 30-second handwash using a non-medicated soap.

First inoculation/wash procedure

A 5.0-ml aliquot of the microbial inoculum was again transferred into each subject's cupped hands in two 2.5-ml aliquots. Subjects distributed the inoculum evenly over both hands, not reaching above the wrists, via gentle continuous massage for 45 seconds. After a timed 2-minute air dry, the subjects washed or treated their hands with their randomly assigned test configuration according to the procedures described for each product configuration. This was followed by the Glove Juice Sampling Procedure.

Subsequent inoculation/wash procedures

The hands of each subject were inoculated and washed 5 consecutive times, with a minimum of 5 and a maximum of 15 minutes between microbe/product applications. The Glove Juice Sampling Procedure was performed after inoculation/wash cycles 1 and 5.

Product application procedures for configurations 1, 3, and 4: bland soap or antimicrobial soap

Five ml of test liquid soap was dispensed slowly into the hands while the subject distributed the soap evenly over the surfaces of the hands. The subject added a small amount of water and completely lathered the hands and lower third of the forearms in a vigorous manner for 30 seconds. The subject then rinsed for 30 seconds and dried the hands with a disposable paper towel. Following product application procedure numbers 1 and 5, the hands were sampled using the Glove Juice Sampling Procedure.

Alcohol gel product application procedures for configurations 2 and 4

Three ml of alcohol gel was dispensed into the subject's dry cupped hands. The subjects massaged their hands together, making sure the alcohol gel was thoroughly rubbed in and around the fingernails and between all fingers and the thumbs until the hands were dry. An additional two ml of alcohol gel was dispensed into the subject's cupped hands. The subjects again massaged their hands together, making sure the alcohol gel was thoroughly rubbed in and around the fingernails and in between all fingers and the thumbs until their hands were dry. Five minutes after hands were dry (product application cycles 1 and 5 only), hands were sampled using the Glove Juice Sampling Procedure.

Glove juice sampling procedure

Following the prescribed application procedure, a technician placed powder-free, loose-fitting sterile latex gloves on each subject's hands. Seventy-five ml of sterile stripping fluid was instilled into each glove. The wrists were secured, and technicians massaged the hands through the gloves in a uniform manner for 60 seconds. A 5.0-ml aliquot of the glove juice (dilution 10°) was removed from each glove and serially diluted in sterile stripping fluid with neutralizers and Butterfield's Buffer Solution. Subjects rinsed their hands for 30 seconds under warm running water to remove excess sterile stripping fluid.

Bacterial counts

For each hand sample, duplicate spread plates were prepared from each dilution (from each hand) using MacConkey's Agar as the selective plating medium. The plates

TABLE 1. Summary of sample data for configurations 1-4

Sample	Mean of $\log_{10}$ values	Standard deviation	Reduction from baseline
	Configuration 1 (Non-antibacterial Cleanser)		
Baseline	8.39	0.31	N/A
Wash 1	6.27	0.51	2.12
Wash 5	6.22	0.28	2.17
	Configuration 2 (Hand Sanitizer)		
Baseline	8.21	0.37	N/A
Wash 1	5.97	0.53	2.24
Wash 5	5.49	0.55	2.72
	Configuration 3 (Antibacterial Lotion Soap)		
Baseline	8.47	0.37	N/A
Wash 1	6.57	0.41	1.90
Wash 5	6.42	0.30	2.05
	Configuration 4 (Antibacterial Lotion Soap and Hand Sanitizer)		
Baseline	8.20	0.26	N/A
Wash 1	4.92	0.51	3.28
Wash 5	5.24	0.46	2.96

were incubated at 30° ± 2°C for approximately forty-eight hours. *E. coli* produces purple colonies on MacConkey's Agar; and only those colonies were counted. Plate dilutions that contained *E. coli* counts between 25 and 250 were utilized in this study. If no plates provided *E. coli* counts in this range, the plate counts closest to that range were used in determining the number of viable microorganisms. The estimated number of microorganisms recovered was obtained by using the formula, 75 × Dilution Factor × Mean Plate Count for the duplicate plates.

Following the final product application and hand-sampling, the subjects performed a supervised 4-min surgical scrub with a 4% Chlorhexidine Gluconate solution, followed by a 1-min hand rinse with 70% ethanol, air dry, and a water rinse to remove any remaining *E. coli* from the hands.

RESULTS

The plate count data collected in this study were evaluated using MiniTab® statistical computer software.

The estimated $\log_{10}$ number of viable microorganisms recovered from each hand was designated the "R-value," the adjusted average $\log_{10}$ colony count for each subject at each sampling time. Each R-value was determined by using the following formula:

$$R = \log_{10} [75 \times C_i \times 10^{D}]$$

where:

- 75 = the amount (ml) of stripping solution instilled into each glove
- C_i = the average of the 2 plate counts for each subject at a particular dilution level
- D = the dilution factor

Student's *t* test ($\alpha = 0.05$) was used to show that baseline values for the left and right hands were statistically equivalent for each product before data were combined. The left and right hand baseline values were found to be equivalent ($P = 0.99$).

All wash values were significantly different from baseline ($P < 0.05$). Table I presents the results for each test configuration.

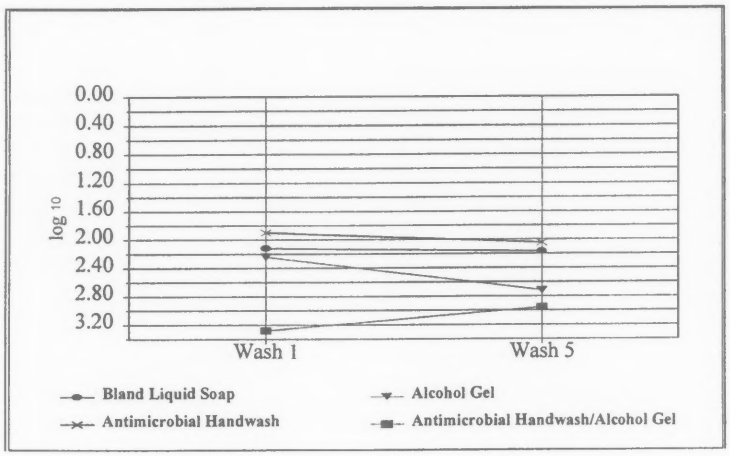
A two-way analysis of variance (ANOVA) was conducted using the $\log_{10}$ reduction from baseline data. A significant difference was detected between product configurations ($P = 0.0001$), while no significant difference was seen between wash 1 and 5 ($P \leq 0.396$). Significant differences between products were detected at both wash 1 ($P = 0.0001$) and wash 5 ($P = 0.0001$).

For all products, $\log_{10}$ reductions (see Fig. 1) from baseline were demonstrated statistically significant ($P < 0.05$). The combination of the antimicrobial handwash and the alcohol gel consistently resulted in the greatest $\log_{10}$ reductions from baseline.

DISCUSSION

Antimicrobial efficacy was significant for all four product configurations. It should be recalled that alcohol products have very high im-

Figure 1. Reductians from Baseline



mediate antimicrobial properties, but lack persistence, whereas antimicrobial products such as PCMX have immediate antimicrobial properties as well as persistence, but their full value is seen only after repeated use.

Antimicrobial handwash products, as well as non-antimicrobial handwash products, demonstrate varying degrees of degerming ability due to the mechanical removal of microorganisms during the handwash. This study design was intended to evaluate the immediate antimicrobial effects of the products over the course of 5 consecutive handwashes to assure that microbial "build-up" was not occurring. As expected, the bland liquid soap demonstrated immediate reductions equivalent to those of the PCMX-containing antimicrobial handwash, probably as a result of removal of *Escherichia coli* by the "mechanical action" of the handwash so that both products appear to be equivalent. The residual effects offered by the PCMX product were not evaluated. Past studies using PCMX products have demonstrated that antimicrobial effectiveness of PCMX increases with multiple applications over a period of days *(10)*. Bland liquid soaps demonstrate a significant immediate degerming action but no antimicrobial properties. Thus, although the antimicrobial effectiveness of the PCMX handwash will increase over time, the bland soap will remain at the same degerming level. The reductions caused by the alcohol gel product are attributable to the actual antimicrobial action of the product. The combination of the antimicrobial handwash followed by the alcohol gel product demonstrated the greatest antimicrobial efficacy, comparable to products used by hospitals for scrubbing prior to surgery.

CONCLUSION

The most effective configuration for antimicrobial control in the food industry clearly is the combination of the antimicrobial handwash followed by alcohol gel application. This configuration produced a high immediate reduction of the transient microorganism, with potential for increased reductions with multiple applications of the antimicrobial hand soap over a period of days.

ABOUT THE AUTHORS

[1]Bioscience Laboratories, Inc., 300 North Willson, P.O. Box 190, Bozeman, MT 59771-0190; Phone: 406.587.5735; [2]*GOJO Industries, Inc., 3783 State Road, Cuyahoga Falls, OH 44223-2698; Phone: 330.920.8100.

REFERENCES

1. Aly, R., and H. Maibach. 1981. Factors controlling skin bacterial flora, p. 29-39. *In* H. I. Maibach and R. Aly. (ed.). Skin microbiology relevance to clinical infection. Springer-Verlag, NY.
2. Anonymous. 1987. ASTM E1174-94, Standard test method for evaluation of health care personnel handwash formulations.
3. Anonymous. 1997. Food safety from farm to table, a national food-safety initiative report to the president. Dairy Food Environ. Sanit. 17: 555-574.
4. Anonymous. 1996. Foodborne outbreak. Dairy Food Environ. Sanit. 16: 32-33.
5. Anonymous. 1998. National Food Safety Database. Critical issues in food safety. National Food Safety Database Web site www.foodsafety.org/hothome.htm and selected hot topics (Aug. 26).
6. Executive Secretariat. 1998. Hazard analysis and critical control point principles and application guidelines. J. Food Prot. 61:762-788.
7. Fraizer, W. C., and D. C. Westhoff. 1988. Food Microbiology, 4th ed. Lea & Febiger, Philadelphia.
8. Harrington, R. E. 1992. The role of employees in the spread of foodborne disease. Dairy Food Environ. Sanit. 12:62-63.
9. Jones, R. D. 1998. The healthcare continuum: A classification model for topical antimicrobial products including those used in the food industry. Dairy Food Environ. Sanit. 18:352-358.
10. Larson, E. 1988. APIC Guidelines for infection control practice, guideline for use of topical antimicrobial agents. Am. J. Infect. Control 16:253-266.
11. Paulson, D. S. 1992. Evaluation of three handwash modalities commonly employed in the food industry. Dairy Food Environ. Sanit. 9: 520-523.
12. Paulson, D. S. 1996. To glove or to wash: a current controversy. Food Quality (June/July) 1996:60-63.

Dairy, Food and Environmental Sanitation, Vol. 19, No. 10, Pages 685-690

Seasonal Variation of Somatic Cell Count and Chemical Composition in Bulk Tank Goat Milk

S. S. Zeng,[1] T. Popham,[2] and E. N. Escobar[1]

SUMMARY

Somatic cell counts (SCC), fat, protein, lactose, and total solids (TS) of bulk tank goat milk collected from mid-western and southeastern states for cheese manufacturing were analyzed to determine their seasonal distributions during one year. Instruments (Fossomatic-300 for SCC and Dairylab II for composition) were calibrated with goat milk standards. All test variables except lactose were high in early months (January, February) and late months (October, November, December) of the year, when most milking does were in either early or late lactation. Somatic cell count had a highly positive correlation with fat, protein, and TS and a negative correlation with lactose. Of 2,582 bulk tank goat milk samples analyzed, 22% were in violation of the legal limit of one million SCC/ml. As many as 51% of the samples collected between October and December had SCC in excess of the legal limit. Results indicate that re-evaluation of the legal limit of SCC for Grade A goat milk is warranted, considering the seasonal effect of lactation on SCC. This will help goat producers meet regulators' requirements.

INTRODUCTION

Somatic cell counts (SCC) as well as composition of bulk tank goat milk are of great concern to both dairy goat producers and milk processors. Producers use these indices for herd health management and milk quality control. Processors utilize them to maximize cheese yields and to implement a price incentive program in which milk with low SCC and high solids content commands a premium. In the past fifteen years, milk composition (fat, protein, lactose, and total solids) and SCC in individual goat milk, and relationships of these to milk quality and udder health, have been investigated extensively *(2, 11, 12, 15, 18, 20, 22, 23)*. However, only a few studies have dealt with bulk tank SCC in goat milk *(4, 8, 10)*. The limited number of commercial dairy goat farms scattered throughout the United States and difficulties of sample collection and delivery are the primary limiting factors.

At present, SCC of 1.0×10^6/ml specified in the Pasteurized Milk Ordinance (PMO) is the regulatory limit for Grade A goat milk in the United States *(13)*. Although many countries, such as those of the European Union, Australia and New

TABLE 1. Major components and somatic cell count of bulk tank goat milk samples (n = 2,582)

Variable	Mean	SD[1]	Range
Fat (%)	3.21	0.80	1.80-6.00
Protein (%)	3.36	0.49	2.10-4.68
Lactose (%)	4.15	0.47	3.32-5.01
SNF[2] (%)	8.03	0.68	3.90-9.33
TS[3] (%)	11.24	1.32	6.50-14.38
SCC[4] (/ml)	717,000	449,000	1,000-3,567,000

[1]Standard deviation

[2]Solids-non-fat

[3]Total solids

[4]Somatic cell count

Zealand have more strict SCC regulations on cow milk than the United States (400,000/ml vs. 750,000/ml), they do not place a SCC limit on goat milk. Seasonal lactation practices on most goat farms and elevated SCC in late lactation milk of dairy goats make it difficult for commercial dairy goat farmers to meet the current Grade A goat milk standard on a year-round basis *(1, 23)*. To justify the current regulation and to help goat producers meet regulators' requirements, it is imperative to determine the SCC and composition of a large number of commercial bulk tank goat milk samples on a year-round basis. Therefore, the objectives of the present investigation were to investigate SCC of bulk tank goat milk from commercial herds year-round to assess the requirements for Grade A goat milk and to determine distribution and correlation of SCC and composition (fat, protein, lactose, and TS).

MATERIALS AND METHODS

Sample collection and shipment

Samples of bulk tank goat milk were collected from commercial farms in six Midwest and Northeast states two to three times each month by two goat milk cheese plants in Wisconsin and Pennsylvania when milk was hauled for cheese manufacturing. On the farm, milk in bulk tanks was agitated for five minutes before samples were collected into plastic milk sample vials (Capital Vials, Fultonville, NY). Milk samples were preserved with Microtabs (Control Systems, Inc., San Ramon, CA) and delivered to the Langston Dairy Herd Improvement (DHI) Lab for Goats within two days. Bulk tank milk samples from the Langston University herd were also included in this study.

Laboratory analyses

Bulk tank goat milk samples arrived at the DHI Lab for Goats at Langston University when they were 3 to 7 days old and were analyzed on the day of arrival. Somatic cell counts were determined using a Fossomatic-300 cell counter (Foss Electric, Hillerod, Denmark). Fat, protein, lactose, solids-non-fat (SNF), and TS (total solids) were analyzed using a Dairylab II milk analyzer (Multispec Ltd., Wheldrake, York, England). Both instruments were calibrated biweekly with goat milk standards instead of the conventional cow milk standards; the goat milk standards were prepared by the Dairy Quality Control Institute (DQCI) Services, Inc., St. Paul, MN, to maintain accurate instrument performances according to the guidelines of the National Dairy Herd Improvement Association (DHIA) *(3)*. All samples were analyzed in duplicate and the average for each sample was used for statistical analysis.

Statistical analysis

The general linear model (GLM) procedure of Statistical Analysis System *(14)* was used to analyze data to determine if there were interactions between plant and month. If the interaction was significant, means were compared by separate analyses performed for each plant and month using Ryan's Q test. Correlations between measured variables of milk samples were calculated using PROC CORR *(14)*.

RESULTS AND DISCUSSION

Overall means of SCC and composition of all bulk tank goat milk samples (n = 2,582) are shown in Table 1. These bulk tank samples represented goat milk from milking year-round, mixed breeds of goats, and commercial farms from six different states. Milk fat, protein, lactose and TS obtained in this study were lower than those reported recently – 4.14, 3.56, 4.45 and 12.97%, respectively – by USDA/ARS *(17)*. USDA/ARS results were tabulated from published and unpublished data of individual and bulk tank goat milk in the United States as well as overseas. The overall SCC of bulk tank goat milk in this study was 717,000/ml, which was markedly lower than reports from similar studies *(4, 9, 10)*. Osteras and Brenne *(10)* investigating the prevalence of SCC in bulk tank goat milk in Norway, reported more than one million SCC/ml from June to No-

TABLE 2. Mean separations of major components (%) and somatic cell counts (SCC, × 1,000/ml) in bulk tank goat milk by month for a year

Month	n[1]	Fat	Protein	Lactose	SNF[2]	TS[3]	SCC
January	34	4.25^{a}	3.82^{a}	4.21^{ab}	8.42^{a}	12.66^{a}	946^{ab}
February	148	3.98^{bc}	3.77^{a}	4.26^{ab}	8.38^{ab}	12.36^{a}	881^{b}
March	83	3.84^{bc}	3.54^{b}	4.38^{a}	8.42^{a}	12.27^{a}	609^{c}
April	235	3.37^{d}	3.39^{c}	4.41^{a}	8.31^{ab}	11.68^{b}	605^{c}
May	338	3.04^{e}	3.27^{cd}	4.43^{a}	8.15^{bc}	11.19^{c}	592^{c}
June	289	2.74^{f}	3.18^{de}	4.21^{ab}	7.87^{d}	10.61^{d}	440^{d}
July	285	2.43^{g}	3.10^{e}	4.12^{bc}	7.72^{d}	10.15^{e}	452^{d}
August	258	2.92^{e}	2.85^{f}	3.75^{d}	7.45^{e}	10.34^{de}	707^{c}
September	235	2.72^{f}	3.28^{cd}	4.07^{c}	7.81^{d}	10.53^{d}	695^{c}
October	346	3.42^{d}	3.56^{b}	4.07^{c}	8.09^{bc}	11.51^{bc}	972^{ab}
November	222	4.12^{ab}	3.81^{a}	4.08^{c}	8.33^{ab}	12.45^{a}	1081^{a}
December	109	4.06^{abc}	3.80^{a}	4.10^{bc}	8.34^{ab}	12.41^{a}	1041^{a}

[1]Number of observations

[2]Solids-non-fat

[3]Total-solids

[a,b,c,d,e,f,g]Means in the same column with the same superscript are not significantly different according to Ryan's Q test ($P > 0.05$)

vember, with the highest count in November. Droke et al. *(4)* collected bulk tank goat milk samples from commercial herds in California, Michigan, Arizona and Wisconsin and observed an average SCC of 1.32 × 10^6/ml. Lin and Chang *(9)* reported 1.47 × 10^6/ml in bulk tank goat milk after a survey of 28 herds in Taiwan.

Mean separations of all measured variables in bulk tank goat milk samples by month are presented in Table 2. Bulk tank goat milk had high contents of fat, protein, SNF, TS and SCC in January, February, October, November, and December and lower values of these variables from May to September. The average SCC for both November and December were above the legal limit (one million SCC/ml). Osteras and Brenne *(10)* observed similar trends of fat and protein distributions in bulk tank goat milk, with values high in January, lowest in May, and highest in November. Lin and Chang *(9)* observed a similar trend of SCC distributions in goat milk in Taiwan. In contrast to these observations in goat milk, Harmon *(7)*, reviewing the factors affecting SCC in dairy cows reported that SCC in cow milk were generally lowest during the winter and highest during the summer.

High contents of milk components and high SCC in cow milk have been reported to be associated with a lower milk production *(16, 19)*, and elevated SCC are related to inferior milk quality through reductions in fat and casein concentrations *(16)*. A "concentration factor" in cow milk may also be true for goat milk. Even though most commercial dairy goat farms practice milking year-round, a larger proportion of milking does were kidded in early months (February and March) of the year and dried off in late months (October, November and December) *(6)*. Milk production usually peaks one to two months after parturition and starts to decline markedly after six months in lactation.

In this study, unusually low concentrations of fat, protein and lactose were observed in bulk tank goat milk in August and September.

TABLE 3. Milk composition (%) and somatic cell counts (SCC, × 1,000/ml) of bulk tank goat milk from two cheese plants

Month	n[1]	Fat	Protein	Lactose	SNF[2]	TS[3]	SCC
Plant A	1467	3.32[a]	3.32[b]	4.13[a]	8.01[a]	11.33[a]	684[a]
Plant B	1065	3.08[b]	3.44[a]	4.18[a]	8.08[a]	11.16[b]	765[b]

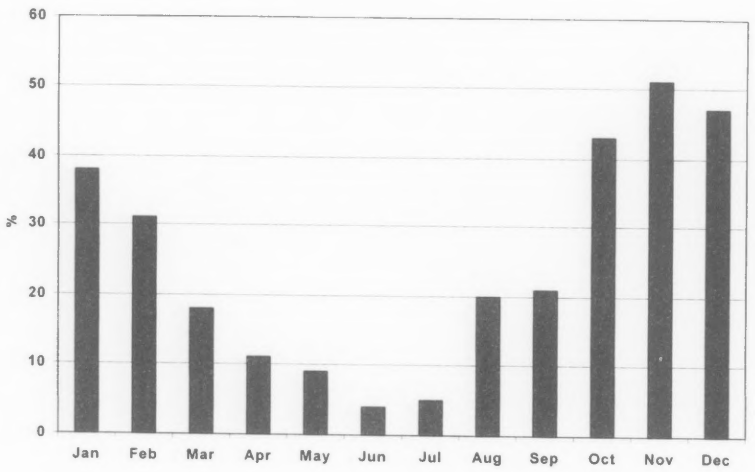
[1]Number of observations

[2]Solids - non-fat

[3]Total - solids

[a,b]Means in the same column with the same superscript are not significantly different according to Ryan's Q test ($P > 0.05$)

Figure 1. Percent of bulk tonk goot milk somples (n = 2582) with SCC obove one million per milliliter of milk on o monthly basis.



Because of the hot weather, some samples were spoiled, and a few had even turned into cheese curd during shipping, although samples were preserved. Spoiled samples were discarded and estimates were used for statistical analysis.

Milk composition and SCC of bulk tank goat milk samples from the two cheese plants are shown in Table 3. Overall, samples from Plant A had higher fat and TS concentrations and a lower protein concentration than those from Plant B ($P < 0.05$). There were no significant differences in lactose and SNF ($P > 0.05$). Plant B had a significantly higher SCC than Plant A ($P < 0.05$). Monthly mean separations between these two plants further indicated that Plant B received milk with lower fat and higher SCC than Plant A on a fairly consistent basis.

Correlation coefficients between all tested variables of bulk tank goat milk are shown in Table 4. All milk composition constituents were highly correlated with each other ($P < 0.001$). Somatic cell counts were positively correlated ($P < 0.001$) with all component variables except lactose ($P > 0.05$). Also, the values of these correlation coefficients on bulk tank goat milk samples were higher than reports for individual goat milk samples – 0.24, 0.17 and 0.24 for fat, protein and TS, respectively *(23)*.

Grade A goat milk must comply with the PMO's requirement of less than one million SCC/ml. The distribution of bulk tank goat milk samples with SCC above the legal limit each month for the year is shown in Figure 1. Data obtained clearly indicate a seasonal lactation effect on the SCC of bulk tank goat milk. Of 2,582 bulk tank goat milk samples tested, 22% were in violation of the legal limit. In the early months (January and February), which were composed of mostly late and some early lactating does, over 30% of the bulk tank samples failed to meet the legal requirement. As the season progressed, SCC decreased, due in part to the drying off of late lactating does from the previous season and the peaking in production of milking does kidded in the current season. As a result, only 4 and 5% of the samples exceeded the legal limit in June and July, respectively. Thereafter, the percentage of samples above one million/ml steadily increased as almost all does approached late lactation. Up to 51% of the samples between October and December had SCC above the legal limit. It is generally agreed that healthy goats in late lactation often produce milk with more than one million SCC/ml *(4, 22, 23)*.

TABLE 4. Correlation coefficients between fat, protein, lactose, solids-non-fat (SNF), total solids (TS), and somatic cell count (SCC) of bulk tank goat milk (n = 2,582)

	Protein	Lactose	SNF	TS	SCC
Fat	0.613***	0.209***	0.568***	0.899***	0.354***
Protein		0.665***	0.850***	0.894***	0.306***
Lactose			0.877***	0.614***	-0.103***
SNF				0.868***	0.119***
TS					0.275***

*** $P < 0.001$

A study conducted earlier showed a similar trend of SCC distribution in bulk tank goat milk *(8)*. The percentage of samples with more than one million SCC/ml for each month of a whole year were considerably higher. Of 1,230 samples tested, almost 35% were in violation of the legal limit, with highest occurrences also in early and late months of the year. In the present study, the significant reduction in percentage of samples exceeding the limit could be the result of better herd management and calibration of the instrument with goat milk standards instead of conventional cow milk standards *(21)*.

In summary, SCC and composition of bulk tank goat milk were high in early and late months of the year. Somatic cell counts were significantly and positively correlated with concentrations of fat, protein, and total solids in bulk tank milk. During fall and winter seasons, in which milking herds consisted of mainly late and early lactation does, SCC could easily exceed the regulatory limit of one million per milliliter of milk. Therefore, this legal limit for SCC in Grade A goat milk must be re-evaluated, taking into consideration the seasonal effect of lactation on dairy goats. The observations have significant implications to the goat producer, goat milk cheese manufacturers, and other goat milk product processors. In general, milk with higher fat, protein, and TS, and with lower SCC, results in higher cheese yields. Fenlon and co-workers *(5)* pointed out that cow herds of high bulk tank SCC had significantly lower milk production and indicated that the management of high SCC herds was less likely to implement mastitis control than herds with lower SCC. Therefore, bulk tank SCC is widely used in the dairy cow industry as an indication of raw milk quality to producers and processors and hygienic production conditions on farms as well as mammary infection prevalence in the herd. Currently, only fat and protein are used as indices in goat milk payment incentive programs. Whether SCC in bulk tank goat milk should be included as well to encourage better herd health management and a more balanced year-round lactation system to keep population SCC low is open to debate.

ACKNOWLEDGMENTS

This study was funded by the Cooperative Extension Programs of the E (Kika) de la Garza Institute for Goat Research, School of Agriculture and Applied Sciences at Langston University. A sincere appreciation is given to Mr. E. Sullivan of Langston DHI Lab for Goats for his assistance in sample analysis.

ABOUT THE AUTHORS

[1]P.O. Box 730 E. (Kika) de la Garza Institute for Goat Research, School of Agriculture & Applied Sciences, Langston University, Langston, OK 73050; Phone: 405.466.3836; Fax: 405.466.3138; E-mail: szeng@mail.luresext.edu; [2]USDA ARS, Southern Plains Area, Biometrics, 1301 N. Western St., Stillwater, OK 74075.

REFERENCES

1. Aleandri, M., P. Fagiolo, R. Calderini, G. Colafrancesco, R. Giangolion, and F. De Michelis. 1994. Studies conducted on somatic cell count of goat milk, p. 65-70. *In* R. Rubino (ed.), Proc. Intern. Symposium "Somatic Cells and Milk of Small Ruminants", Bella, Italy. Wagenigen Pers, the Netherlands.
2. Calderon, I., E. J. De Peters, N. E. Smith, and A. A. Franke. 1984. Composition of goat's milk: changes within milking and effects of a high concentrate diet. J. Dairy Sci. 67:1905-1911.
3. DHIA. 1995. Quality certification laboratory manual, p.1-32. *In* Quality Certification Manual. National Dairy Herd Improvement Association (DHIA), Columbus, OH.
4. Droke, E. A., M. J. Paape, and A. L. Di Carlo. 1993. Prevalence of high somatic cell counts in bulk tank goat milk. J. Dairy Sci. 76:1035-1039.

5. Fenlon, D. R., D. L. Logue, J. Gunn, and J. Wilson. 1995. A study of mastitis bacteria and herd management practices to identify their relationship to high somatic cell counts in bulk tank milk. Br. Vet. J. 151:17–25.
6. Haenlein, G. F. W., and L. S. Hinckley. 1995. Goat milk somatic cell count situation in USA. Int. J. An. Sci. 10: 305–310.
7. Harmon, R. J. 1994. Physiology of mastitis and factors affecting somatic cell counts. J. Dairy Sci. 7:2103-2112.
8. Kapture, J. 1991. Milk conference focus: Somatic cell counts. Dairy Goat J. 6:370; 7:415.
9. Lin, C. J., and H. S. Chang. 1994. Studies on the relationship between somatic cell counts and milk quality in goat milk. J. Chinese Soc. An. Sci. 23:4407–4418.
10. Osteras, O., and E. Brenne. 1992. Cell count and chemical values in goat milk. Meieriposten. 81:84–90.
11. Park, Y. W. 1991. Interrelationships between somatic cell counts, electrical conductivity, bacteria counts, percent fat and protein in goat milk. Small Rumin. Res. 5:367–375.
12. Park, Y. W., and R. D. Humphrey. 1986. Bacterial cell counts in goat milk and their correlations with somatic cell counts, percent fat, and protein. J. Dairy Sci. 69:32–37.
13. PMO. 1997. Grade A Pasteurized Milk Ordinance (PMO). US Department of Health and Human Services, Washington, D.C.
14. SAS. 1989. SAS User's Guide: Statistics, Version 6, 4th ed., SAS Institute Inc., Cary, NC.
15. Simos, E., L. P. Voutsinas, and C. P. Pappas. 1991. Composition of milk of native Greek goats in the region of Metsovo. Small Rumin. Res. 4:47–60.
16. Smith, K. L., and J. S. Hogan. 1998. Milk quality – a worldwide perspective, p.3-9. *In* Proc. 37th annual meeting of the National Mastitis Council (NMC), St. Louis, MO.
17. USDA/ARS. 1997. USDA Nutrient Database for Standard Reference, Release 11-1, USDA/ARS, Washington, D.C.
18. Voutsinas, L., C. Pappas, and M. Katsiari. 1990. The composition of Alpine goats' milk during lactation in Greece. J. Dairy Res. 57:41–51.
19. Wells, S. J., and S. L. Ott. 1995. Individual and bulk tank milk somatic cell count result: what's the quality of the U.S. milk supply? p.11–18. *In* Proc. 34th annual meeting of the National Mastitis Council (NMC), Fort Worth, TX.
20. Wilson, D. J., T. N. Steward, and P. M. Sears. 1995. Effects of stage of lactation, production, parity and season on somatic cell counts in infected and uninfected dairy goats. Small Rumin. Res. 16:165–169.
21. Zeng, S. S. 1996. Comparison of goat milk standards with cow milk standards on analyses of somatic cell count, fat and protein in goat milk. Small Rumin. Res. 21:221–225.
22. Zeng, S. S., and E. N. Escobar. 1995. Effect of parity and milk production on somatic cell count, standard plate count and composition of goat milk. Small Rumin. Res. 17:269–274.
23. Zeng, S. S., E. N. Escobar, and T. Popham. 1997. Daily variations in somatic cell count, composition, and production of Alpine goat milk. Small Rumin. Res. 26:253–260.

Reflections from the Past

1927 Presidential Address

Dr. W. A. Shoults
Winnipeg, Manitoba, Canada

I deem it an honor and a privilege, and to me as a Canadian it is a great pleasure to preside at this, our first convention to be held in Canada. It is fitting that this meeting should be held in Toronto, the Queen City of the leading province in this Dominion. We hope the proceedings will be of a character that will enable you who come from the United States to carry away the most pleasant and kindly recollections of your visit to this side of the imaginary line which divides this continent. Since our organization is probably not so well known in Canada as on the American side, I will take the liberty of making some reference to the early history of the Association.

Prior to 1911, our Secretary-Treasurer, Mr. Weld, as a representative of the United States Department of Agriculture, had for several years been traveling among and working with officials engaged in the improvement of public milk supplies. Observing the work at that time was more or less a matter of individual enterprise, it occurred to him that if there were better opportunities for the interchange of opinions among officials, a better medium for making public the findings of those engaged in research, and a more concerted effort on the part of those engaged on the problem of cleaner and safer milk supplies, much more could be accomplished; and so the idea of forming an organization was conceived.

The International Dairy Show of 1911 was held at the city of Milwaukee and Mr. Weld took this opportunity of discussing the project with officials who happened to be present. Immediate organization was agreed upon, and in a room in the auditorium in Milwaukee, after much travail,

SOMETHING NEW...

Over the next few months we will be running a new section in *Dairy, Food and Environmental Sanitation* called *Refelections from the Past*. The purpose of this section will be to provide historical information about the Association. We invite all Members to write about their memories of IAMFES history, or to write about their experiences with the Association.

a lusty infant, the International Association of Dairy and Milk Inspectors, was born on October 16, 1911. The offspring of that meeting has thriven and grown until its influence has been felt over the entire continent, and even beyond the seas. The records show that nine members were enrolled at the organization meeting, and the following officers were elected: President, C. J. Steffen; First Vice President, A. N. Henderson; and Secretary-Treasurer, I. C. Weld.

Within the next year, five applicants were accepted to membership. The first annual meeting was held in connection with the International Dairy Show in the auditorium in Milwaukee, October 25, 1912. At 16 years of age, the Association has an active membership of about 180. Fifteen annual reports have been published. These fifteen volumes contain 483 papers. About 7,500 copies of the reports have been distributed throughout the United States and Canada, and many also have been sent to European, Asiatic, and South American countries.

I do not flatter our Secretary, Mr. Weld, but merely pay him a well-earned tribute when I say that not only did he play a leading part in bringing this organization into being, but what has been accomplished by the Association throughout its entire history has been in large measure due to his untiring efforts.

The more efficient supervision and control of milk and dairy products during the last 25 years have been important factors in extending the span of human life. This has been called the age of disease prevention. In the sixteenth century, the expectancy of human life in England was said to be 21 years. This time has been gradually extended until the expectancy of life is now estimated at from 56 to 58 years, no less than nine of which have been added during the first quarter of the present century. The remarkable strides of the last 60 years have been largely due to the advancement in surgery, and to the more efficient control and prevention of communicable disease. It is in this latter field that the work with which we are concerned plays an essential part. Prominently associated with the achievements of the nineteenth century are the names of Lord Lister, Pasteur, Von Behring, and Koch. To Pasteur, we owe the credit for the process of treating milk which bears the name "pasteurization" and which, when properly and efficiently carried out, is the most valuable single agency yet developed for the safeguarding of public milk supplies. The improvement in the quality and safety of milk and dairy products has been accomplished in two principal ways; namely, cleaner methods of handling, and pasteurization.

Certified Milk has set a standard for the production and handling of milk that has influenced the entire industry. Pasteurization is the other great factor in improvement. Within the last couple of years, commercial pasteurization has been submitted to a more searching scrutiny on the part of public health officials. In some cases, a wide gap was found between technical pasteurization and the commercial so-called pasteurization practiced. The net result of these investigations will undoubtedly be the more efficient application of this valuable safeguard. Coupled with this improvement in the general quality and wholesomeness of public milk supplies, there has been an increasing appreciation of the nutritive value of this important food, and the per capita consumption of milk and dairy products on this continent is daily increasing. In times past, owing to the distance from the source of supply, the perishable nature of the product, and the risk of contamination on transit, the great problem lay in supplying the larger cities with a safe milk supply. The application of modern methods now makes this possible. But while in the prevention of milk-borne diseases, much has been accomplished in the larger cities, little has been done to protect milk consumers in the rural districts and the smaller urban centers. Because the possibilities of handling milk in a large way are so limited, and because the cost of efficient supervision is relatively high, the safeguarding of milk supplies in the smaller urban centers is a difficult problem, and one which calls for serious and thoughtful consideration.

Reprinted from *The Sixteenth Annual Report of the International Association of Dairy and Milk Inspectors, 1927.*

Success consists not so much in sitting up nights as being awake in the daytime.

Report of Special Committee on Association Publication

Presented at the Annual Meeting, Louisville, Kentucky October, 1937

At the Twentieth Annual Meeting of the Association of Milk Sanitarians held in Montreal, Canada in 1931, the suggestion was made, and renewed at subsequent meetings, that consideration be given to the establishment of an Association journal. Following the 1933 Annual Meeting, a Special Committee on Association Publication was appointed. After thorough study of the subject it presented comprehensive reports at the 1934 and 1935 Annual Meetings outlining the editorial and managerial requirements involved. At the 1936 Annual Meeting in Atlantic City, NJ, the subject was referred to the Executive Board with power to act. The original Special Committee on Association Publication, with additions, was requested by the Executive Board to establish a journal, if practicable, subject to the approval of the Board. Several meetings were held during the year, one being a joint session with the Executive Board. After consideration of all phases of the problem including possible affiliation with other publications, it was decided that a journal is essential in the field of milk technology and the Association is able and ought to proceed with such a publication. There are ample indications that with proper management such a journal can be made financially self-sustaining.

Accordingly, and acting with the approval of the Executive Board and with the personal assistance of the Association President, the Special Committee on Association Publication has established and presents herewith the JOURNAL OF MILK TECHNOLOGY. The first issue, published without cost to the Association, is a Special Convention Number for the Association's Twenty-sixth Annual Meeting, Louisville, Kentucky. It is presented as a part of this report.

The Special Committee on Association Publication recommends: that the International Association of Milk Sanitarians formally designate the JOURNAL OF MILK TECHNOLOGY as its official publication to be published in lieu of the Annual Report; that, beginning in January 1938, the Journal be inaugurated as a bi-monthly publication; that the Association take action at the 1937 Annual Meeting on the following: publication policies; and management, including editing and business; finances; management be made responsible to the Executive Board of the Association.

Respectfully submitted, Wm. B. Palmer, C. Sidney Leete, J. J. Regan, J. H. Shrader, and J. A. Tobey.

Reprinted from the *Journal of Milk Technology, Volume 1 – 1937-1938.*

New Members

CANADA

Gisele Atkinson
3M Canada, Inc.
London, Ontario

Inderjeet Gill
Simon Fraser Health Region
Coquitlam, BC

Stevie Joy
Nabisco Ltd.
Etobicoke, Ontario

Wendy Powell
University of Guelph
Guelph, Ontario

Dan Richen
Health Authority 5
Drumheller, Alberta

Mauricio Bobadilla-Ruiz
University of Guelph
Downsview, Ontario

FRANCE

Le Guern Fellous
Sanofi Pasteur
Marnes La Coquette

John O'Brien
Danone, Paris

KOREA

Myung Sub Chung
Korea Health Industry
Development Institute, Seoul

NORWAY

Joe M. Heidenreich
Food Diagnostics, Oslo

UNITED STATES

Alabama

Adalgisa M. Mora
Tuskegee University, Auburn

Arizona

Lacie E. Thrall
FoodHandler, Mesa

Arkansas

Hong Wang
University of Arkansas
Fayetteville

Michael Wish
Gerber Products Co.
Fort Smith

California

Joe Furuike
Driscoll Strawberry
Watsonville

Tari Kindred
Foster Farms, Livingston

Nancy S. Lin
Pocino Foods, Co.
City of Industry

Robert F. Stovicek
Primus Labs, Santa Maria

Elizabeth Quaranta
City of Vernon Health Dept.
Vernon

Connecticut

Suzanne Mutz
Perkin Elmer LLC, Norwalk

District of Columbia

Caroline Smith DeWaal
Center for Science in the Public
Interest, Washington

Bill T. Jolly
New Zealand Embassy
Washington

Florida

Ken Jey
AVI, Miami

D. Frank Kelsey
FMC Corporation, Lakeland

Fred Stein
Miami

Illinois

Marlene Celis
Silliker Laboratories
South Holland

Larry Draus
Ambitech Eng. Corp.
Downers Grove

Vidhya Gangar
Silliker Laboratories, Sauk Village

Michael R. King
Nalco Chemical Co., Oswego

Richard J. Mathews
Sterigenics International, Gurnee

Indiana

Robert H. Seidmore
Dearborn Co. Health Dept.
Rising Sun

Mary E. Wesemann
Dearborn Co. Health Dept.
Dearborn

Iowa

Rush R. Berry
Papetti's of Iowa, Lenox

Kansas

Lars M. Malburg
Midwest Grain Products, Atchison

Kentucky

Stephen F. Harris
Lexington-Fayette Co. Health
Dept., Lexington

Maine

Susan Brewer
IDEXX Laboratories, Inc.
Westbrook

Brian Eckenroth
IDEXX Laboratories, Inc.
Westbrook

Adam Potter
IDEXX Laboratories, Inc.
Westbrook

Maryland

Ellen F. Morrison
US Food and Drug Adminstration
Rockville

Patricia E. Umoren
TIC Gums, Inc., Belcamp

Michigan

James S. Arthurs
Biomedical Diagnostics, LLC
Ann Arbor

Eugene Grady
JoSang Group Inc., Grand Rapids

Evelyne Mbandi
Wayne State University, Detroit

Mark A. Moorman
Kellogg Company, Battle Creek

Kenneth R. Priest
Berrien Co. Health Dept., Niles

Valerie Z. Roach
Dominos Pizza Inc., Ann Arbor

Jerry W. Smith
Origen, Inc., Ann Arbor

Sara E. Smith
Michigan State University
East Lansing

Tom D. Walz
Rochester Midland, Dewitt

Minnesota

Brenda Walters
3M Microbiology Products
St. Paul

Mississippi

Custy Fernandes
CREC, Biloxi

New Jersey

Claudia Moreno Rosa
Rutgers University, New Brunswick

New York

Bruce Budinoff
Steuben Foods Inc., Jamaica

Fred Elder
FP Technologies, North Tonawanda

Timothy Leach
FP Technologies, North Tonawanda

Carol Norton
Flying Food Group, Jamaica

Ron Skare
Ecology & Environment, Inc.
Lancaster

North Carolina

Gary E. Coleman
Underwriters Laboratories, Inc.
Research Triangle Park

Ohio

Amy Brown
Lucas Co. Health Dept., Toledo

Tracy Brown
Lucas Co. Health Dept., Toledo

David W. Caton
I & K Distributor's, Inc., Delphos

Debbie Dacquisto
Lucas Co. Health Dept., Toledo

Wendy S. Fox
Ross Products Division, Columbus

Dave Goins
Q Laboratories, Inc., Cincinnati

Barbara E. Held
Kroger, Westerville

Ralph E. Neller
DiverseyLever, Cincinnati

Les Smoot
Nestlé USA, Inc., Dublin

Thomas J. Wierenga
Proctor & Gamble, Cincinnati

Oklahoma

Cathy Crawford
Advance Food Co., Enid

Alonso A. Serrano
City-County Health Dept. of
Oklahoma Co., Oklahoma City

Pennsylvania

Bassam A. Annous
US Dept. of Agriculture
Wyndmoor

Tennessee

Gordon L. Smith
Sara Lee, Cordova

Texas

Shane Calhoun
Pilgrim's Pride, Mt. Pleasant

Virginia

Kalmia K. Phelps
Virginia Tech, Christiansburg

Washington

Dave Faires
Frigoscandia Equipment, Bellevue

John Richards
Alcide Corporation, Redmond

Wisconsin

Edward N. Beringer, III
Eskimo Pie Corp., New Berlin

Adam C. Borger
Kraft Foods/Oscar Mayer Div.
Madison

Gina L. Mode
UW-Madison, Madison

New IAMFES Sustaining Member

Heather Thompson
PestWest Electronics Ltd.
Ossett, England, United Kingdom

New Members

CANADA

Gisele Atkinson
3M Canada, Inc.
London, Ontario

Inderjeet Gill
Simon Fraser Health Region
Coquitlam, BC

Stevie Joy
Nabisco Ltd.
Etobicoke, Ontario

Wendy Powell
University of Guelph
Guelph, Ontario

Dan Richen
Health Authority 5
Drumheller, Alberta

Mauricio Bobadilla-Ruiz
University of Guelph
Downsview, Ontario

FRANCE

Le Guern Fellous
Sanofi Pasteur
Marnes La Coquette

John O'Brien
Danone, Paris

KOREA

Myung Sub Chung
Korea Health Industry
Development Institute, Seoul

NORWAY

Joe M. Heidenreich
Food Diagnostics, Oslo

UNITED STATES

Alabama

Adalgisa M. Mora
Tuskegee University, Auburn

Arizona

Lacie E. Thrall
FoodHandler, Mesa

Arkansas

Hong Wang
University of Arkansas
Fayetteville

Michael Wish
Gerber Products Co.
Fort Smith

California

Joe Furuike
Driscoll Strawberry
Watsonville

Tari Kindred
Foster Farms, Livingston

Nancy S. Lin
Pocino Foods, Co.
City of Industry

Robert F. Stovicek
Primus Labs, Santa Maria

Elizabeth Quaranta
City of Vernon Health Dept.
Vernon

Connecticut

Suzanne Mutz
Perkin Elmer LLC, Norwalk

District of Columbia

Caroline Smith DeWaal
Center for Science in the Public
Interest, Washington

Bill T. Jolly
New Zealand Embassy
Washington

Florida

Ken Jey
AVI, Miami

D. Frank Kelsey
FMC Corporation, Lakeland

Fred Stein
Miami

Illinois

Marlene Celis
Silliker Laboratories
South Holland

Larry Draus
Ambitech Eng. Corp.
Downers Grove

Vidhya Gangar
Silliker Laboratories, Sauk Village

Michael R. King
Nalco Chemical Co., Oswego

Richard J. Mathews
Sterigenics International, Gurnee

Indiana

Robert H. Seidmore
Dearborn Co. Health Dept.
Rising Sun

Mary E. Wesemann
Dearborn Co. Health Dept.
Dearborn

Iowa

Rush R. Berry
Papetti's of Iowa, Lenox

Kansas

Lars M. Malburg
Midwest Grain Products, Atchison

Kentucky

Stephen F. Harris
Lexington-Fayette Co. Health
Dept., Lexington

Maine

Susan Brewer
IDEXX Laboratories, Inc.
Westbrook

Brian Eckenroth
IDEXX Laboratories, Inc.
Westbrook

Adam Potter
IDEXX Laboratories, Inc.
Westbrook

Maryland

Ellen F. Morrison
US Food and Drug Adminstration
Rockville

Patricia E. Umoren
TIC Gums, Inc., Belcamp

Michigan

James S. Arthurs
Biomedical Diagnostics, LLC
Ann Arbor

Eugene Grady
JoSang Group Inc., Grand Rapids

Evelyne Mbandi
Wayne State University, Detroit

Mark A. Moorman
Kellogg Company, Battle Creek

Kenneth R. Priest
Berrien Co. Health Dept., Niles

Valerie Z. Roach
Dominos Pizza Inc., Ann Arbor

Jerry W. Smith
Origen, Inc., Ann Arbor

Sara E. Smith
Michigan State University
East Lansing

Tom D. Walz
Rochester Midland, Dewitt

Minnesota

Brenda Walters
3M Microbiology Products
St. Paul

Mississippi

Custy Fernandes
CREC, Biloxi

New Jersey

Claudia Moreno Rosa
Rutgers University, New Brunswick

New York

Bruce Budinoff
Steuben Foods Inc., Jamaica

Fred Elder
FP Technologies, North Tonawanda

Timothy Leach
FP Technologies, North Tonawanda

Carol Norton
Flying Food Group, Jamaica

Ron Skare
Ecology & Environment, Inc.
Lancaster

North Carolina

Gary E. Coleman
Underwriters Laboratories, Inc.
Research Triangle Park

Ohio

Amy Brown
Lucas Co. Health Dept., Toledo

Tracy Brown
Lucas Co. Health Dept., Toledo

David W. Caton
I & K Distributor's, Inc., Delphos

Debbie Dacquisto
Lucas Co. Health Dept., Toledo

Wendy S. Fox
Ross Products Division, Columbus

Dave Goins
Q Laboratories, Inc., Cincinnati

Barbara E. Held
Kroger, Westerville

Ralph E. Neller
DiverseyLever, Cincinnati

Les Smoot
Nestlé USA, Inc., Dublin

Thomas J. Wierenga
Proctor & Gamble, Cincinnati

Oklahoma

Cathy Crawford
Advance Food Co., Enid

Alonso A. Serrano
City-County Health Dept. of
Oklahoma Co., Oklahoma City

Pennsylvania

Bassam A. Annous
US Dept. of Agriculture
Wyndmoor

Tennessee

Gordon L. Smith
Sara Lee, Cordova

Texas

Shane Calhoun
Pilgrim's Pride, Mt. Pleasant

Virginia

Kalmia K. Phelps
Virginia Tech, Christiansburg

Washington

Dave Faires
Frigoscandia Equipment, Bellevue

John Richards
Alcide Corporation, Redmond

Wisconsin

Edward N. Beringer, III
Eskimo Pie Corp., New Berlin

Adam C. Borger
Kraft Foods/Oscar Mayer Div.
Madison

Gina L. Mode
UW-Madison, Madison

New IAMFES Sustaining Member

Heather Thompson
PestWest Electronics Ltd.
Ossett, England, United Kingdom

AffiliateOfficers

ALABAMA ASSN. OF MILK, FOOD & ENVIRONMENTAL SANITARIANS

Pres., Ed Mabry ..... Cowarts
Pres. Elect, Ron Dawsey ..... Montgomery
Vice Pres., Tollie Haley Meggs ..... Tuscaloosa
Sec'y. Treas., Patricia Lindsey ..... Cullman
Delegate, Ed Mabry ..... Cowarts

Mail all correspondence to:
Patricia Lindsey
Cullman County Health Dept.
P.O. Box 1678
Cullman, AL 35056-1678
256.734.0243

ALBERTA ASSN. OF MILK, FOOD & ENVIRONMENTAL SANITARIANS

Pres., Gary Gensler ..... Edmonton
Pres. Elect, Michelle Rymal ..... Edmonton
Past Pres., Elaine Dribnenky ..... Red Deer
Sec'y., Kelly Sawka ..... Edmonton
Treas., Bonnie Jensen ..... Edmonton
Delegate, Lawrence Roth ..... Edmonton

Mail all correspondence to:
Lawrence Roth
Food Quality Branch
Alberta Agriculture, Food and Rural Development
6909 - 116th St., 5th Floor
Edmonton, Alberta, Canada T6H 4P2
780.427.2277

BRITISH COLUMBIA FOOD PROTECTION ASSOCIATION

Pres., Clive Kingsbury ..... Surrey
Sec'y, John Boyce ..... Oakville, Ontario
Treas., Ernst Schoeller ..... West Vancouver
Delegate, Gillian Geere ..... Richmond

Mail all correspondence to:
Clive Kingsbury
Fleetwood Sausage
5523 - 176th St.
Surrey, BC V3S 4C2
604.576.1191 ext. 3740

CALIFORNIA ASSN. OF DAIRY & MILK SANITARIANS

Pres., Gary Timmons ..... Ontario
1st Vice Pres., Anne Quilter Goldstein .... Sacramento
2nd Vice Pres., Giselle Puckett ..... Fairfield
Past Pres., Ed Wensel ..... Livermore
Sec'y. Treas., John Bruhn ..... Davis
Delegate, John Bruhn ..... Davis

Mail all correspondence to:
John C. Bruhn
Dairy Research and Information Center
University of California-Davis
Food Science and Technology
One Shields Ave.
Davis, CA 95616-8598
530.752.2191

CAROLINAS ASSN. OF MILK, FOOD & ENVIRONMENTAL SANITARIANS

Pres., Joe Neely ..... Columbia, SC
Vice Pres., Susan Grayson ..... Cary, NC
Sec'y., Beth Johnson ..... Columbia, SC
Treas., Jennifer Quinlan ..... Raleigh, NC
Delegate, Beth Johnson ..... Columbia, SC

Mail all correspondence to:
Joe Neely
SCDHEC Division of Environmental Health
2600 Bull St.
Columbia, SC 29201
803.935.7890

CONNECTICUT ASSN. OF DAIRY & FOOD SANITARIANS, INC.

Pres., Colleen Mears ..... Windsor Locks
Vice Pres., David Herrington ..... Middlefield
Sec'y., Donald Shields ..... Hartford
Treas., Kevin Gallagher ..... Hartford
Delegate, Satyakam Sen ..... Bristol

Mail all correspondence to:
Kevin Gallagher
Dept. Consumer Protection (Food Div.)
State Office Bldg., Rm #167
165 Capitol Ave.
Hartford, CT 06106
203.566.4716

FLORIDA ASSN. OF MILK, FOOD & ENVIRONMENTAL SANITARIANS, INC.

Pres., Roy E. Costa ..... Winter Park
Pres. Elect, Frank Yiannas ..... Lake Buena Vista
Vice Pres., Zeb Blanton ..... Tallahassee
Past Pres., Marian Ryan ..... Winter Haven
Sec'y., Sharon Grossman ..... Orange City
Treas., Bill Thornhill ..... Winter Haven
Delegate, Peter Hibbard ..... Orlando

Mail all correspondence to:
Roy Costa
2694 Magnolia Road
Deland, FL 32720
904.943.9602

GEORGIA ASSN. OF FOOD & ENVIRONMENTAL SANITARIANS

Pres., Pam York ..... McDonough
Vice Pres., Sid Camp ..... Atlanta
Sec'y., Todd Silberg ..... Duluth
Treas., James C. Camp ..... Newnan
Delegate, David Fry ..... Lilburn

Mail all correspondence to:
Todd Silberg
DARDEN Restaurants
3775 Palisade Park Dr.
Duluth, GA 30096
770.622.6005

IDAHO ENVIRONMENTAL HEALTH ASSN.

Pres., Edgar Hale ..... Coeur d'Alene
Pres. Elect, Edward Marugg ..... Pocatello
Past Pres., Steve Bastian ..... Preston
Sec'y. Treas., Tom Hepworth ..... Pocatello
Delegate, Edgar Hale ..... Coeur d'Alene

Mail all correspondence to:
Dale King
P.O. Box 1239
Orofino, ID 83544
208.476.7850

ASSOCIATED ILLINOIS MILK, FOOD & ENVIRONMENTAL SANITARIANS

Pres., Gary Kuhlman ..... Springfield
Pres. Elect, Leroy Dressel ..... Highland
1st Vice Pres., Tom Gruetzmacher ..... Rockford
2nd Vice Pres., Steve DiVincenzo ..... Springfield
Past Pres., Karen Engbretson ..... Rockford
Sec'y. Treas., Nicolette Oates ..... Chicago
Delegate, Charles Price ..... Lombard

Mail all correspondence to:
Nicolette Oates
11920 So. 74th Ave.
Palos Heights, IL 60463
773.722.7100

INDIANA ENVIRONMENTAL HEALTH ASSN., INC.

Pres., Dave Lamm ..... Indianapolis
Pres. Elect, John Hulewicz ..... Goshen
Vice Pres., Rhonda Madden ..... Indianapolis
Past. Pres., Stephanie Dunlap ..... Indianapolis
Treas., Jennifer Warner ..... Indianapolis
Sec'y., Janice Wilkins ..... Muncie
Delegate, Helene Uhlman ..... Hammond

Mail all correspondence to:
Helene Uhlman
Hammond Health Dept.
649 Conkey St., East
Hammond, IN 46324
219.853.6358

IOWA ASSN. OF MILK, FOOD & ENVIRONMENTAL SANITARIANS, INC.

Pres., Jon Knight ..... Waterloo
Vice Pres., Randy Stephenson ..... Stacyville
1st Vice Pres., Susan Stence ..... Charter Oak
2nd Vice Pres., Mike Klein ..... Rickardsville
Past Pres., Noretia Kramer ..... Arlington
Sec'y. Treas., Monica Streicher ..... Arlington
Delegate, Randy Hanson ..... Dubuque

Mail all correspondence to:
Monica Streicher
c/o Associated Milk Producers Inc.
3281 40th St.
Arlington, IA 50606
319.933.4521 ext. 222

KANSAS ASSN. OF SANITARIANS

Pres., Mary Glassburner ..... Chanute
1st Vice Pres., Joe Funk ..... Salina
2nd Vice Pres., Dan Partridge ..... Hutchinson
Past Pres., Marvin Simonton ..... Wellington
Sec'y., Chris McVey ..... Emporia
Treas., Greg Willis ..... Hoisington

Mail all correspondence to:
Chris McVey
Lyon County Health Dept.
420 W. 15th Ave.
Emporia, KS 66801
316.342.4864

KENTUCKY ASSN. OF DAIRY, FOOD & ENVIRONMENTAL SPECIALISTS

Pres., Jim Wesley ..... Somerset
Pres. Elect, Johnny Summers ..... Hazard
Vice Pres., Timothy Wright ..... Versailles
Sec'y., Brenda Haydon ..... Frankfort
Treas., Kim True ..... Frankfort
Delegate, Kim True ..... Frankfort

Mail all correspondence to:
Johnny Summers
KY River Dist. Health Dept.
441 Gormon Hollow Road
Hazard, KY 41701
606.439.2361

KOREA ASSN. OF MILK, FOOD AND ENVIRONMENTAL SPECIALISTS

Pres., Kook Hee Kang ..... Kyunggi-do
1st Vice Pres., Duck Hwa Chung ..... Kyungnam
2nd Vice Pres., Dong Suck Chang ..... Pusan
Past Pres., Choong Il Chung ..... Seoul
Sec'y., Deog Hwan Oh ..... Kangwon-do
Auditor, Yoh Chang Yoon ..... Seoul
Delegate, Dong Kwan Jeong ..... Pusan

Mail all correspondence to:
Kook-Hee Kang
Dept. of Food and Life Science
Sungkyunkwan University
300 Chunchun-dong, Jangan-Ku
Suwon-city, 440-746 Korea
82.331.290.7802

MASSACHUSETTS MILK, FOOD & ENVIRONMENTAL INSPECTORS ASSN.

Pres., Gail Stathis ..... Springfield
Vice Pres., Christine Majewski ..... Boston
Past Pres., David Kochan ..... Northampton
Sec'y. Treas., Fred Kowal ..... South Hadley
Delegate, Barb Kulig ..... West Springfield

Mail all correspondence to:
Fred Kowal
49 Pine St.
South Hadley, MA 01075
413.592.5914

METROPOLITAN ASSN. OF DAIRY, FOOD & ENVIRONMENTAL SPECIALISTS

Pres., Jeffrey Bloom ..... Wooodbridge, NJ
1st Vice Pres., Steven Mitchell ..... Plainview, NY
2nd Vice Pres., Carol A. Schwar ..... Alpha, NJ
Sec'y. Treas., Fred Weber ..... Hamilton, NJ
Delegate, Fred Weber ..... Hamilton, NJ

Mail all correspondence to:
Fred Weber
2732 Kuser Road
Hamilton, NJ 08691-9430
609.584.7677

MICHIGAN ENVIRONMENTAL HEALTH ASSN.

Pres., Holly Mercer ..... Grand Rapids
Pres. Elect, Keith Krinn ..... Southfield
Past Pres., Ron Holben ..... Lansing
Treas., Bruce DuHamel ..... Hemlock
Sec'y., Tom Olson ..... Holland
Delegate, Holly Mercer ..... Grand Rapids

Mail all correspondence to:
Chuck Lichon
220 W. Ellsworth
Midland, MI 48640
517.832.6656

MINNESOTA SANITARIANS ASSN., INC.

Pres., Elaine Santi ..... Iron
Pres. Elect, Dale Heintz ..... Eyota
Vice Pres., Gary Doucette ..... Brainerd
Past Pres., Dan Erickson ..... St. Paul
Sec'y. Treas., Paul Nierman ..... Mounds View
Delegate, Paul Nierman ..... Mounds View

Mail all correspondence to:
Paul Nierman
Dairy Quality Control Institute
5205 Quincy St.
Mounds View, MN 55112-1400
612.785.0484

MISSISSIPPI ENVIRONMENTAL HEALTH ASSN.

Pres., Royce Freeman ..... Hattiesburg
Pres. Elect, Susan Howell ..... Starkville
Past Pres., Charlie Busler ..... Meridian
Sec'y. Treas., Regina Holland ..... New Augusta
Delegate, Regina Holland ..... New Augusta

Mail all correspondence to:
Regina Holland
Perry County Health Dept.
P.O. Box 126
New Augusta, MS 39462
601.964.3288

MISSOURI MILK, FOOD & ENVIRONMENTAL HEALTH ASSN.

Pres., Stephen St. Clair ..... Hannibal
Pres. Elect, Linda Wilson ..... Springfield
Vice Pres., Joel VanHoose ..... Jefferson City
Past Pres., Don Falls ..... Jefferson City
Sec'y., Andrew Hoffman ..... Warrenton
Treas., Patrick Shannon ..... Jefferson City

Mail all correspondence to:
Stephen St. Clair
Marion County Health Dept.
P.O. Box 1378
Hannibal, MO 63401
573.221.1166

NEBRASKA ASSN. OF MILK & FOOD SANITARIANS

Pres., Gary Hosek ..... Lincoln
Vice-Pres., Tom Tieso ..... Lincoln
Past Pres., Roger Biltoft ..... Oak
Sec'y., Mindy Brashears ..... Lincoln
Treas., Jill Schallehn ..... Omaha
Delegate, Diane West ..... Omaha

Mail all correspondence to:
Gary Hosek
NE Dept. of Health and Human Services
301 Centennial Mall South
Lincoln, NE 68509
402.471.3121

NEW YORK STATE ASSN. OF MILK & FOOD SANITARIANS

Pres., Gary L. Davis ..... Canandaigua
Pres. Elect, Connie Kuhlman ..... Rome
Past Pres., William Byrne, Jr. ..... Syracuse
Sec'y., Janene Lucia ..... Ithaca
Delegate, Steven Murphy ..... Ithaca

Mail all correspondence to:
Janene Lucia
c/o Cornell University
172 Stocking Hall
Ithaca, NY 14853
607.255.2892

NORTH DAKOTA ENVIRONMENTAL HEALTH ASSN.

Pres., Mike Walton ..... Bismarck
1st Vice Pres., James Schothorst ..... Grand Forks
2nd Vice Pres., Dick Bechtel ..... Mandan
Past Pres., Kevin Misek ..... Rugby
Sec'y., Debra Larson ..... Bismarck
Treas., Kenan Bullinger ..... Bismarck
Delegate, John Ringsrud ..... Lakota

Mail all correspondence to:
Debra Larson
Food and Lodging
ND Dept. of Health
600 E. Boulevard Ave., Dept. 301
Bismarck, ND 58505-0200
701.328.1292

OHIO ASSN. OF MILK, FOOD & ENVIRONMENTAL SANITARIANS

Pres., Hermine Willey ..... Columbus
1st Vice Pres., Barry S. Pokorny ..... Fairfield
2nd Vice Pres., Rodger Tedrick ..... Gahanna
Past Pres., James Baker ..... Lancaster
Sec'y. Treas., Donald Barrett ..... Canal Winchester
Delegate, Gloria Swick ..... New Lexington

Mail all correspondence to:
Donald Barrett
Health Dept.
6855 Diley Road NW
Canal Winchester, OH 43110
614.645.6195

ONTARIO FOOD PROTECTION ASSN.

Pres., Bill Boylan ..... Mississauga
Vice Pres., Ivan Linjacki ..... Kitchener
Past Pres., Jean Allen ..... Toronto
Sec'y. Treas., Zul Nanjee ..... Guelph
Delegate, Bill Boylan ..... Mississauga

Mail all correspondence to:
Ontario Food Protection Assn.
28-380 Eramosa Road, Suite 279
Guelph, Ontario N1E 7E1 Canada
519.823.8015

PENNSYLVANIA ASSN. OF MILK, FOOD & ENVIRONMENTAL SANITARIANS

Pres., Clyde H. Treffeisen ..... Southampton
Pres. Elect, Patricia L. McKenty ..... Lancaster
Vice Pres., Doug Smith ..... Lancaster
Past Pres., Patrick Campbell ..... Ambridge
Sec'y., Eugene R. Frey ..... Lancaster
Treas., Robert K. Mock ..... Boyertown
Delegate, Eugene R. Frey ..... Lancaster

Mail all correspondence to:
Eugene R. Frey
307 Pin Oak Place
Lancaster, PA 17602-3469
717.397.0719

SOUTH DAKOTA ENVIRONMENTAL HEALTH ASSN.

Pres., Cindy Koopman ..... Sioux Falls
Pres. Elect, Curtis Thelen ..... Sioux Falls
Past Pres., Shannon Jordre ..... Pierre
Sec'y. Treas., Gary J. Van Voorst ..... Sioux Falls
Delegate, Gary J. Van Voorst ..... Sioux Falls

Mail all correspondence to:
Gary J. Van Voorst
132 N. Dakota Ave.
Sioux Falls, SD 57104
605.367.8787

TENNESSEE ASSN. OF MILK, WATER & FOOD PROTECTION

Pres., Jim Byington ..... Blountville
Pres. Elect, Steve Jones ..... Kingsport
Vice Pres., Ronnie Wade ..... Memphis
Past Pres., Suzie Sykes ..... Arlington, TX
Sec'y. Treas., Ann Draughon ..... Knoxville
Bd. Mem.-at-Lge., Jim Howie ..... Charlotte, NC
Archivist, Ruth Fuqua ..... Mt. Juliet

Mail all correspondence to:
Ann Draughon
University of Tennessee
Food Science and Technology Dept.
Knoxville, TN 37901-1071
423.974.7425

TEXAS ASSN. OF MILK, FOOD & ENVIRONMENTAL SANITARIANS

Pres., Mike Giles ..... Tyler
Past Pres., Fred Reimers ..... San Antonio
Sec'y. Treas., Ron Richter ..... College Station
Delegate, Janie Park ..... Austin

Mail all correspondence to:
TAMFES
P.O. Box 10092
College Station, TX 77843-2471
409.845.4409

VIRGINIA ASSN. OF SANITARIANS & DAIRY FIELDMEN

Pres., Bennett Minor ..... Mechanicsville
1st Vice Pres., Michael Hodges ..... Martinsville
Past Pres., Randy Osborn ..... Independence
Sec'y. Treas., David Dansey ..... Richmond
Delegate, David Dansey ..... Richmond

Mail all correspondence to:
David Dansey
Box 1163
Richmond, VA 23209-1163
804.786.1452

WASHINGTON MILK & FOOD SANITARIANS ASSN.

Pres., Marc Bates ..... Pullman
Pres. Elect, Matthew Andrews ..... Seattle
Past Pres., Greg Rood ..... Roy
Sec'y. Treas., William Brewer ..... Seattle
Delegate, Stephanie Olmsted ..... Kent

Mail all correspondence to:
William Brewer
12509 10th Ave., NW
Seattle, WA 98177-4309
206.363.5411

WISCONSIN ASSN. OF MILK & FOOD SANITARIANS

Pres., John Christy ..... Sparta
Pres. Elect, George Nelson ..... Menomonie
1st Vice Pres., Dean Sommer ..... Waupun
2nd Vice Pres., Kathy Glass ..... Madison
Past Pres., Amy Bender ..... Richland Center
Sec'y., Randall Daggs ..... Sun Prairie
Treas., Neil Vassau ..... Verona
Delegate, Randall Daggs ..... Sun Prairie

Mail all correspondence to:
Randall Daggs
6699 Prairie View Dr.
Sun Prairie, WI 53590
608.266.9376

WYOMING ENVIRONMENTAL HEALTH ASSN.

Pres., Laurie Leis ..... Casper
Pres. Elect, Shirley Etzell ..... Lander
Past Pres., Stephanie Whitman ..... Laramie
Sec'y., Nola Evans ..... Laramie
Treas., Roy Kroeger ..... Cheyenne
Delegate, Nola Evans ..... Laramie

Mail all correspondence to:
Nola Evans
4205 Crow Dr.
Laramie, WY 82072
307.745.4591

UpDates

Elgin Dairy Foods, Inc., Announces Appointment of Julie Maher

Elgin Dairy Foods has announced that Julie Maher has joined their growing staff as a marketing associate. Her appointment was announced by Jim Gignac, VP Sales and Marketing. "We're excited to have Julie focusing on our marketing programs, she brings an impressive range of experience and talent that will enable us to grow our marketing programs, including a fluency in Spanish that will also help her focus on our Spanish-speaking clients," said Gignac.

Julie has already led an interesting and varied career, including a six-month placement as a missionary in Ecuador where she was responsible for teaching over 800 children while involved in marketing efforts to increase sponsorship. Before that, Julie was with Phillip F. Maher & Assoc., as an accountant, following her time as VP of Sales and Marketing at Discoveries International Import Store in DePere, WI.

Ashland Distribution Company Names Armstrong Director of Electronic Commerce

Ashland Distribution Company has named David H. Armstrong Director of Electronic Commerce for its operations. The announcement was made by Peter M. Bokach, President of Ashland Distribution Company.

In his new position, Armstrong will be responsible for developing strategy and implementation plans, which includes coordinating distribution company work processes to facilitate development of the company's electronic business capability.

Armstrong previously served as business director of marketing for the Industrial Chemicals & Solvents (IC&S) Division. Having worked for Ashland Chemical for several years before, Armstrong rejoined the company in 1985 as a business manager for the General Polymers Division. He also has served as a chemical-purchasing manager, operations director for Distribution Services Organization, and held other positions within Ashland.

A native of Altamont, NY, Armstrong holds a bachelor's degree in chemical engineering from The Ohio State University and a master's degree in business administration from Rutgers University.

Beaulieu Appointed CVM Deputy Director

FDA Commissioner Jane E. Henney, M.D. has approved the appointment of Dr. Andrew J. Beaulieu as Deputy Director of FDA's Center for Veterinary Medicine (CVM) effective July 18,1999. Dr. Beaulieu succeeds Dr. Michael J. Blackwell, who left CVM on February 1, 1999. Dr. Bert Mitchell has been Acting Deputy Director of CVM since Dr. Blackwell's departure.

After receiving his D.V.M. degree cum laude from The Ohio State University, Dr. Beaulieu came to FDA. He began his government career as a veterinary reviewer in the Office of New Animal Drug Evaluation (ONADE) in June, 1972. In 1974, Dr. Beaulieu transferred to the Office of Surveillance and Compliance, where he moved up to division director in the Division of Surveillance. In 1991, he became director of the Division of Therapeutic Drugs for Food Animals in ONADE. In November, 1992, he was appointed a deputy director of ONADE. In addition, Dr. Beaulieu also served in the Office of Research for a brief time.

Dr. Beaulieu has received several FDA honor awards, including two awards of merit, four commendable service awards, a commissioner's special citation, a Deputy Commissioner's Special Recognition Award, and numerous group recognition awards during his distinguished career.

New Inside Sales Representative at Alfa Laval Flow Inc.

Dan Miller, of Racine, Wisconsin, has accepted a position with Alfa Laval Flow Inc. as an inside sales representative for the G&H Division. In this role, Dan will perform a wide variety of customer service functions including processing orders, addressing customer inquires and implementing return material requests.

A graduate of Northern Michigan University, Dan brings several years of personnel supervisory experience in the employment placement industry.

USDA Develops Third Party Certification for EU Non-Hormone Treated Cattle Program

The US Department of Agriculture's Food Safety and Inspection Service and Agricultural Marketing Service have developed a third party certification system for the EU Non-Hormone Treated Cattle Program. A Sept. 9 meeting provided further details of the third party certification.

The European Union requires that beef or veal imported to their member states originate from animals that have never received hormonal growth promotants. On July 16, FSIS suspended the certification of the Non-Hormone Treated Cattle Program over concerns with controls in the program. FSIS is working with industry to improve controls from birth to slaughter, processing, and packaging of the product.

One initiative is the development of a third party certification system, provided by AMS, that will provide livestock producers and meat packers an opportunity to assure that their programs conform to the requirements of the EU.

FSIS has developed guidelines that should be used by all phases of the industry to develop written programs to document that meat marketed as "hormone free" is from animals that have not received hormone treatment.

Each phase of production must receive third party verification. AMS has agreed to offer certification services to industry on a fee-for-service basis. FSIS has also delegated authority to AMS to accredit other third parties interested in providing certification of the systems.

Once AMS or an AMS-accredited third party has completed the audit and verified every step in the production chain, FSIS will be able to resume export certification of non-hormone treated beef to the EU on a case-by-case basis.

NEWS

Food Safety Programme Web Site

Dr. Marco Jermini, Food Safety Programme Manager, The European Centre for Environment and Health, a Centre within the Department of Environment and Health of the WHO Regional Office for Europe has opened its new Web site, which presents the actual programmes and products: Environmental Epidemiology, Waste Management, Water and Sanitation, Environmental Health in Italy, Climate Change, Children and Health, International Tyroid Project, Partnership in Health and Emergency, and Food Safety.

The Food Safety Programme, at the Internet address www.who.it/programmes/food_safety.htm, operates to ensure that:

- information on food safety is properly collected and circulated to provide the basis for policy and monitoring;
- health-oriented guidelines are constantly updated; and
- an international independent body plays a public health advocacy role vis-a-vis the strong economic forces acting within the areas of food production, retailing and global marketing.

Beside work carried out with other technical programmes of the WHO Regional Office, in the preparation of a European Food and Nutrition Action Plan, the main activities within the programme are:

- assistance to countries in developing/strengthening their National Food Safety Programmes (updating of legislation in accordance to Codex Alimentarius and EU-Legislation, strengthening food control services, promoting quality assurance systems based on the Hazard Analysis and Critical Control Point System – HACCP);
- strengthening surveillance of foodborne disease by implementing the "WHO Surveillance Programme for Control of Foodborne Infections and Intoxications in Europe" and by publishing quarterly Newsletters;
- strengthening of food contaminants monitoring;
- promoting of a better understanding of the relationship between food intake and disease causation (e.g. microbiological risk assessment);
- promoting the establishment of a monitoring system for multidrug resistance in bacterial strains of food and drinking water origin;
- promoting the assessment of long-term global risk of genetically modified foods; and
- supporting policy development integrating food safety and nutritional aspects into National Environmental Health Action Plans.

Users interested in subscribing the electronic version of the worldwide known Newsletter published within the framework of the WHO Surveillance Programme for the Control of Foodborne Infections and Intoxications in Europe can register by E-mail directly from the Web site (the Newsletters are available in English and in Russian).

Geographical Information Systems (GIS); Mapping for Epidemiological Surveillance

Spatial analysis and mapping in epidemiology have a long history, but until recently, their use in public health has been limited. Maps were either created manually, or in research institutes using capital-intensive GIS hardware and software.

However, recent advances in geographical information and mapping technologies and increased awareness have created new opportunities for public health administrators to enhance their planning, analysis and monitoring capabilities. The late 1990s have seen a significant expansion in information and mapping technology, including the development of desktop mapping software, new programming tools for customization of mapping products and increasing connectivity to information highways such as the world wide web.

GIS are often described as an organized collection of computer hardware, software, geographical data and personnel designed to efficiently capture, store, update, manipulate, analyze and display all forms of geographically referenced information.

While accurate, comprehensive and quite widely accepted, this definition may not help the public health newcomer to GIS. They are first and foremost an information system with a geographical variable which enable users to easily process, visualize and analyze their data or information spatially. Each piece of information is related in the system through specific geographical coordinates (e.g. latitude and longitude) to a geographical context. This can be a health facility, a laboratory, a village, a district, a region, a country or a group of countries. The information can be displayed in the form of graphs, charts and maps, although GIS are mainly used to display results in the form of maps.

A GIS serves as a common platform for convergence of multidisease surveillance activities. Standardized georeferencing of epidemiological data facilitates standardized approaches to data management. As such, a GIS can serve as an entry point for integrating disease surveillance activities where appropriate. A GIS facilitates the convergence of multisectoral data, including epidemiological surveillance information, population information, environmental information and health and other resources into a common platform for analyses.

GIS and mapping technologies are being used by a wide variety of public health administrators, including policy makers, national programme managers, statisticians, epidemiologists, regional and district medical officers.

In order to establish an operational GIS for epidemiological surveillance, the following steps should be followed. Determine the objectives of the GIS. Why do you want to use a GIS? What is the problem to be solved? What kinds of analysis are to be carried out? What are the final products expected of the GIS? Who is to access the GIS? Access digitized basemaps, e.g. maps of administrative boundaries, rivers, roads, etc. that contain xy coordinates and are available as computerized files.

Georeference epidemiological surveillance datasets. Assigning a unique and standardized code or nomenclature to the geographical area in which you want to work (e.g. region, district, village, health centre). The georeference of a district must correspond to the digitized base map. The georeference of a village or health facility must be the exact geographical coordinates (latitude and longitude). When these do not already exist in the country, global positioning systems (GPS) can be used. GPS are used to obtain the geographical coordinates of a point on a map, such as a village, a health centre, a dam. GPS are hand-held devices that read the exact position of the user through radio transmission to satellites.

The WHO/UNICEF Joint Programme on Health-Mapping (HealthMap) has developed a database management and mapping system called the HealthMapper that has been customized for public health applications at country, regional and global levels. The system contains a standardized georeferenced database of country, regional, district and subdistrict boundary maps, rivers, roads, villages, and health and social infrastructures. The system also comprises a user-friendly mapping interface and a database management interface. It is currently being used in West Africa and will be extended for use in all of Africa, South-East Asia and the Eastern Mediterannean regions of WHO. For more information on how to get started using GIS for epidemiological surveillance and for accessing digitized basemaps, standardized geocoding methods, and the HealthMapper, please contact: WHO/UNICEF Joint Programme on Data Management and Mapping HealthMap, Department for communicable disease surveillance and response, World Health Organization, 1211 Geneva 27, Switzerland; Tel: +41. 22.791.3881/3836/3861; Fax: +41. 22.791.4198; E-mail: meertj@who.ch or surveillancekit@who.ch; Internet: www.who.int/emc/healthmap/healthmap.html.

Food Irradiation Coalition Petitions FDA to Allow Use of Irradiation on Variety of Ready-to-Eat Foods

The Food Irradiation Coalition, a coalition of food industry trade associations, health organizations, academic and consumer groups, has filed a petition asking the Food and Drug Administration to extend the use of food irradiation for ready-to-eat meat and poultry products and fruit and vegetable products.

"We are submitting this petition to extend the use of food irradiation in order to help eliminate illness-causing microbial pathogens on various ready-to-eat foods, thereby reducing related incidents of foodborne illness," the Coalition stated. "Further, the use of this process can be expected to enhance the shelf life of these ready-to-eat foods."

The cosponsoring organizations for the petition include the National Food Processors Association; the American Association of Meat Processors; American Bakers Association; the American Meat Institute; the American Spice Trade Association; Food Distributors International; the Food Marketing Institute; the Food Safeguards Council; Food Technology Services, Inc.; the Grocery Manufacturers of America; the Infection Control Advisory Network; the Infectious Diseases Society of America; the Institute of Shortening and Edible Oils; the International Association of Color Manufacturers; the International Fresh Cut Produce Association; Kansas State University; the National Cattlemen's Beef Association; the National Chicken Council; the National Fisheries Institute; the National Meat Association; the National Restaurant Association; the Nebraska Food Processing Center; North American Meat Processors; the Ozark Food Processors Association; the Pacific Seafood Processors Association; the Snack Food Association; the Society of the Plastics Industries; SteriGenics International; STERIS Corporation-Isomedix Services; and Titan Scan Corporation. Other groups providing endorsement for the petition include the American Society of Microbiology; the Association of Food and Drug Officials; and Consumer Alert.

The categories of food to be addressed include ready-to-eat meat and poultry products and fruit and vegetable products (including seeds, nuts and sprouts). Specific examples of foods covered by the petition include sprouts and seeds; juices; frozen fruits and vegetable such as broccoli, peas and strawberries; cut and packaged salads; refrigerated ready-to-eat meat and poultry products, such as deli and luncheon meats; hotdogs; dried meat and poultry products, such as beef jerky and turkey jerky; and frozen meat and poultry such as precooked beef patties and precooked frozen fried chicken.

The petition points out that food irradiation has been studied and found to be safe and effective by a variety of scientific authorities. "Cold pasteurization of foods as a means to destroy pathogenic, foodborne bacteria and pathogens on foods has been extensively reviewed," the Coalition stated. "For foods processed using irradiation, the potential for consumer illness from pathogens is virtually eliminated."

The petition also documents the safety and wholesomeness of the proposed use of food irradiation on ready-to-eat meats, poultry, fruits and vegetables, and assesses the impact on relevant essential nutrients in those foods, concluding that the nutrient reduction would be "negligible."

The petition also noted that "The Food Irradiation Coalition believes that this petition meets the criteria established by FDA's Center for Food Safety and Applied Nutrition for expedited review." In January 1999, FDA announced guidelines designed to provide for the expedited review of food additive petitions for products designed to decrease the risk of foodborne, using food irradiation as an example of the type of petition that could be designated for expedited review.

A complete copy of the Food Irradiation Coalition's petition is available on the National Food Processors Association's Web site at www.nfpa-food.org.

Clothes That Kill: New Cotton Additive Kills Odor-Causing and Pathogenic Bacteria and Viruses within Minutes

A simple, inexpensive way of treating cotton textiles with a long-lasting antimicrobial compound which rapidly kills pathogenic and odor-causing bacteria, plus a variety of viruses was described at the national meeting of the American Chemical Society, the world's largest scientific society. The formulation is faster and kills more bacteria and viruses than other "biocidal" cottons. And it can be recharged by rinsing treated fabrics in a dilute mixture of bleach and water, according to researchers.

The new treatment grafts compounds known as N-halamines to cotton textiles, a process much like that used to impart the "permanent press" finish that leaves clothes wrinkle-free. This means clothing manufacturers could easily and inexpensively adapt existing processes, says

Jeffrey Williams, Ph.D., President and CEO of HaloSource, a Seattle-based company that is developing the technology.

The treatment builds on research initially done by University of California-Davis researcher Gang Sun, Ph.D., who first designed the grafting procedure. Williams says N-halamines also can be incorporated into cellulose fibers. Potential applications include sportswear, clothing for health care workers, hospital and hotel bedding, handkerchiefs, dish cloths, household sponges, and incontinence garments. "Eventually, it may be possible to graft the compounds to wood cutting boards to protect against food-borne bacteria," he notes.

Chlorine is Key to Effectiveness. N-halamines contain chlorine atoms, which have a broad range of effectiveness against bacteria, viruses, yeast and fungi.

"Killing bacteria that cause body odor will likely be the first use of textiles treated with N-halamines. Informal in-house testing by HaloSource workers, who wore socks and tee shirts treated with the chlorine-based biocide, showed noticeably reduced odor with no adverse reactions," he claims.

"Odor-resistant textiles based on the N-halamines formulation could reach the market within the next six months," Williams says, although medical applications will take longer.

Other biocidal cotton formulations are available, Williams and Sun point out. They claim, however, their approach is better because it works fast, can be recharged, and can be widely used.

"The chlorine acts very fast on targets," says Williams, noting that *Salmonella*, *E. coli*, and *Staphylococcus* are "all killed very shortly after contact with these fibers."

"We can show a million time reduction in the amount of *Salmonella* in two minutes," Williams claims. Most other treated textiles in the marketplace "take anywhere from 20 to 30 minutes to several hours to bring about much more modest reductions," he says.

The compounds' strength declines after repeated contact with bacteria and viruses. They can be recharged by simply rinsing them in a dilute solution of bleach.

"The chlorine that is consumed will be replaced in a laundry rinse," Williams says. Some of the formulations being tested need to be rinsed with a bleach solution only every five washes or so, according to Williams and Sun.

US Needs a Single Agency to Administer a Unified, Risk-based Inspection System

Before the Subcommittee on Oversight of Government Management, Restructuring and the District of Columbia, Committee on Governmental Affairs, US Senate Statement of Lawrence J. Dyckman, Director, Food and Agriculture Issues, Resources, Community, and Economic Development Division Mr. Chairman and Members of the Subcommittee: We are pleased to to discuss the need to revamp the federal food safety system. Each year, millions of people become ill and thousands die from eating unsafe foods. As we have stated in previous reports and testimonies, fundamental changes to the food safety system are needed, including moving to a uniform, risk-based inspection system, administered by a single agency. Senator Dyckman stated his testimony "provides an overview of our work on the problems resulting from the current fragmented food safety system and discusses our views on where in the federal government food safety inspection responsibilities should reside."

In summary, the structure of the current food safety system, which costs the federal treasury more than $1 billion annually, hampers efforts to address public health concerns associated with existing and newly identified food safety risks. The fragmented system was not developed under any rational plan but was patched together over many years to address specific health threats from particular food products. Efforts to address food safety concerns, particularly changing health risks, are hampered by inconsistent and inflexible oversight and enforcement authorities, inefficient resource use, and ineffective coordination.

A single food safety inspection agency responsible for administering a uniform set of laws is the most effective way for the federal government to resolve these long-standing problems, deal with emerging food safety issues, and better ensure a safe food supply. While we believe that this would be the most effective approach, we recognize that there are short term costs and other considerations associated with setting up a new government agency. A second option, though less desirable, would be to consolidate food safety activities in an existing department. In such an event, consolidating these activities—either in the US Department of Agriculture (USDA) or the Department of Health and Human Service's (HHS) Food and Drug Administration presents benefits and drawbacks. Regardless, it is unlikely that fundamental, long-lasting improvements in food safety will occur until food safety activities are consolidated under a single agency and the current

patchwork of food safety legislation is altered to make it uniform and risk-based. A full report can be found at www.gao.gov/new.items/rc99256t.pdf.

Capital District *E. coli* Update; Case Numbers as of September 14, 1999

The New York State Department of Health now reports a total of 804 suspected and confirmed cases of *E. coli* O157:H7 infection resulting from the Capital District outbreak.

A total of 112 cases have been culture-confirmed through a special laboratory test. Suspect cases are those individuals who have symptoms of *E. coli* infection, but whose illness has not been laboratory confirmed.

Case reports continue to be received for patients who had symptoms previously, but were not diagnosed with *E. coli* infection until the past few days. For example, Washington County residents accounted for an additional 23 case reports of patients who consulted with their physicians over the weekend.

To date, 64 people have been hospitalized as a result of the *E. coli* outbreak associated with the Washington County Fair. Eleven children developed Hemolytic Uremic Syndrome, a severe complication of *E. coli* infection, and two people have died.

Most ill individuals are primary cases, that is, they attended the Washington County Fair and consumed water or products made with water piped from a contaminated well. Only about ten secondary cases have been reported in which infection was spread from person to person because of poor sanitary practices.

Symptoms of *E. coli* infection are diarrhea, occasionally bloody diarrhea, and abdominal cramping. Fever is sometimes present along with the other symptoms.

Health officials caution any individuals with these symptoms to check with their health care provider and to refrain from food handling, child care or patient care while they are sick to prevent transmission of the illness.

Alfa Laval Flow Inc.

*Think*Top®: Industry's Smartest Control and Indication Unit

The new ThinkTop from Alfa Laval Flow Inc. offers the most advanced automated control of valves in the industry. The *Think*-Top® brings new technologies prepared for upgrading new valves or modifying an existing installation. Its revolutionary design offers two internal signals, external signals, or one of each, offering the most complete and flexible communication.

Other features include: set-up without dismantling or re-adjusting; self-adjusting; "universal" – fits all sanitary Alfa Laval valves; wide range of interface modules; integrated indication of seat lift; external signals included – including maintenance indication; and saves set-up parameters until re-programmed, even in the event of a power failure.

Alfa Laval Flow Inc., Pleasant Prairie, WI

Reader Service No. 303

Dynabeads® Immuno-Magnetic Separation (IMS) of Foodborne Pathogens

Dynabeads® anti-E. coli O157, Dynabeads® anti-Salmonella, and Dynabeads® anti-Listeria are designed for rapid, immunomagnetic selective enrichment of microorganisms directly from pre-enrichment broths. The rapid and simple protocol (less than 1 hour) saves 24 hours of valuable testing time compared to culture methods using conventional selective enrichment media. Isolated colonies are achieved in 24 hours for *E. coli* O157 and 48 hours for *Salmonella* and *Listeria*. A method for EHEC isolation which utilizes Dynabeads® anti-E. coli O157 appears in the 8th edition of Bacteriological Analytical Manual (BAM) and also is a Health Canada HPB Lab Procedure. Dynabeads® anti-Salmonella has achieved AOAC Performance Testing Status.

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

Dynabeads® IMS is a rapid culture technique – colony acquisition means rapid results with culture confirmation. This highly sensitive system will detect as few as 100 organisms/ml of pre-enriched sample. Improved bacterial isolation with this method also makes it useful for the culture confirmation of other presumptive methods. Protocols are simple and reagents are shelf stable. The versatility provided by this methodology will allow testing of many different types while enhancing the efficiency of exishng manual and automated detection methods.

Dynal, Inc., Lake Success, NY

Reader Service No. 304

Keller Introduces New Programs to Train Employees on Food Safety

J. J. Keller & Associates, Inc. has introduced *Food Safety Zone*, a new series of video-based training programs that provide essential food safety information to front-line employees.

Four primary training topics are covered in this series. *Basic Microbiology* provides a simple overview of foodborne pathogens. This program covers terminology, the impact of pathogens and safety precautions. *Cross Contamination* describes the sources, causes and dangers of contamination in the food industry. It offers specific instruction on preventing contamination. *Personal Hygiene* summarizes personal cleanliness, showing employees how just one overlooked detail can have serious

consequences. *Sanitation* demonstrates sanitation procedures that keep a food production workplace clean and safe.

Each training topic is covered in a 10-minute video that delivers easy-to-understand explanations of complex points. The videos employ relevant, "real-life" examples to demonstrate proper ways to deal with food safety issues and to emphasize why food safety is important to all employees.

Along with the training video, each program in the series includes skill cards that summarize key points and a handbook that helps instructors prepare for training sessions.

J. J. Keller & Associates, Inc., Neenah, WI

Reader Service No. 305

Series of Problem-Solving Application Reports Detail Use of Spray Technology in Industrial Applications

Spraying Systems Co. has published a series of Problem-Solving Application Reports detailing the use of spray nozzles in solving problems in a wide range of industrial settings.

Each of the "mini case studies" clearly identifies the problem facing the company or OEM. The reports then discuss how spray technology was used to solve the problem. In addition, the benefits of installing spray nozzles are cited, including improved product quality, reduced emissions, improved productivity, reduced maintenance downtime and reduced manufacturing costs.

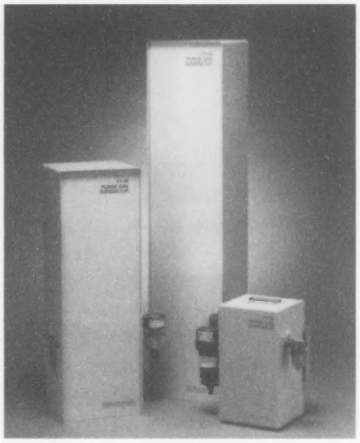
The various industries represented in the reports include: pollution control, metal finishing, food processing, chemical processing, and pulp and paper.

Each report includes an illustration of the spray application helping the reader to understand the application. The reverse side explains in detail the spray nozzle specified for the particular application.

The Problem-Solving Application Reports were published to give companies a better understanding of how difficult problems can be solved by applying proper spray technology. The goal is for readers to glean new ideas or begin discussion on ways to utilize spray nozzles in their own applications.

Spraying Systems Co., Wheaton, IL

Reader Service No. 306



Whatman Inc.

Whatman Gas Generators Designed to Produce Ultra Dry, Purified CO_2,-Free Purge Gas for FT-IR Spectrometers are Now Available

Dangerous and hazardous cylinders of gas used to purge FT-IR instruments can now be replaced with a Whatman FT-IR Purge Gas Generator now available from Whatman Inc.

Whatman FT-IR Purge Gas Generators are specifically designed for use with FT-IR Spectrometers to provide a purified purge gas and air bearing gas utilizing standard compressed air. Impurities such as water vapor and carbon dioxide are effectively removed to -100°F pressure dew point and less than 1ppm respectively. The Generators completely eliminate the hazards, inconvenience and high costs of nitrogen Dewars and cylinders, and significandy reduces the costs of operating FT-IR instruments. Typical payback is less than one year! Models are available with flow capacities ranging from 3.1 lpm to 102 lpm.The compact wall-mountable design of the Generators allow users to free-up valuable laboratory floor space.

Whatman Inc., Tewksbury, MA

Reader Service No. 307

Profile, High-Speed Fast-Slide™ Offers Efficient, Effective Cold Storage Solution

Rytec Corporation's innovative Fast-Slide™ high-speed cold storage door saves valuable storage space while providing all effective doorway solution for cooler and freezers. The door projects only 13-inches from the wall and sliding action, enabling racking to literally be butted up against the door. This allows for additional, premium cold storage space.

A 1.5 HP variable-speed AC drive opens the door at up to 8 feet per second and (closes the door at 3 1/2 feet per second, significantly reducing warm air infiltration and saving energy costs. The door's high-speed operation also improves traffic flow and increases productivity.

"The door is capable of operating thousands of times a day

which is a requirement in some of the busier food distribution locations," says Scott Blue, Vice President of Marketing and New Product Development. "With the amount of traffic some cold storage doorways see, the door's high-speed, at up to 8 feet per second, and bi-parting operation-providing almost immediate access to the full height of the door-help product flow, and save valuable time and energy."

Fast-Slide's insulated panels and full perimeter seal provide for a very tight closure that virtually eliminates infiltration, greatly minimizing energy loss and helping maintain frost-free operation. The panels feature a unique beveled leading edge with magnetic closures that provides for a tight, positive seal.

A powerful 1,800 CFM blower with two 4,000 watt heaters, coupled with modular, galvanized metal ducts, comprise a defrost system that provides virtually frost-free performance,

Fast-Slide's unique Slide-Trac™ system features linear bearings that slide on a ground and polished steel rod. The assembly provides for smooth, reliable operation. The system also allows the hardware to pivot 10 degrees in either direction, minimizing damage in the event the panels are impacted and ensuring continuous contact with the track.

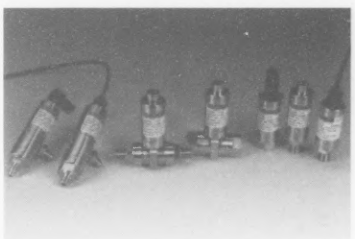
Two 24 inch by 24 inch windows are standard. Also standard is Rytec Corporation's Digital Gateway® door controller with pre-programmed menu options for unsurpassed flexibility and self-diagnostic capability, displaying easy-to-read error messages for easy troubleshooting.

Fast-Slide, just like the other nine doors in Rytec's product line, is modular in construction with no welding required for installation. Pre-wiring and pre-hung panel mounting hardware provides for a quick and straight forward installation.

The door can be operated in a variety of different ways – floor induction loops, pull cords, motion detectors, photo eyes or hand-held radio transmitters. Whatever activation the application calls for, it can be accommodated by the Fast-Slide's door controller.

Rytec Corporation, Jackson, WI

Reader Service No. 308



Sensotec, Inc.

Metric Pressure Transmitters

Sensotec announces an expansion of the FP2000 Pressure Transmitter Series to include Metric pressure ranges up to 700 Bar. The unique FP2000 Delivery System combines off-the-shelf, interchangeable subassemblies which are selected by the customer to create a customized pressure sensor. The unique FAST FACTORY™ delivery concept permits flexibility, yet all models are available with two-week delivery.

Customer-selectable parameters include a choice of 0.1% or 0.25% accuracy, ranges from 0-10" H_2O to 0-700 Bar, and three electrical terminations. Six available pressure ports are offered, including G 1/4 B. Output of 0-5 or 0-10VDC, 4-20mA (2wire) or mV/V is also selectable.

In addition to gage, absolute and differential pressure range, the FP2000 pressure transducers include barometric pressure and vacuum. The customer may opt for buffered shunt cal for convenient calibration, side-accessible zero and span pots, CE and Intrinsically Safe approvals, and extended thermal compensation.

Sensotec, Inc., Columbus, OH

Reader Service No. 309

USFilter Introduces the PURELAB *p*RO™ High-Quality, Economical Bench-Top RO System

United States Filter Corporation introduces a bench-top reverse osmosis (RO) laboratory water system - the PURELAB *p*RO™ 10 and 20. These systems deliver the quality you expect with a design that's easy to use and maintain at an affordable price.

Providing 10 or 20 liters per hour of Type III quality water, PURELAB *p*RO systems offer:

Thin-film composite RO membrane technology; Automatic flush procedure; Convenient pretreatment packs; and user-friendly control panel that registers product water quality, operational mode and pretreatment pack status.

You can team the PURELAB *p*RO system with a USFilter PURELAB Classic™ or PURELAB Plus™ laboratory water system to create a total pure water solution.

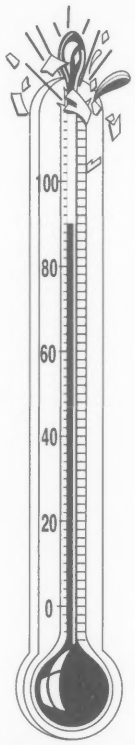
USFilter, Lowell, MA

Reader Service No. 310

IAMFES THANKS THE FOLLOWING INDIVIDUALS FOR THEIR SUPPORT OF THE IAMFES FOUNDATION FUND

- Hamza Abu-Tarboush
- Ulf Ahlin
- Moray Anderson
- Robert Armstrong
- Henry V. Atherton
- Jamal Bakhsh
- Bert Bartleson
- Vicky Benesch
- Reginald W. Bennett
- Karen Bewig
- Susana Binotti De Piaggio
- Barbara Blakistone
- Robert E. Brackett
- Robert W. Brooks
- John C. Bruhn
- Beth Casler
- Barbara Cassens
- John Cerveny
- Ming Chang Wu
- Donna Christensen
- Susan Ciani
- C. Dee Clingman
- Dean O. Cliver
- O. D. (Pete) Cook
- Angela Cummings
- Graciela L. DeAntoni
- Dennis E. Decker
- R. H. Deibel
- J. Desmedt
- Carter Elbon
- Dan Erickson
- Albert Espinoza
- Rhonda L. Ezell
- Alfred R. Fain
- Wilbur Feagan
- Steven R. Ferreira
- John L. Frank
- Scott J. Fritschel
- Ruth G. Fuqua
- Marsha Hahn Golden
- Harry E. Grenawitzke
- Jack Guzewich
- Paul A. Hall
- Harry Haverland
- Amy Heiden
- Dave Henning
- Joe Hinricher
- Archie Holliday
- William Huntley
- Kellie Jackson
- Gary P. Jansen
- Dong K. Jeong

$100,000 in 2000



The following is a list of Sponsors of the IAMFES 86th Annual Meeting Foundation Fund Silent Auction:

- Carolinas Affiliate
- California Affiliate
- Darden Restaurants Inc.
- Jim Dickson
- F.A.O., Rome, Italy
- Food Quality Magazine
- Georgia Affiliate
- Alice Haverland
- Indiana Affiliate
- Howard Hutchings
- Lemon Creek Wineries
- Metropolitan Affiliate
- Michigan Affiliate
- Texas Affiliate

- Beth M. Johnson
- John Johnson
- Mary A. Kegel
- Azadeh Khojasteh
- Suzanne Kidder
- Anna M. Lammerding
- Chuck Lattuada
- Francis P. Leonardo
- Ivan Linjacki
- Sharon Mammel
- Bob Marshall
- Armando Melendez
- Shelagh McDonagh
- Jun Nishibu
- Karl E. Olson
- Chuck Papa
- Anthony T. Pavel
- Carole Peet
- Constantinos Piroccas
- Mark Pratt
- Charles Price
- Ely P. Ramos
- Ruth Ann Rose-Morrow
- Atsushi Sakata
- Robert L. Sanders
- Jenny Scott
- Manan Sharma
- Gary W. Sherlaw
- Isao Shibasaki
- Brian Shofran
- Gaylord B. Smith
- James Smith
- Joseph M. Smucker
- Nikolaos D. Soultos
- Grace Steinke
- Isaac G. Sterling
- Hiroshi Takahashi
- Nobumasa Tanaka
- David W. Tharp
- Donald W. Thayer
- Debbie Thompson
- Ken Tometsko
- Fred Weber
- Diane West
- Dennis Westhoff
- Debra K. Williams
- Kathy Willis
- Elaine W. Wismer
- Earl O. Wright
- Ming Chang Wu
- Mizuo Yajima
- Shigeki Yamamoto
- George K. York
- Don Zink

The above list represents individual contributors to the IAMFES Foundation Fund during the period August 1, 1999 through September 16, 1999. In addition, a portion of the Sustaining Member dues are allocated to support this Fund. Your contribution is welcome. Call the IAMFES office at 800.369.6337 or 515.276.3344 for more information on how you can support the Foundation.

IAMFES Awards Nominations

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

To request nomination criteria, contact:

IAMFES
6200 Aurora Avenue, Suite 200W
Des Moines, Iowa 50322-2863
By telephone: 800.369.6337; 515.276.3344
Fax: 515.276.8655
Web site: www.iamfes.org
E-mail: iamfes@iamfes.org.

Nominations deadline is February 18, 2000. You may make multiple nominations. All nominations must be received at the IAMFES office by February 18, 2000.

- Persons nominated for individual awards must be current IAMFES Members. Black Pearl Award nominees must be a company employing current IAMFES Members. NFPA Food Safety Award nominees do not have to be IAMFES Members.
- Previous award winners are not eligible for the same award.
- Executive Board Members and Awards Committee Members are not eligible for nomination.
- Presentation of awards will be during the Awards Banquet at the IAMFES Annual Meeting in Atlanta, Georgia on August 9, 2000.

Nominations will be accepted for the following Awards:

Black Pearl Award – Award Showcasing the Black Pearl

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

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

Honorary Life Membership Award – Plaque and Lifetime Membership in IAMFES

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

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

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

Sponsored by DiverseyLever/U.S. Food Group.

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

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

Sponsored by NASCO International, Inc.

Educator Award – Plaque and $1,000 Honorarium

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

Sponsored by Nelson-Jameson, Inc.

Sanitarian Award – Plaque and $1,000 Honorarium

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

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

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

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

Sponsored by National Food Processors Association.

Call for Abstracts

IAMFES
87th Annual Meeting — August 6-9, 2000
Atlanta, Georgia

General Information

1. Complete the Abstract Submission Form.
2. All presenters must register for the Annual Meeting and assume responsibility for their own transportation, lodging, and registration fees.
3. There is no limit on the number of abstracts registrants may submit. However, the presenter must present their presentations.
4. Accepted abstracts will be published in the Program and Abstract Book. Editorial changes will be made to accepted abstracts at the discretion of the Program Committee.
5. Photocopies of the abstract form may be used.
6. Membership in IAMFES is not required for presenting a paper at the IAMFES Annual Meeting.

Presentation Format

1. **Technical** — Oral presentations will be scheduled with a maximum of 15 minutes, including a two to four minute discussion. Projectors for 35-mm slides will be available. Other equipment may be used at the presenter's expense. Prior authorization from the IAMFES office must be obtained. Overhead projectors will not be allowed.
2. **Poster** — Freestanding boards will be provided for presenting posters. Handouts may be used, but audiovisual equipment will not be available. The presenter will be responsible for bringing pins and velcro.

Instructions for Preparing Abstracts

1. Title — The title should be short but descriptive. The first letter in each word in the title and proper nouns should be capitalized.
2. Authors — List all authors using the following style: surname followed by a comma then the first name.
3. Presenter Name & Title — List the full name and title of the person who will present the paper.
4. Presenter Address — List the name of the department, institution and full postal address (including zip/postal code and country).
5. Phone Number — List the phone number, including area code, country, and city of the presenter.
6. Fax Number — List the fax number, including area code, country, and city of the presenter.
7. E-mail — List the E-mail address for the presenter.
8. Format preferred — Check the box to indicate oral or poster format. The Program Committee makes the final decision on the format of the abstract.
9. Developing Scientist Awards Competitions — Check the box to indicate if the paper is to be presented by a student in this competition. A signature and date is required from the major professor or department head. See "Call for Entrants in the Developing Scientist Awards Competitions."
10. Abstract — The abstract may not exceed 250 words. Use the space provided or a separate sheet of paper.

Abstract Submission

Abstracts submitted for the IAMFES 87th Annual Meeting in Atlanta, Georgia August 6-9, 2000 will be evaluated for acceptance by the Program Committee. Please be sure to follow format instructions above carefully; failure to do so may result in rejection. Information in the abstract data must not have been previously published in a copyrighted journal.

Submit your abstract to the IAMFES office. Abstracts must be received no later than January 10, 2000.

Return the completed abstract form through one of the following methods:

1. Regular mail: Abstracts may be sent by post or express courier along with a disk copy (text or MS Word™ format) to the following address:

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

2. E-mail: Submit via E-mail as an attached text or MS Word™ document to abstracts@iamfes.org.
3. On-line: Use the on-line abstract submission form located at www.iamfes.org available November 1999.

Selection Criteria

1. Abstracts must accurately and briefly describe:
   (a) the problem studied and/or objectives;
   (b) methodology;
   (c) essential results; and
   (d) conclusions and/or significant implications.
2. Abstracts must report the results of original research pertinent to the subject matter. Papers should report the results of applied research on: food, dairy and environmental sanitation; foodborne pathogens; food and dairy microbiology; food and dairy engineering; food and dairy chemistry; food additives and residues; food and dairy technology; food service and food administration; quality assurance/control; mastitis; environmental health; waste management and water quality. Papers may also report subject matter of an educational and or nontechnical nature.
3. Research must be based on accepted scientific practices.
4. Research should not have been previously presented nor intended for presentation at another scientific meeting. Papers should not appear in print prior to the IAMFES Annual Meeting.
5. Results should be summarized. Do not use tables or graphs.

Rejection Reasons

1. Abstract was not prepared according to the "Instruction for Preparing Abstracts."
2. Abstract does not contain essential elements as described in "Selection Criteria."
3. Abstract reports inappropriate or unacceptable subject matter, is not based on accepted scientific practices, or the quality of the research or scientific approach is inadequate.
4. Work reported appears to be incomplete and/or data are not presented. Indication that data will be presented is not acceptable.
5. The abstract was poorly written or prepared including spelling and grammatical errors.
6. Results have been presented/published previously.
7. The abstract was received after the deadline for submission.
8. Abstract contains information that is in violation of the IAMFES Policy on Commercialism.

Projected Deadlines/Notification

Abstract Submission Deadline: January 10, 2000.
Acceptance/Rejection Notification: March 1, 2000.

Contact Information

Questions regarding abstract submission can be directed to Bev Corron, 515.276.3344 or 800.369.6337; E-mail: bcorron@iamfes.org.

Program Chairperson:

David Golden
University of Tennessee
Dept. of Food Science and Technology
Knoxville, TN 37901-1071
Phone: 423.974.7247
Fax: 423.974.7332
E-mail: dgolden@utk.edu

IAMFES Abstract Form

DEADLINE: Must be Received by January 10, 2000

Follow instructions on pages 712-713

(1) Title of Paper _____

_____

(2) Authors _____

_____

(3) Full Name and Title of Presenter _____

_____

(4) Institution and Address of Presenter _____

_____

(5) Phone Number: _____

(6) Fax Number: _____

(7) E-mail: _____

(8) Format preferred: ☐ **Oral** ☐ **Poster** ☐ **No Preference**

NOTE: Selected presentations may be recorded (audio or visual). The Program Committee will make the final decision on presentation format.

(9) Developing Scientist Awards Competitions ☐ Yes Graduation date: _____

Major Professor/Department Head approval (signature and date) _____

(10) TYPE abstract, DOUBLE-SPACED, in the space provided or on a separate sheet of paper using a 12 point font size. No more than 250 words.

Call for Entrants in the Developing Scientist Awards Competitions

Supported by the IAMFES Foundation

IAMFES is pleased to announce the continuation of its program to encourage and recognize the work of students and recent graduates in the field of food safety research. Qualified individuals may enter either the oral or poster competition.

Purpose

1. To encourage students and recent graduates to present their original research at the IAMFES Annual Meeting.
2. To foster professionalism in students and recent graduates through contact with peers and professional Members of IAMFES.
3. To encourage participation by students and recent graduates in IAMFES and the Annual Meeting.

Presentation Format

Oral Competition — The Developing Scientist Oral Awards Competition is open to graduate students enrolled or recent graduates from M.S. or Ph.D. programs or undergraduate students at accredited universities or colleges. Presentations are limited to 15 minutes, which includes two to four minutes for discussion.

Poster Competition — The Developing Scientist Poster Awards Competition is open to students enrolled or recent graduates from undergraduate or graduate programs at accredited universities or colleges. The presenter must be present to answer questions for a specified time (approximately two hours) during the assigned session. Specific requirements for presentations will be provided at a later date.

General Information

1. Competition entrants cannot have graduated more than a year prior to the deadline for submitting abstracts.
2. Accredited universities or colleges must deal with environmental, food or dairy sanitation, protection or safety research.
3. The work must represent original research completed and presented by the entrant.
4. Entrants may enter only one paper in either the oral or poster competition.
5. All entrants must register for the Annual Meeting and assume responsibility for their own transportation, lodging, and registration fees.
6. Acceptance of your abstract for presentation is independent of acceptance as a competition finalist. Competition entrants who are chosen as finalists will be notified of their status by the chairperson by June 1, 2000.
7. All entrants with accepted abstracts will receive complimentary, one-year IAMFES Membership, which includes their choice of *Dairy, Food and Environmental Sanitation* or *Journal of Food Protection*.
8. In addition to adhering to the instruction in the "Call for Abstracts," competition entrants must check the box to indicate if the paper is to be presented by a student in this competition. A signature and date is required from the major professor or department head.

Judging Criteria

A panel of judges will evaluate abstracts and presentations. Selection of up to ten finalists for each competition will be based on evaluations of the abstracts and the scientific quality of the work. All entrants will be advised of the results by June 1, 2000.

Only competition finalists will be judged at the Annual Meeting and will be eligible for the awards. All other entrants with accepted abstracts will be expected to be present as part of the regular Annual Meeting. The presentations will not be judged and they will not be eligible for the awards.

Judging criteria will be based on the following:

1. Abstract – clarity, comprehensiveness and conciseness.
2. Scientific Quality – Adequacy of experimental design (methodology, replication, controls), extent to which objectives were met, difficulty and thoroughness of research, validity of conclusions based upon data, technical merit and contribution to science.
3. Presentation – Organization (clarity of introduction, objectives, methods, results and conclusions), quality of visuals, quality and poise of presentation, answering questions, and knowledge of subject.

Finalists

Awards will be presented at the IAMFES Annual Meeting Awards Banquet to the top three presenters (first, second and third places) in both the oral and poster competitions. All finalists will receive a complimentary Awards Banquet ticket and are expected to be present at the banquet where the awards winners will be announced and recognized.

Awards

First Place - $500 and an engraved plaque
Second Place - $300 and a framed certificate
Third Place - $100 and a framed certificate

Award winners will also receive a complimentary, one-year IAMFES Membership including *Dairy, Food and Environmental Sanitation* and *Journal of Food Protection*.

IAMFES Policy on Commercialism

1. INTRODUCTION

No printed media, technical sessions, symposia, posters, seminars, short courses, and/or all related type forums and discussions offered under the auspices of IAMFES (hereafter referred to as IAMFES forums) are to be used as platforms for commercial sales or presentations by authors and/or presenters (hereafter referred to as authors) without the expressed permission of the IAMFES staff or Executive Board. IAMFES enforces this policy in order to restrict commercialism in technical manuscripts, graphics, oral presentations, poster presentations, panel discussions, symposia papers, and all other type submissions and presentations (hereafter referred to as submissions and presentations), so that scientific merit is not diluted by proprietary secrecy.

Excessive use of brand names, product names or logos, failure to substantiate performance claims, and failure to objectively discuss alternative methods, processes, and equipment are indicators of sales pitches. Restricting commercialism benefits both the authors and recipients of submissions and presentations.

This policy has been written to serve as the basis for identifying commercialism in submissions and presentations prepared for IAMFES forums.

2. TECHNICAL CONTENT OF SUBMISSIONS AND PRESENTATIONS

2.1 Original Work

The presentation of new technical information is to be encouraged. In addition to the commercialism evaluation, all submissions and presentations will be individually evaluated by the Program Committee chairperson, technical reviewers selected by the Program Committee chairperson, session convenor, and/or IAMFES staff on the basis of originality before inclusion in the program.

2.2 Substantiating Data

Submissions and presentations should present technical conclusions derived from technical data. If products or services are described, all reported capabilities, features or benefits, and performance parameters must be substantiated by data or by an acceptable explanation as to why the data are unavailable (e.g., incomplete, not collected, etc.) and, if it will become available, when. The explanation for unavailable data will be considered by the Program Committee chairperson and/or technical reviewers selected by the Program Committee chairperson in order to ascertain if the presentation is acceptable without the data. Serious consideration should be given to withholding submissions and presentations until the data are available as only those conclusions that might be reasonably drawn from the data may be presented. Claims of benefit and/or technical conclusions not supported by the presented data are prohibited.

2.3 Trade Names

Excessive use of brand names, product names, trade names, and/or trademarks is forbidden. A general guideline is to use proprietary names once and thereafter to use generic descriptors or neutral designations. Where this would make the submission or presentation significantly more difficult to understand, the Program Committee chairperson, technical reviewers selected by the Program Committee chairperson, session convenor, and/or IAMFES staff will judge whether the use of trade names, etc., is necessary and acceptable.

2.4 "Industry Practice" Statements

It may be useful to report the extent of application of technologies, products, or services, however, such statements should review the extent of application of all generically similar technologies, products, or services in the field. Specific commercial installations may be cited to the extent that their data are discussed in the submission or presentation.

2.5 Ranking

Although general comparisons of products and services are prohibited, specific generic comparisons that are substantiated by the reported data are allowed.

2.6 Proprietary Information (See also 2.2.)

Some information about products or services may be proprietary to the author's agency or company, or to the user and may not be publishable. However, their scientific principles and validation of performance parameters must be described. Conclusions and/or comparisons may only be made on the basis of reported data.

2.7 Capabilities

Discussion of corporate capabilities or experiences are prohibited unless they pertain to the specific presented data.

3. GRAPHICS

3.1 Purpose

Slides, photographs, videos, illustrations, art work, and any other type visual aids appearing with the printed text in submissions or used in presentations (hereafter referred to as graphics) should be included only to clarify technical points. Graphics which primarily promote a product or service will not be allowed. (See also 4.6.)

3.2 Source

Graphics should relate specifically to the technical presentation. General graphics regularly shown in, or intended for, sales presentations cannot be used.

3.3 Company Identification

Names or logos of agencies or companies supplying the goods or services must not appear on the graphics, except on the first slide of the presentation. Slides showing products may not include predominant nameplates. Graphics with commercial names or logos added as background borders or corners are specifically forbidden.

3.4 Copies

Graphics that are not included in the preprint may be shown during the presentation only if they have been reviewed in advance by the Program Committee chairperson, session convenor, and/or IAMFES staff, and have been determined to comply with this policy. Copies of these additional graphics must be available from the author on request by individual attendees. It is the responsibility of the session convenor to verify that all graphics to be shown have been cleared by Program Committee chairperson, session convenor, IAMFES staff, or other reviewers designated by the Program Committee chairperson.

4. INTERPRETATION AND ENFORCEMENT

4.1 Distribution

This policy will be sent to all authors of submissions and presentations in IAMFES forums.

4.2 Assessment Process

Reviewers of submissions and presentations will accept only those that comply with this policy. Drafts of submissions and presentations will be reviewed for commercialism concurrently by both IAMFES staff and technical reviewers selected by the Program Committee chairperson. All reviewer comments shall be sent to and coordinated by either the Program Committee chairperson or the designated IAMFES staff. If any submissions are found to violate this policy, authors will be informed and invited to resubmit their materials in revised form before the designated deadline.

4.3 Author Awareness

In addition to receiving a printed copy of this policy, all authors presenting in an IAMFES forum will be reminded of this policy by the Program Committee chairperson, their session convenor, or the IAMFES staff, whichever is appropriate.

4.4 Monitoring

Session convenors are responsible for ensuring that presentations comply with this policy. If it is determined by the session convenor that a violation or violations have occurred or are occurring, he or she will publically request that the author immediately discontinue any and all presentations (oral, visual, audio, etc.), and will notify the Program Committee chairperson and IAMFES staff of the action taken.

4.5 Enforcement

While both technical reviewers, session convenors, and/or IAMFES staff may check submissions and presentations for commercialism, ultimately it is the responsibility of the Program Committee chairperson to enforce this policy through the session convenors and IAMFES staff.

4.6 Penalties

If the author of a submission or presentation violates this policy, the Program Committee chairperson will notify the author and the author's agency or company of the violation in writing. If an additional violation or violations occur after a written warning has been issued to an author and his agency or company, IAMFES reserves the right to ban the author and the author's agency or company from making presentations in IAMFES forums for a period of up to two (2) years following the violation or violations.

BusinessExchange

Services/Products

ADVERTISING INDEX

keeping. Of particular interest will be whether Nitrogen or Phosphorus application rates will be used to limit land application. Phosphorus-based rates would require more land for the application of the same amount of manure.

CNMPs for all CAFOs

As outlined in the AFO strategy, all CAFOs will be required to develop and implement Comprehensive Nutrient Management Plans as a permit requirement.

AFO/CAFO definition

The criteria that determine what makes an AFO a CAFO will be studied as permits are revised. It is possible that fewer animal units could make an AFO a CAFO if the regulators determine this to be appropriate.

Any changes to the NPDES permit regulations will have to be published in the Federal Register for public comment before becoming final.

EFFLUENT LIMITATION GUIDELINES

Effluent Limitation Guidelines (ELGs) are national regulations that establish the minimum level of pollution control that must be included in all CAFO NPDES permits. Although the guidelines are developed based upon particular technologies, dischargers may meet their requirements using any combination of treatments they choose.

EPA is in the process of revising ELGs for dairy feedlots. The current feedlot regulations require the largest CAFOs (1,000 animal units or larger) to meet a "no discharge" requirement except when severe storm events cause an overflow from facilities designed to contain wastewater plus the runoff from a 25-year, 24-hour storm event.

A proposed rule will be issued by December 2000 and final action will be taken by December 2002. The proposed rule will be issued for a public comment period before the final rule is published. The proposed ELG revisions can be expected to add some kind of controls on land application of manure. A requirement for land application not to exceed crop nutrient needs is likely.

SUMMARY

The vast majority of producers recognize their responsibility for environmental stewardship and will do what they can to comply with reasonable regulations. Regulators must realize that strict rules designed to combat "corporate farms" may end up encouraging concentration of the industry, as producers must spread the cost of environmental investments over more animals in production.

The trend toward fewer and larger farms is going to continue. As cow numbers increase, we need to assess the environmental issue of how to handle manure produced in excess of the nutrient needs of our land.

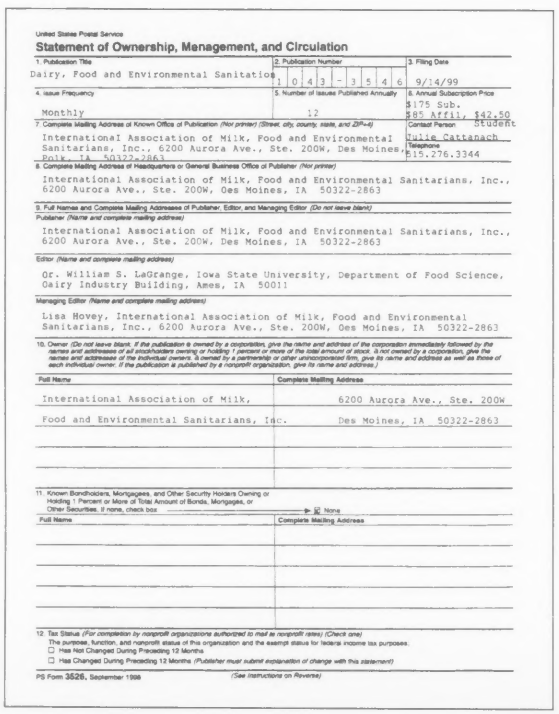
3-A Announces Sanitary Standards Amendments

Amendments

1. Amendments to 3-A Sanitary Standards for Multiple-use Rubber and Rubber-like Materials Used as Product Contact Surfaces for Dairy Equipment, Number 18-03. *Effective August 21, 1999.*
2. Amendments to 3-A Sanitary Standards for Batch and Continuous Freezers for Ice Cream, Ices and Similarly Frozen Dairy Foods, Number 19-05. *Effective November 21, 1999.*
3. Amendments to 3-A Sanitary Standards for Multiple-use Plastic Materials Used as Product Contact Surfaces for Dairy Equipment, Number 20-20. *Effective August 21, 1999.*
4. Amendments to 3-A Sanitary Standards for Crossflow Membranes, Number 45-01. *Effective November 21, 1999.*

These amended 3-A standards and practices will be available from IAMFES in November 1999.

For additional information, contact IAMFES at 515.276.3344; 800.369.6337; Fax: 515.276.8655; E-mail: iamfes@iamfes.org.



United States Postal Service

Statement of Ownership, Management, and Circulation

1. Publication Title	2. Publication Number	3. Filing Date
Dairy, Food and Environmental Sanitation	1 0 4 3 - 3 5 4 6	9/14/99

4. Issue Frequency	5. Number of Issues Published Annually	6. Annual Subscription Price
Monthly	12	$175 Sub. $85 Affil. $42.50 Student

7. Complete Mailing Address of Known Office of Publication *(Not printer) (Street, city, county, state, and ZIP+4)*: International Association of Milk, Food and Environmental Sanitarians, Inc., 6200 Aurora Ave., Ste. 200W, Des Moines, Polk, IA 50322-2863 — Contact Person: Julie Cattanach; Telephone: 515.276.3344

8. Complete Mailing Address of Headquarters or General Business Office of Publisher *(Not printer)*: International Association of Milk, Food and Environmental Sanitarians, Inc., 6200 Aurora Ave., Ste. 200W, Des Moines, IA 50322-2863

9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor *(Do not leave blank)*

Publisher *(Name and complete mailing address)*: International Association of Milk, Food and Environmental Sanitarians, Inc., 6200 Aurora Ave., Ste. 200W, Des Moines, IA 50322-2863

Editor *(Name and complete mailing address)*: Dr. William S. LaGrange, Iowa State University, Department of Food Science, Dairy Industry Building, Ames, IA 50011

Managing Editor *(Name and complete mailing address)*: Lisa Hovey, International Association of Milk, Food and Environmental Sanitarians, Inc., 6200 Aurora Ave., Ste. 200W, Des Moines, IA 50322-2863

10. Owner *(Do not leave blank. If the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock. If not owned by a corporation, give the names and addresses of the individual owners. If owned by a partnership or other unincorporated firm, give its name and address as well as those of each individual owner. If the publication is published by a nonprofit organization, give its name and address.)*

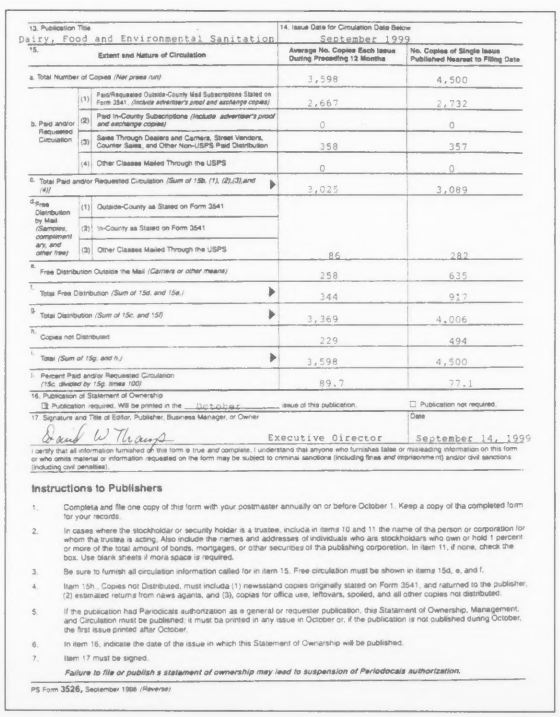
Full Name	Complete Mailing Address
International Association of Milk,	6200 Aurora Ave., Ste. 200W
Food and Environmental Sanitarians, Inc.	Des Moines, IA 50322-2863

11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box → ☑ None

Full Name	Complete Mailing Address

12. Tax Status *(For completion by nonprofit organizations authorized to mail at nonprofit rates) (Check one)*
The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes:
☐ Has Not Changed During Preceding 12 Months
☐ Has Changed During Preceding 12 Months *(Publisher must submit explanation of change with this statement)*

PS Form **3526**, September 1998 *(See Instructions on Reverse)*



13. Publication Title	14. Issue Date for Circulation Data Below
Dairy, Food and Environmental Sanitation	September 1999

15. Extent and Nature of Circulation			Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a. Total Number of Copies *(Net press run)*			3,598	4,500
b. Paid and/or Requested Circulation	(1)	Paid/Requested Outside-County Mail Subscriptions Stated on Form 3541. *(Include advertiser's proof and exchange copies)*	2,667	2,732
	(2)	Paid In-County Subscriptions *(Include advertiser's proof and exchange copies)*	0	0
	(3)	Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Non-USPS Paid Distribution	358	357
	(4)	Other Classes Mailed Through the USPS	0	0
c. Total Paid and/or Requested Circulation *(Sum of 15b. (1), (2),(3),and (4))* ▶			3,025	3,089
d. Free Distribution by Mail *(Samples, complimentary, and other free)*	(1)	Outside-County as Stated on Form 3541		
	(2)	In-County as Stated on Form 3541		
	(3)	Other Classes Mailed Through the USPS	86	282
e. Free Distribution Outside the Mail *(Carriers or other means)*			258	635
f. Total Free Distribution *(Sum of 15d. and 15e.)* ▶			344	917
g. Total Distribution *(Sum of 15c. and 15f)* ▶			3,369	4,006
h. Copies not Distributed			229	494
i. Total *(Sum of 15g. and h.)* ▶			3,598	4,500
j. Percent Paid and/or Requested Circulation *(15c. divided by 15g. times 100)*			89.7	77.1

16. Publication of Statement of Ownership
☑ Publication required. Will be printed in the October issue of this publication. ☐ Publication not required.

17. Signature and Title of Editor, Publisher, Business Manager, or Owner: David W Tharp, Executive Director — Date: September 14, 1999

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).

Instructions to Publishers

1. Complete and file one copy of this form with your postmaster annually on or before October 1. Keep a copy of the completed form for your records.
2. In cases where the stockholder or security holder is a trustee, include in items 10 and 11 the name of the person or corporation for whom the trustee is acting. Also include the names and addresses of individuals who are stockholders who own or hold 1 percent or more of the total amount of bonds, mortgages, or other securities of the publishing corporation. In item 11, if none, check the box. Use blank sheets if more space is required.
3. Be sure to furnish all circulation information called for in item 15. Free circulation must be shown in items 15d, e, and f.
4. Item 15h., Copies not Distributed, must include (1) newsstand copies originally stated on Form 3541, and returned to the publisher, (2) estimated returns from news agents, and (3), copies for office use, leftovers, spoiled, and all other copies not distributed.
5. If the publication had Periodicals authorization as a general or requester publication, this Statement of Ownership, Management, and Circulation must be published; it must be printed in any issue in October or, if the publication is not published during October, the first issue printed after October.
6. In item 16, indicate the date of the issue in which this Statement of Ownership will be published.
7. Item 17 must be signed.

Failure to file or publish a statement of ownership may lead to suspension of Periodicals authorization.

PS Form **3526**, September 1998 *(Reverse)*

Coming Events

NOVEMBER

·**1-3, Pasteurizer Operators Workshop,** endorsed by International Dairy Foods Association at the Nittany Lion and Borland Laboratory, University Park, PA. The program includes hands-on activities, discussions and lectures on regulations, cleaning and sanitation, pasteurization, milk flavor, and other operational procedures in milk plants. For more information, Phone: 814.865.8301; Fax: 814.865.7050; Web site: www.cas.psu.edu.

·**3-5, The Dairy Practices Council® Annual Conference,** Radisson Lackawanna Station Hotel, Scranton, PA. Participants have the opportunity to exchange information with dairy personnel from industry, regulatory agencies and academia all at one gathering. For more information, contact The Dairy Practices Council®, 51 E. Front St., Suite 2, Keyport, NJ 07735; Phone/Fax: 732.203.1947; E-mail: dairypc@dairypc.org.

·**4-5, Statistical Process Control in the Food Industry,** Guelph, Ontario, Canada. For additional information, contact Marlene Inglis, Guelph Food Technology Centre, 88 McGilvray St., Guelph, Ontario, N1G 2W1 Canada; Phone: 519.821.1246; Fax: 519.836.1281; E-mail: gftc@uoguelph.ca.

·**8-9, The International Fresh-cut Produce Association (IFPA) Hosts 7th Annual Technical Seminar,** Holiday Inn Old Town Select in Alexandria, VA. This event will focus on "Global Food Safety Issues," and their impact on the fresh-cut produce sector. For more information, contact Justina Brewer at 703.299.6282.

·**8-10, HACCP: A Basic Concept for Food Protection, Learning the Seven HACCP Principles and Developing a HACCP Plan,** University of California-Davis, Davis, CA. Sponsored by the Food Processors Institute, in cooperation with University Extension, University of California-Davis. For more information, call 530.757.8899 or E-mail: aginfo@unexmail.ucdavis.edu.

·**11-12, ASQ Certified Quality Auditor Program,** Guelph Food Technology Centre, Guelph, Ontario, Canada. Hands-on, Case-based, Samples of Auditing Programs, and Overview of International HACCP Alliance Audit Standards. For additional information, contact Guelph Food Technology Centre, 88 McGilvray St., Guelph, Ontario, N1G 2W1 Canada; Phone: 519.821.1246; Fax: 519.836.1281; E-mail: gftc@uoguelph.ca.

·**11-12, HACCP Verification and Validation: An Advanced Workshop,** University of California-Davis, Davis, CA. Sponsored by the Food Processors Institute, in cooperation with University Extension, University of California-Davis. For more information, call 530.757.8899 or E-mail: aginfo@unexmail.ucdavis.edu.

·**16-17, Food Plant Sanitation Workshop,** Guelph Food Technology Centre, Guelph, Ontario, Canada. This workshop focuses on the essential elements of today's rigid requirements for food safety and sanitation programs. For more information, contact AIB, 1213 Bakers Way, P.O. Box 3999, Manhattan, KS 66505-3999; Phone: 785.537.4750; Fax: 785.537.1493.

·**17-18, Alabama Assn. of Milk, Food and Environmental Sanitarians Annual Meeting,** Holiday Inn, Birmingham, AL. For additional information, contact Thomas A. McCaskey at 334.844.1518.

·**17-19, FAMFES — Florida Food Safety 2000 – Promoting Safe Food in Florida,** held at the Florida Leadership Training Center, Haines City, FL. For further information, contact Bill Thornhill at 941.298.7748; Fax: 941.297.3091.

·**18, Advanced Auditing of your Food Service Supplier,** Guelph, Ontario, Canada. This is a one-day session to fine-tune your auditing skills. You will take away practical information and skills to become a better auditor. For more information, contact Marlene Inglis, Guelph Food Technology Centre, 88 McGilvray St., Guelph, Ontario N1G 2W1 or Phone 519.821.1246; Fax: 519.836.1281; E-mail: gftc@uoguelph.ca.

·**21-23, International Conference on Processed Food for 21st Century,** Jadavpur University, Calcutta India. For additional information, please contact Dr. Pratap Chakraborty, Head of the Department and Convener, Jadavpur University, Dept. Food Technol. Biochem. Eng., Calcutta 700032; Fax: 91 33 472 5822 or 473 4266; E-mail: juftbe@cal2.vsnl.net.in.

·**22-23, Preservation Technologies for Food, Feed and Fibre,** Holiday Inn South, Winnipeg, Manitoba, Canada. The purpose of this seminar is to demonstrate economic and process benefits of preservation technologies in the areas of drying, infrared, microwave and freezing. Using technology profiles, case study examples, and pilot plant demonstrations of actual systems, participants will gain practical knowledge of the application of these key technologies. For more information, contact the Food Development Centre at 800.870.1044 or 204.239.3150; Fax: 204.239.3180; E-mail: mschmulg@fdc.mb.ca.

·**29-30, HACCP I: Documenting Your HACCP Prerequisite Program,** Guelph, Ontario, Canada. For more information, contact Marlene Inglis, Guelph Food Tech-

nology Centre, 88 McGilvray St., Guelph, Ontario N1G 2W1 or Phone 519.821.1246; Fax: 519.836.1281; E-mail: gftc@uoguelph.ca.

· **30, Dec. 2, Partners in Environmental Technology Technical Symposium and Workshop,** Hyatt Regency Crystal City, Arlington, VA. Sponsored by the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP). For additional information, call 703.736.4548.

DECEMBER

· **1-3, Microbiological Control and Validation,** Boca Raton, FL. This course will present information on microbiological control in manufacturing, laboratory auditing and sterilization that is applicable to the medical device, biotechnology and pharmaceutical industries. It will also cover ISO, EP, BP, USP, AAMI and FDA documents and guidelines. For additional information, contact The Center for Professional Advancement, P.O. Box 1052, East Brunswick, NJ 08816-1052; Phone: 732.613.4500; Fax: 732.238.9113.

JANUARY

· **3-6, Milk Pasteurization and Control School,** Madison, WI. This 4-day short course provides in-depth training for those dairy industry personnel involved with thermal processing of milk and milk products. For more information, contact Bob Bradley at 608.263.2007.

· **19-21, International Poultry Exposition,** Atlanta, GA. For more information, contact The International Poultry Exposition, US Poultry & Egg Association, 1530 Cooledge Road, Tucker, GA 30084-7303; Phone: 770.493.9401; Fax: 770.493.9257.

MARCH

· **15, Dairy HACCP Workshop** Madison, WI. This one-day workshop will cover design and implementation of HACCP plans in dairy plants. For additional information, contact Marianne Smukowski at 608.265.6346.

International Association of Milk, Food and Environmental Sanitarians, Inc.
6200 Aurora Avenue, Suite 200W
Des Moines, Iowa 50322-2863, USA
Phone: 800.369.6337 • 515.276.3344; Fax: 515.276.8655
E-mail: iamfes@iamfes.org; Web site: www.iamfes.org

The use of the IAMFES Audiovisual Library is a benefit for IAMFES Members. Please limit your requests to five videos. Material from the Audiovisual Library can be checked out for 2 weeks only so that all Members can benefit from its use. (SHIP TO: Please print or type.)

First Name _____ M.I. _____ Last Name _____

Job Title _____ Company _____

Mailing Address _____

(Please specify: ❒ Home ❒ Work) Member ID No. _____

City _____ State or Province _____

Postal Code/Zip + 4 _____ Country _____

Telephone # _____ Fax # _____

E-mail _____ Date Needed _____

IAMFES
Members Only

PLEASE CHECK THE APPROPRIATE BOX

IAMFES AUDIOVISUAL LIBRARY

DAIRY

- ❒ D1170 3-A Symbol Council
- ❒ D1180 10 Points to Dairy Quality
- ❒ D1010 The Bulk Milk Hauler: Protocol & Procedures
- ❒ D1020 Causes of Milkfat Test Variations & Depressions
- ❒ D1030 Cold Hard Facts
- ❒ D1040 Ether Extraction Method for Determination of Raw Milk
- ❒ D1050 The Farm Bulk Milk Hauler
- ❒ D1060 Frozen Dairy Products
- ❒ D1070 The Gerber Butterfat Test
- ❒ D1080 High-Temperature, Short-Time Pasteurizer
- ❒ D1100 Mastitis Prevention and Control
- ❒ D1110 Milk Plant Sanitation: Chemical Solution
- ❒ D1120 Milk Processing Plant Inspection Procedures
- ❒ D1130 Pasteurizer - Design and Regulation
- ❒ D1140 Pasteurizer - Operation
- ❒ D1150 Processing Fluid Milk

ENVIRONMENTAL

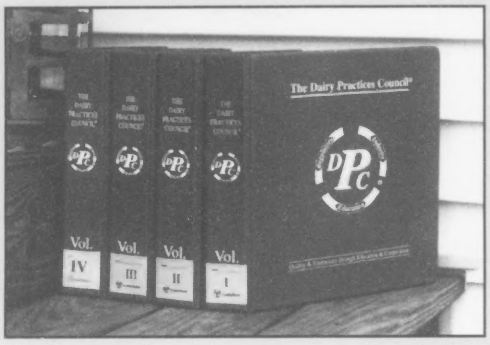
- ❒ E3010 The ABCs of Clean – A Handwashing & Cleanliness Program for Early Childhood Programs
- ❒ E3020 Acceptable Risks?
- ❒ E3030 Air Pollution: Indoor
- ❒ E3040 Asbestos Awareness
- ❒ E3055 Effective Handwashing–Preventing Cross-Contamination in the Food Service Industry
- ❒ E3060 EPA Test Methods for Freshwater Effluent Toxicity Tests (Using Ceriodaphnia)
- ❒ E3070 EPA Test Methods for Freshwater Effluent Toxicity Tests (Using Fathead Minnow Larva)
- ❒ E3080 Fit to Drink
- ❒ E3110 Garbage: The Movie
- ❒ E3120 Global Warming: Hot Times Ahead
- ❒ E3130 Kentucky Public Swimming Pool & Bathing Facilities
- ❒ E3135 Plastic Recycling Today: A Growing Resource
- ❒ E3140 Putting Aside Pesticides
- ❒ E3150 Radon
- ❒ E3160 RCRA – Hazardous Waste
- ❒ E3170 The New Superfund: What It is & How It Works–(1) Changes in the Remedial Process: Clean-up Standards & State Involvement Requirements
- ❒ E3180 The New Superfund: What It is & How It Works–(2) Changes in the Removal Process: Removal & Additional Program Requirements
- ❒ E3190 The New Superfund: What It is & How It Works – (3) Enforcement and Federal Facilities
- ❒ E3210 The New Superfund: What It is & How It Works – (4) Emergency Preparedness & Community Right-to-Know
- ❒ E3220 The New Superfund: What It is & How It Works – (5) Underground Storage Tank Trust Fund & Response Program
- ❒ E3230 The New Superfund: What It is & How It Works – (6) Research & Development/Closing Remarks
- ❒ E3240 Sink a Germ
- ❒ E3245 Wash Your Hands
- ❒ E3250 Waste Not: Reducing Hazardous Waste

FOOD

- ❒ F2260 100 Degrees of Doom...The Time & Temperature Caper
- ❒ F2440 Cleaning & Sanitizing in Vegetable Processing Plants: Do It Well, Do It Safely!
- ❒ F2010 Close Encounters of the Bird Kind
- ❒ F2030 "Eggs Games" Foodservice Egg Handling and Safety
- ❒ F2020 Egg Handling & Safety
- ❒ F2040 Food Irradiation
- ❒ F2050 Food Safe - Food Smart - HACCP & Its Application to the Food Industry (Part 1&2)
- ❒ F2060 Food Safe - Series I (4 Videos)
- ❒ F2070 Food Safe - Series II (4 Videos)
- ❒ F2080 Food Safe - Series III (4 Videos)
- ❒ F2090 Food Safety: An Educational Video for Institutional Food-Service Workers
- ❒ F2120 Food Safety: For Goodness Sake, Keep Food Safe
- ❒ F2110 Food Safety is No Mystery
- ❒ F2130 Food Safety: You Make the Difference
- ❒ F2135 Get with a Safe Food Attitude
- ❒ F2140 GMP Basics: Employee Hygiene Practices
- ❒ F2143 GMP Basics: Guidelines for Maintenance Personnel
- ❒ F2148 GMP - GSP Employee
- ❒ F2150 GMP: Personal Hygiene and Practices in Food Manufacturing
- ❒ F2147 GMP Basics: Process Control Practices
- ❒ F2160 GMP: Sources & Control of Contamination during Processing
- ❒ F2165 HACCP and Its Application to the Food Industry
- ❒ F2180 HACCP: Safe Food Handling Techniques
- ❒ F2170 The Heart of HACCP
- ❒ F2175 Inspecting For Food Safety - Kentucky's Food Code
- ❒ F2190 Is What You Order What You Get? Seafood Integrity
- ❒ F2210 Northern Delight - From Canada to the World
- ❒ F2240 On the Front Line
- ❒ F2250 On the Line
- ❒ F2270 Pest Control in Seafood Processing Plants
- ❒ F2280 Principles of Warehouse Sanitation
- ❒ F2290 Product Safety & Shelf Life
- ❒ F2220 Proper Handling of Peracidic Acid
- ❒ F2230E Purely Coincidental - English
- ❒ F2310 Safe Food: You Can Make a Difference
- ❒ F2320 Safe Handwashing
- ❒ F2330 Sanitation for Seafood Processing Personnel
- ❒ F2340 Sanitizing for Safety
- ❒ F2350 SERVSAFE® Serving Safe Food (4 Videos)
- ❒ F2360 SERVSAFE® Serving Safe Food Second Edition (6 Videos)
- ❒ F2430 Smart Sanitation: Principles & Practices for Effectively Cleaning Your Food Plant
- ❒ F2370 Supermarket Sanitation Program - "Cleaning & Sanitizing"
- ❒ F2380 Supermarket Sanitation Program - "Food Safety"
- ❒ F2390 Take Aim at Sanitation
- ❒ F2410 Wide World of Food-Service Brushes
- ❒ F2420 Your Health in Our Hands - Our Health in Yours

OTHER

- ❒ M4010 Diet, Nutrition & Cancer
- ❒ M4020 Eating Defensively: Food Safety Advice for Persons with AIDS
- ❒ M4030 Ice: The Forgotten Food
- ❒ M4040 Legal Aspects of the Tampering Case
- ❒ M4050 Personal Hygiene & Sanitation for Food Processing Employees
- ❒ M4060 Psychiatric Aspects of Product Tampering
- ❒ M4070 Tampering: The Issue Examined



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

This newly expanded Four-volume set consists of 66 guidelines.

1 Planning Dairy Freestall Barns
2 Effective Installation, Cleaning, and Sanitizing of Milking Systems
3 Selected Personnel in Milk Sanitation
4 Installation, Cleaning, & Sanitizing of Large Parlor Milking Systems
5 Directory of Dairy Farm Building & Milking System Resource People
6 Natural Ventilation for Dairy Tie Stall Barns
7 Sampling Fluid Milk
8 Good Manufacturing Practices for Dairy Processing Plants
9 Fundamentals of Cleaning & Sanitizing Farm Milk Handling Equipment
10 Maintaining & Testing Fluid Milk Shelf-Life
11 Sediment Testing & Producing Clean Milk
12 Tunnel Ventilation for Dairy Tie Stall Barns
13 Environmental Air Control and Quality for Dairy Food Plants
14 Clean Room Technology
15 Milking Center Wastewater
16 Handling Dairy Products from Processing to Consumption
17 Causes of Added Water in Milk
18 Fieldperson's Guide to Troubleshooting High Somatic Cell Counts
21 Raw Milk Quality Tests
22 Control of Antibacterial Drugs & Growth Inhibitors in Milk and Milk Products
23 Preventing Rancid Flavors in Milk
24 Troubleshooting High Bacteria Counts of Raw Milk
25 Cleaning & Sanitation Responsibilities for Bulk Pickup & Transport Tankers
27 Dairy Manure Management From Barn to Storage
28 Troubleshooting Residual Films on Dairy Farm Milk Handling Equipment
29 Cleaning & Sanitizing in Fluid Milk Processing Plants
30 Potable Water on Dairy Farms
31 Composition & Nutritive Value of Dairy Products
32 Fat Test Variations in Raw Milk
33 Brucellosis & Some Other Milkborne Diseases
34 Butterfat Determinations of Various Dairy Products
35 Dairy Plant Waste Management
36 Dairy Farm Inspection
37 Planning Dairy Stall Barns
38 Preventing Off-Flavors in Milk
39 Grade A Fluid Milk Plant Inspection
40 Controlling Fluid Milk Volume and Fat Losses
41 Milkrooms and Bulk Tank Installations
42 Stray Voltage on Dairy Farms
43 Farm Tank Calibrating and Checking
45 Gravity Flow Gutters for Manure Removal in Milking Barns
46 Dairy Odor Control
48 Cooling Milk on the Farm
49 Postmilking Teat Dips
50 Farm Bulk Milk Collection Procedures
51 Controlling the Accuracy of Electronic Testing Instruments for Milk Components
52 Emergency Action Plan for Outbreak of Milk-borne Illness in the Northeast
53 Vitamin Fortification of Fluid Milk Products
54 Selection & Construction of Herringbone Milking Parlors
55 Hazard Analysis Critical Control Point System - HACCP For The Dairy Industry
56 Dairy Product Safety (Pathogenic Bacteria) for Fluid Milk and Frozen Dessert Plants
57 Dairy Plant Sanitation
58 Sizing Dairy Farm Water Heater Systems
59 Production and Regulation of Quality Dairy Goat Milk
60 Trouble Shooting Microbial Defects: Product Line Sampling & Hygiene Monitoring
61 Frozen Dessert Processing
62 Resources For Dairy Equipment Construction Evaluation
63 Controlling The Quality And Use Of Dairy Product Rework
64 Control Points for Good Management Practices on Dairy Farms
65 Installing & Operating Milk Precoolers Properly on Dairy Farms
66 Planning A Dairy Complex - "100+ Questions To Ask"
69 Abnormal Milk - Risk Reduction and HACCP
72 Farmers Guide To Somatic Cell Counts In Goats
80 Food Allergen Awareness In Dairy Plant Operations

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

For the past 30 year, DPC's primary mission has been the development and distribution of educational guidelines directed to proper and improved sanitation practices in the production, processing, and distribution of high quality milk and milk products.

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

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

If purchased individually, the entire set would cost $289. We are offering the set, packaged in four looseleaf binders for $205.00.

Information on how to receive new and updated guidelines will be included with your order.

To purchase this important source of information, complete the order form below and mail to IAMFES, 6200 Aurora Ave., Suite 200W, Des Moines, IA 50322-2863; or Phone 515.276.3344; 800.369.6337; Fax 515.276.8655.

Please enclose $205 plus $12 shipping and handling (outside U.S., $25 for shipping and handling) for each set of guidelines. Payment in U.S. $ drawn on a U.S. bank or by credit card.

Name _____ Phone No. _____

Company _____

Street Address _____

City, State/Province, Code _____

VISA/MC/AE No. _____ Exp. Date _____

International Association of Milk, Food and Environmental Sanitarians, Inc.
6200 Aurora Avenue, Suite 200W
Des Moines, Iowa 50322-2863, USA
Phone: 800.369.6337 • 515.276.3344; Fax: 515.276.8655
E-mail: iamfes@iamfes.org; Web site: www.iamfes.org

SHIP TO: (Please print or type. All areas must be completed in order to process.)

First Name _____ M.I. _____ Last Name _____

Job Title _____ Company _____

Mailing Address _____

(Please specify: ❒ Home ❒ Work)

City _____ State or Province _____

Postal Code/Zip + 4 _____ Country _____

Telephone # _____ Fax # _____

E-mail _____

IAMFES BOOKLETS

Quantity	Description	Member or Gov't. Price	Non-Member Price	TOTAL
	Procedures to Investigate Waterborne Illness—2nd Edition	$10.00	$20.00	
	Procedures to Investigate Foodborne Illness—5th Edition	10.00	20.00	
	Procedures to Investigate Arthropod-borne and Rodent-borne Illness	6.00	12.00	

SHIPPING AND HANDLING – $2.00 (US) $4.00 (Outside US)
Each additional booklet $1.00

Multiple copies available at reduced prices.
Phone our office for pricing information on quantities of 25 or more.

Shipping/Handling _____
Booklets Total _____

OTHER PUBLICATIONS

Quantity	Description	Member or Gov't. Price	Non-Member Price	TOTAL
	Pocket Guide to Dairy Sanitation (minimum order of 10)	$ .50	$ .75	
	Before Disaster Strikes...A Guide to Food Safety in the Home (minimum order of 10)	.50	.75	
	*Developing HACCP Plans – A Five-Part Series (as published in *DFES*)	15.00	15.00	
	*Surveillance of Foodborne Disease – A Four-Part Series (as published in *JFP*)	18.75	18.75	
	*Annual Meeting Abstract Book Supplement (year requested _____)	25.00	25.00	

SHIPPING AND HANDLING – Guide Booklets – per 10 $2.50 (US) $3.50 (Outside US)
*Includes shipping and handling

Shipping/Handling _____
Other Publications Total _____

3-A SANITARY STANDARDS

Quantity	Description	Member or Gov't. Price	Non-Member Price	TOTAL
	Complete Set 3-A Dairy & Egg Standards	$125.00	$250.00	
	Five-year Update Service on 3-A Dairy & Egg Standards (new and revised standards only)	165.00	330.00	

SHIPPING AND HANDLING – Each set $6.25 (US) $10.25 (Outside US)

Shipping/Handling _____
3-A Sanitary Standards Total _____

TOTAL ORDER AMOUNT _____

Payment Must be Enclosed for Order to be Processed
★ US Funds on US Bank ★

❒ CHECK OR MONEY ORDER ENCLOSED ❒ VISA ❒ MasterCard ❒

Exp. Date _____

SIGNATURE _____

3 EASY WAYS TO ORDER:
Phone: 515.276.3344; 800.369.6337
Fax: 515.276.8655
or **Mail** your order to the IAMFES address listed above.

Prices effective through August 31, 2000

Invite A Colleague to Join

The International Association of Milk, Food and Environmental Sanitarians, founded in 1911, is a non-profit educational association of food safety professionals with a mission ***"to provide food safety professionals worldwide with a forum to exchange information on protecting the food supply."***

✳ *Who Should Join?*

The Association is comprised of a diverse membership of 2,900 people from 50 nations. IAMFES Members belong to all facets of the food protection arena including: Industry, Government and Academia.

✳ *Why Should They Become IAMFES Members?*

Dairy, Food and Environmental Sanitation — A reviewed monthly publication that provides practical and applied research articles and association news, updates, and other related information for food safety professionals. All IAMFES Members receive this publication as part of their Membership.

Journal of Food Protection — An international, refereed scientific journal of research and review papers on topics in food science and food aspects of animal and plant sciences. This journal is available to all individuals who request it with their Membership.

The IAMFES Audiovisual Library — Provides quality training videos dealing with various food safety issues. IAMFES Members are allowed free use of these videos.

The IAMFES Annual Meeting — Is a unique educational event; three days of technical sessions, symposia and exhibits provide attendees with over 250 presentations on current topics in food protection. IAMFES Members receive a substantially reduced registration fee.

✳ *Help Others Find Out About IAMFES...*

To learn more about IAMFES and the **many** other benefits and opportunities available to a Member, visit our Web site: www.iamfes.org or please call 515.276.3344 or 800.369.6337; Fax: 515.276.8655; E-mail: iamfes@iamfes.org. We will be happy to send new Member information if you provide us the necessary mailing information.

MEMBERSHIP APPLICATION

International Association of Milk, Food and Environmental Sanitarians, Inc.
6200 Aurora Avenue, Suite 200W
Des Moines, IA 50322-2863, USA
Phone: 800.369.6337 • 515.276.3344; Fax: 515.276.8655
E-mail: iamfes@iamfes.org; Web site: www.iamfes.org

MEMBERSHIP DATA:

Prefix (❒ Prof. ❒ Dr. ❒ Mr. ❒ Ms.)

First Name _____ M.I. _____ Last Name _____

Company _____ Job Title _____

Mailing Address _____

(Please specify: ❒ Home ❒ Work)

City _____ State or Province _____

Postal Code/Zip + 4 _____ Country _____

Telephone # _____ Fax # _____

E-mail _____

MEMBERSHIP CATEGORIES:

	US	Canada/ Mexico	International
❒ **Membership with *JFP & DFES*** ◀ **BEST VALUE** (12 issues of the *Journal of Food Protection* and *Dairy, Food and Environmental Sanitation*)	$140.00	$165.00	$210.00
❒ **Membership with *DFES*** (12 issues of *Dairy, Food and Environmental Sanitation*)	$85.00	$95.00	$110.00
❒ **Sustaining Membership** (Includes advertising and exhibit discounts and more! Contact the IAMFES office for additional benefits)	$525.00	$525.00	$525.00
***Student Membership**			
❒ *JFP* and *DFES*	$70.00	$95.00	$140.00
❒ *Journal of Food Protection*	$42.50	$57.50	$87.50
❒ *Dairy, Food and Environmental Sanitation*	$42.50	$52.50	$67.50

***Full-time student verification must accompany this form**

All Prices Include Shipping & Handling

TOTAL MEMBERSHIP PAYMENT:

$ _____

US FUNDS on US BANK

(Prices effective through August 31, 2000)

Payment Options:

❒ Check Enclosed ❒ VISA ❒ MasterCard ❒

Card # _____ Exp. Date _____

Signature _____

DO NOT USE THIS FORM FOR RENEWALS

THOUGHTS on Today's Food Safety...

Environmental Update: Dairy Issues

Carissa Itle
Director of Environmental Services
National Milk Producers Federation
Arlington, VA

Environmental regulations can have a tremendous impact on dairy producers and may, in the long run, determine which farms are able to remain in production. We will briefly review the increased regulatory focus on animal agriculture and the potential impact of current and changing regulations on dairy producers.

BACKGROUND

Practically every modern dairy facility fits the regulatory definition of an animal feeding operation (AFO). An AFO is a concentrated animal feeding operation (CAFO) if it has more than 1,000 animal units (700 mature dairy cattle) or has fewer animals but discharges wastes into waters. Regardless of size, any AFO may be designated a CAFO if an on-site inspection by the permitting authority determines it to be a significant contributor of pollution.

CAFOs are identified as point sources of pollution by the Clean Water Act and are thus required to obtain permits under the National Pollutant Discharge Elimination System (NPDES). Because AFOs are considered to be nonpoint sources of pollution, they are not required to obtain an NPDES permit and are addressed under various voluntary pollution control programs.

THE UNIFIED NATIONAL STRATEGY FOR ANIMAL FEEDING OPERATIONS

In February 1998, President Clinton released the Clean Water Action Plan, which aims to restore and protect our nation's water quality. The plan identifies polluted runoff as the most important remaining source of water pollution and directs the development of a strategy to minimize the environmental impacts of animal agriculture.

Earlier this year, USDA and EPA released the Unified National Strategy for Animal Feeding Operations. This strategy is not a new regulation, but provides a blueprint to coordinate federal agency initiatives to minimize water quality and public health impacts from AFOs.

The strategy sets a national performance expectation for all AFOs to develop and implement site-specific Comprehensive Nutrient Management Plans (CNMPs). CNMPs are expected to address items such as manure management (including land application), record keeping, and land management.

It is estimated that 95% of these plans will be developed and implemented voluntarily. CNMPs will be required for CAFOs as part of their NPDES permits. Although AFOs will not be required to have plans in place, development of plans will be encouraged. Regulators will be more lenient with a producer who makes honest mistakes but has a plan in place.

In addition to CNMP development, the Unified AFO Strategy directs the revision of both the NPDES permit regulations and the effluent limitation guidelines for dairy feedlots.

NPDES PERMIT REVISIONS

The regulatory program will focus on CAFOs in the following situations:

- Significant manure production – 1,000+ Animal Units
- Unacceptable condition- discharges to waters
- Significant contributors to water quality impairment – a facility or collection of facilities contributing to impairment of a watershed. It is likely that many smaller dairies could be regulated under this category.

EPA has released for public comment a permitting guidance to assist regulatory staff in determining which facilities will be targeted to receive permits. Key issues likely to be affected by NPDES permit revisions include:

Removal of the 25-year, 24-hour storm exemption

The current regulation reads that no AFO is a CAFO if it discharges only in the event of a 25-year, 24-hour storm event. Although this may have been intended to exempt smaller AFOs from the CAFO designation, it is often interpreted to mean that even an AFO with 1,000+ AUs that does not discharge (except for the aforementioned storm event) does not need to be permitted as a CAFO. This loophole is likely to be closed with the pending permit revisions.

Land application

The courts have determined that land application from a CAFO is a point source of pollution and subject to NPDES permit regulations. Revised permit requirements could include practices like nutrient testing and record

Continued on page 719

AUGUST 6-9, 2000

annual meeting

ATLANTA

Join us in Atlanta, Georgia for the world's most comprehensive food safety conference. Over 1,100 of the foremost authorities from industry, academia and government from around the world will be attending the conference. The IAMFES Annual Meeting is recognized as the leading source for the latest information on advances in protecting the world's food supply.

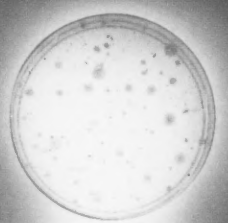
The Annual Meeting includes over 250 presentations including symposia, technical sessions, and posters. Learn the latest trends and developments in the industry including topics on Bioterrorism and Food Protection, Surveillance of Foodborne Disease in Latin America and the Caribbean, Dairy Plant HACCP, Safe Production of Sprouts from Seeds, HACCP-Based Strategies for Seafoods and many other issues facing food safety professionals daily.

Network with industry professionals in the IAMFES Exhibit Hall. Experience over 80 exhibitors displaying the latest products and services available to the food safety industry. View the many displays of laboratory equipment, testing materials, sanitation products, pest control and more!

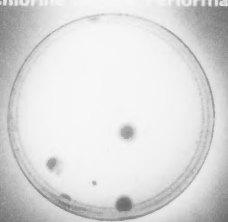
Plan now to attend the world's leading food safety conference — the IAMFES Annual Meeting! Visit our Web site at www.iamfes.org for the latest Annual Meeting information or contact the IAMFES office at 800.369.6337; 515.276.3344; Fax: 515.276.8655; E-mail: iamfes@iamfes.org.

IS CORN ALL YOU'RE PACKING?

In tests indicative of plant environments, Tsunami consistently provides a 2 to 3 log reduction in aerobic plate counts when compared to chlorine dioxide performance. Test results available upon request.



Chlorine [illegible] Performance



Tsunami™ Performance

For years, the only approved products for cleaning fruits and vegetables were chlorine-based additives. Now there's Tsunami,™ a specially formulated additive for flume and wash water systems proven to out-perform chlorine-based agents. With Tsunami, you can be confident you're doing all you can to control microbial activity on the fruits and vegetables processed in your plant. Tsunami also promotes a safer working environment as its complete water solubility eliminates potential off–gassing in heavily soiled systems.

Food safety continues to be critically important to fruit and vegetable processors. Whether you're in the further processed, fresh-cut or post-harvest business, Tsunami provides a more effective, safer solution. Switch to Tsunami, the proven performer in microbial control.

To find out more about what Tsunami can do for you, call **1-800-793-0248**.

"Tsunami has definitely made an improvement in our microbial counts. Compared with chlorine dioxide, we have not only found Tsunami to have a higher microbial kill, but it is also much safer than mixing three chemicals on-site to produce chlorine dioxide. We also have better control of how much chemical we use and it's a much simpler process for the employees to work with."

Quality Assurance Manager
Western Vegetable Processing Plant

tsunami™
The new wave in processing performance and safety.

ECOLAB FOOD & BEVERAGE DIVISION
Ecolab Inc.
370 Wabasha Street N.
St. Paul, Minnesota 55102-1390 U.S.A.
www.ecolab.com 1-800-392-3392

Reader Service No. 112

ECOLAB®