

ISSN: 1043-3546

200W Merle Hay Centre • 6200 Aurora Avenue
Des Moines • Iowa • U.S.A. • 50322

EXP 92/12

XEROX UNIV MICROFILMS
SERIALS DEPT
300 N ZEEB RD
ANN ARBOR, MI

48106

November • 1992

Vol • 12 • No. 12 • Pages 733-788

DAIRY, FOOD AND ENVIRONMENTAL

SANITATION

NOVEMBER 1992

IAMFES Has A New Address
200W Merle Hay Centre
6200 Aurora Avenue
Des Moines, IA 50322
New Phone: (515)276-3344
New FAX: (515)276-8655



This reason for residue-free milk carries more weight than a mailbox full of FDA guidelines.

Control Point 8 in the FDA's 10 Point Quality Assurance Guidelines calls for "proper drug residue testing capabilities readily available on-farm."

"Dairy producers must be able to produce and market milk which can continuously stand the critical consumer and government scrutiny."

PENZYME® is the "sure and simple way to make sure there's no maybes in your milk before it goes into a holding tank."

But more importantly, before it gets to the consumer, phone us at 1-800-366-5288 with questions or for additional information on PENZYME® & Signal ForeSite™.

PENZYME®

On-farm antibiotic residue screening test for milk.
Get a "yes" or "no" answer in 20 minutes.

SB **SmithKline Beecham**
Animal Health

812 Springdale Drive, Exton, PA 19341

IAMFES

Announcement **Developing Scientist Awards Competitions** (Supported by Sustaining Members)

This year IAMFES is pleased to announce extension of its program to encourage and recognize the work of students in the field of food safety research. In addition to the Oral Developing Scientist Award Competition, IAMFES introduces a Poster Presentation Award Competition.

Purpose

1. To encourage graduate and undergraduate students to present their original research at the IAMFES meeting.
2. To foster professionalism in students through contact with peers and professional members of IAMFES.
3. To encourage participation by students in IAMFES and its annual meeting.

Developing Scientist Oral Competition:

The Oral Competition is open to GRADUATE students enrolled in M.S. or Ph.D. programs at accredited universities or colleges whose research deals with problems related to environmental, food and/or dairy sanitation, protection and safety. Candidates cannot have graduated more than one (1) year prior to the deadline for submitting abstracts.

This year the Oral Competition will be limited to ten finalists and awards will be given to the top five presenters. The papers should be approximately fifteen (15) minutes, including a 2-4 minute discussion.

Awards: First Place: \$500 and an Award Plaque; Second Place: \$400 and a certificate of merit; Third Place: \$300 and a certificate of merit; Fourth Place: \$200 and a certificate of merit; Fifth Place: \$100 and a certificate of merit. All of the winners will receive a one year membership including both *Dairy, Food and Environmental Sanitation* and the *Journal of Food Protection*.

Developing Scientist Poster Competition:

The Poster Competition is open to UNDERGRADUATE and GRADUATE students enrolled at accredited universities or colleges whose research deals with problems related to environmental, food and/or dairy sanitation, protection and safety. Candidates cannot have graduated more than one (1) year prior to the deadline for submitting abstracts.

Ten finalists will be selected for the Poster Competition. The presentation must be mounted on a 8' by 4' display board (provided at the meeting) for the entire duration of the Poster Session at the Annual Meeting. The presenter must be present at their poster for a specific time, approximately two hours during the session.

Award: The winner of the Poster Session Competition will receive \$300 and a one year membership including both *Dairy, Food and Environmental Sanitation* and the *Journal of Food Protection*.

Instructions to Developing Scientist Awards Competitions Entrants (Oral and Poster):

* **Note:** Both a short abstract and an extended abstract must be submitted to the IAMFES office no later than December 15, 1992. No forms will be sent to entrants. Enclose two self-addressed, stamped postcards with your submitted abstracts.

1. An original short abstract of the paper must be submitted on the blue abstract form from the September and October issues of IAMFES' journals. Indicate on the short abstract form whether the presentation is submitted for the Oral or Poster Competition.
2. One original and four copies of an extended abstract MUST BE SUBMITTED with the short abstract. Instructions for preparing the extended abstract can be found in the September and October issues of IAMFES' journals. Attach one copy of the short abstract to each copy of the extended abstract and submit together with the original short abstract.
3. The presentation and the student must be recommended and approved for the Competition by the Major Professor or Department Head, who must sign both the short and the extended abstracts.
4. The work must represent original research done by the student and must be presented by the student.
5. Each student may enter only one (1) paper in either the Oral or Poster Competition.
6. All students will receive confirmation of acceptance of their presentations along with guidelines for preparing their Oral or Poster Presentations.
7. All students with accepted abstracts will receive a complimentary membership which includes their choice of *Dairy, Food, and Environmental Sanitation* or the *Journal of Food Protection*.
8. Winners are announced at the Annual Awards Banquet. The ten finalists for the Oral Competition and the Poster Competition will receive complimentary tickets and are expected to be present at the Banquet.

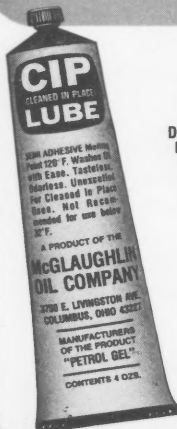
None So Pure



Lube Daily with PETROL-GEL

The ideal sanitary lubricant, Petrol-Gel is tasteless and odorless. Recommended uses: Stainless Steel Valves, Ice Cream Freezers, Homogenizer Pistons, Guide and Slide Mechanisms, Centrifugal Pumps, Continuous Freezers, Gaskets and Seals, and "O" Rings. The U.S. Department of Agriculture has approved the ingredients or component parts of materials used in the making of Petrol-Gel.

PACKAGED 6 & 12 four ounce tubes



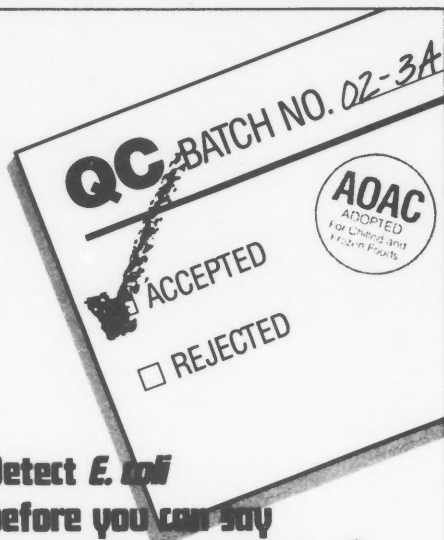
CIP LUBE

Developed specifically to meet the demand for a lubricant for use with stationary or in-place cleaning. Washes off easily—no dismantling of tubing, valves, gaskets and seals. CIP Lube is used by most of the nation's leading dairies.

Write for **FREE** Trial Tube

McGlaughlin Oil Co.

3750 E. Livingston Ave.
Columbus, Ohio 43227

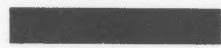


Detect *E. coli* before you can say 4-Methylumbelliferyl- β - D-glucuronide

Well... maybe not that fast. But when traditional tests for the presence of *E. coli* often take a week or longer, Marcor's overnight MUG (4-Methylumbelliferyl- β -D-glucuronide) testing reagent seems awfully fast.

How does it work? Almost all strains of *E. coli* produce β -glucuronidase, an enzyme which hydrolyzes MUG. The result is 4-methylumbelliferone, a fluorogenic product which can be easily detected under long wave UV or 366-nm light. When MUG is incorporated into a modified MacConkey Agar or Lauryl Sulfate Broth, seeded with a single *E. coli* cell, fluorescence is usually detectable in 12 to 20 hours.

Plan now for future QC speed and economy. Perform both gas production and fluorescent tests simultaneously, and compare the results. For recommended test procedures and complete product specification, Marcor is just a phone call away.



MARCOR

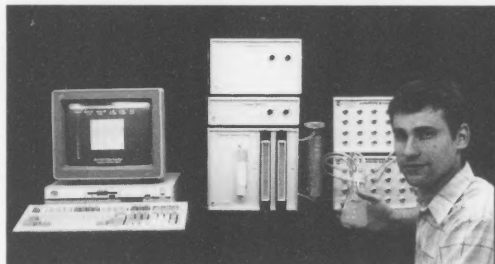
DEVELOPMENT
CORPORATION

108 JOHN STREET
HACKENSACK, NJ 07601-4130
201-489-5700
TELEX: 710 990 5131
MARCORDEV HAK
FAX: 201-489-7357

Please circle No. 200 on your Reader Service Card

O₂/CO₂ Respirometer

for measuring bacterial and fungal growth



- Measures O₂ and CO₂ consumption/production in 1 to 80 measuring chambers using a single set of sensors (periodically measures headspace gas concentrations).
- Temperature of samples can vary during experiment.
- Allows removal of sample substance from inside of the chambers during experiment.
- Superior sensitivity 0.2µl/h Important for low level biological activity.
- Measuring chambers can be user's own, 50ml to 10 L.
- Real time graphics, fully computerized.
- Measures both liquids or solids.
- Programmable air refresh, 24 hour operation.

COLUMBUS INSTRUMENTS INTERNATIONAL

P.O. Box 44049 COLUMBUS, OHIO 43204 USA
PH: (614) 276-0861 FX: (614) 276-0529 TLX: 246514

Please circle No. 214 on your Reader Service Card

1992 IAMFES Exhibitor

Free BUYERS GUIDE for Food & Dairy Processors contains 416 pages of hard-to-find & specialty items.

Food and dairy plants throughout the U.S. and Canada rely on the *Nelson-Jameson Buyers Guide* for products they simply can't find elsewhere. Products like the Sam Gray Gold Electrode™, Disinfectant Mat™, M926 Chloride Analyzer and RCS Air Sampler. Plus a host of other items they use every day. Our latest edition features a 128-page Laboratory & QA/QC section and a total of over 7,500 products. Call or write to request a copy.

Phone toll free 800/826-8302.
Fax toll free 800/472-0840 or
mail Reader Service Card.



Nelson-Jameson, Inc.
2400 East Fifth Street
Marshfield, WI 54449

1992 IAMFES Exhibitor

Please circle No. 188 on your Reader Service Card



Made in
U.S.A.

Sterilization
Documentation
Available

NEW TAMPER EVIDENT, LEAK PROOF, AIR TIGHT, HINGED CAP, STERILE SAMPLE VIALS

Passes all FDA and USDA leak proof tests. Available in 2 oz., 3 oz., 4 oz. and 10 oz. FDA approved polypropylene.

For your Free Sample call:

800-836-5520

or write:

Capitol Vial, Inc.

Union Street Extension
Fultonville, NY 12072

IAMFES Sustaining Members

ABC Research, PO Box 1557, Gainesville, FL 32602; (904)372-0436

ABELL Pest Control, 246 Attwell Drive, Etobicoke, ON M9W 5B4; (416)675-6060

Acculab, Inc., 700 Barksdale Road, Newark, DE 19711; (302)292-8888

Accurate Metering Systems, Inc., 1651 Wilkening Court, Schaumburg, IL 60173; (708)882-0690

Alfa-Laval Agri, Inc., 11100 North Congress Avenue, Kansas City, MO 64153; (816)891-1565

AMPICO Pumps, Inc., 1745 S. 38th Street, Milwaukee, WI 53215; (414)645-3750

Analytical Luminescence Laboratory, Inc., 11760 E. Sorrento Valley Road, San Diego, CA 92121; (619)455-9283

Anderson Chemical Co., Box 1041, Litchfield, MN 55355; (612)693-2477

Anderson Instrument Co., RD #1, Fultonville, NY 12072; (518)922-5315

Applied Microbiology Inc., 170 53rd Street, Brooklyn, NY 11232; (212)578-0851

APV Crepaco, 9525 W. Bryn Mawr Avenue, Rosemont, IL 60018; (708)678-4300

Babson Bros. Co., 1880 Country Farm Drive, Naperville, IL 60563; (708)369-8100

Becton Dickinson Microbiology Systems, PO Box 243, Cockeysville, MD 21030; (301)584-7188

Biology, Inc., 3447 Investment Blvd., Suite 2, Hayward, CA 94545; (415)785-2585

bioMérieux Vittek, Inc., 595 Anglum Drive, Hazelwood, MO 63042-2395; (800)638-4835

Borden, Inc., 180 E. Broad Street, Columbus, OH 43215; (614)225-6139

Capitol Vials Corp., PO Box 446, Fultonville, NY 12072; (518)853-3377

Charm Sciences Inc., 36 Franklin Street, Malden, MA 02148; (617)322-1523

Chem-Bio Labs, 5723 W. Fullerton, Chicago, IL 60639; (813)923-8613

Cherry-Burrell Corp., 2400 6th Street, SW, Cedar Rapids, IA 52406; (319)399-3236

Commercial Testing Lab., Inc., PO Box 526, Colfax, WI 54730; (800)962-5227

Custom Control Products, Inc., 1300 N. Memorial Drive, Racine, WI 53404; (414)637-9225

Dairy Quality Control Inst., 5205 Quincy Street, St. Paul, MN 55112-1400; (612)785-0484

Dairyman, Inc., 10140 Linn Station Road, Louisville, KY 40223; (502)426-6455

Darigold, Inc., 635 Elliott Avenue, W., Seattle, WA 98119; (206)284-6771

DBK, Incorporated, 517 S. Romona, #208, Corona, CA 91719; (714)279-5883

Dean Foods, 1126 Kilburn Avenue, Rockford, IL 61101; (815)962-0647

Difco Laboratories, PO Box 331058, Detroit, MI 48232; (313)462-8478

Diversey Corp., 1532 Biddle Avenue, Wyandotte, MI 48192; (313)281-0930

EG & G Berthold, 472 Amherst Street, Nashua, NH 03063; (603)889-3309

Eastern Crown, Inc., PO Box 216, Vernon, NY 13476; (315)829-3505

Educational Testing Services, P. O. Box 6515, Princeton, NJ 08541-6515

F & H Food Equipment Co., PO Box 398595, Springfield, MO 65808; (417)881-6114

FRM Chem, Inc., PO Box 207, Washington, MO 63090; (314)583-4360

Alex C. Fergusson, Inc., Spring Mill Drive, Frazer, PA 19355; (215)647-3300

Foss Food Technology Corporation, 10355 W. 70th Street, Eden Prairie, MN 55344; (612)941-8870

H.B. Fuller Co., 3900 Jackson Street, NE, Minneapolis, MN 55421; (612)781-8071

Gardex Chemicals, Ltd, 246 Attwell Drive, Etobicoke, ON M9W 5B4; (416)675-6727

GENE-TRAK Systems, 31 New York Avenue, Framingham, MA 01701; (617)872-3113

General Mills Restaurants, Inc., P. O. Box 593330, Orlando, FL 32859; (407)850-5330

Gist-brocades Food Ingredients, Inc., 2200 Renaissance Boulevard, King of Prussia, PA 19406; (800)662-4478

IBA Inc., 27 Providence Road, Millbury, MA 01527; (508)865-6911

IDEXX Laboratories, Inc., 100 Fore Street, Portland, ME 04101; (207)774-4334

International Dairy Foods Association, 888 16th Street, NW, Washington, DC 20006; (202)296-4250

KENAG/KENVET, 7th & Orange Street, Ashland, OH 44805; (800)338-7953

Klenzade Division, Ecolab Inc., Ecolab Center North, St. Paul, MN 55102; (612)293-2233

Kraft, Inc., 2211 Sanders Road, Northbrook, IL 60062; (708)498-8081

Land O'Lakes Inc., PO Box 116, Minneapolis, MN 55440-0116; (612)481-2870

Maryland & Virginia Milk Prod. Assn., Inc., 1985 Isaac Newton Square, Reston, VA 22090; (703)742-6800

Meritech, Inc., 8250 S. Akron Street, Englewood, CO 80112; (303)790-4670

Metz Sales, Inc., 522 W. First Street, Williamsburg, PA 16693; (814)832-2907

Michelson Labs Inc., 6280 Chalet Drive, Commerce, CA 90040; (213)928-0553

Micro Diagnostics, Inc., 421 Irmen, Addison, IL 60101; (800)634-7656

Mid America Dairyman, Inc., 3253 E. Chestnut Expressway, Springfield, MO 65802-2584; (417)865-7100

Minnesota Valley Testing Laboratories, PO Box 249, New Ulm, MN 56073-0249; (507)354-8317

Nasco International, 901 Janesville Avenue, Fort Atkinson, WI 53538; (414)563-2446

National Mastitis Council, 1840 Wilson Boulevard, Suite 400, Arlington, VA 22201; (703)243-8268

Nelson-Jameson, Inc., 2400 E. Fifth Street, PO Box 647, Marshfield, WI 54449-0647; (715)387-1151

NESTLE USA Inc., 800 N. Brand Blvd., Glendale, CA 91203; (818)549-6159

Northland Food Lab., 2415 Western Avenue, PO Box 160, Manitowoc, WI 54221-0160; (414)682-7998

Norton Company Transflow Tubing, PO Box 3660, Akron, OH 44309-3660; (216)798-9240

Organon Teknika, 100 Akzo Avenue, Durham, NC 27704; (919)620-2000

Pall Ultrafine Corp., 2200 Northern Boulevard, East Hills, NY 11548; (516)484-5400

Penn State Creamery, 12 Borland Laboratory, University Creamery, University Park, PA 16802; (814)865-7535

Rio Linda Chemical Co., Inc., 410 N. 10th Street, Sacramento, CA 95814; (916)443-4939

Ross Laboratories, 625 Cleveland Avenue, Columbus, OH 43216; (614)227-3333

Seiberling Associates, Inc., 11415 Main Street, Roscoe, IL 61073; (815)623-7311

Silliker Laboratories Group, Inc., 1304 Halsted Street, Chicago Heights, IL 60411; (708)756-3210

SmithKline Beecham Animal Health, 812 Springdale Drive, Exton, PA 19341; (800)877-6250, ext. 3756

Sparta Brush Co. Inc., PO Box 317, Sparta, WI 54656; (608)269-2151

The Stearns Tech Textile Co., 100 Williams Street, Cincinnati, OH 45215; (513)948-5292

Tekmar Co., PO Box 371856, Cincinnati, OH 45222-1856; (513)761-0633

3M/Medical-Surgical Div., 3M Center, St. Paul, MN 55144-1000; (612)736-9593

Troy Biologicals, Inc., 1238 Rankin, Troy, MI 48083; (313)585-9720

Unipath Co., Oxoid Div., P.O. Box 691, Ogdensburg, NY 13669; (800)567-8378

Vicam, 29 Mystic Avenue, Somerville, MA 02145 (617)623-0030

Walker Stainless Equipment Co., 618 State Street, New Lisbon, WI 53950; (608)562-3151

Webb Technical Group, Inc., 4320 Delta Lake Drive, Raleigh, NC 27612; (919)787-9171

West Agro Inc., 11100 N. Congress Avenue, Kansas City, MO 64153; (816)891-1558

Westreco Inc., 140 Boardman Road, New Milford, CT 06776; (203)355-0911

Mike Yurosek & Son, Inc., 6900 Mountain View Road, Lamont, CA 93241; (805)845-3764

Dairy, Food and Environmental Sanitation CONTENTS

Articles:

- Food Safety in Child Care Facilities** 740
Julie A. Albrecht, Susan S. Sumner, and Alice Henneman

- The National Advisory Committee on Microbiological Criteria for Foods: Future Directions** 744
H. Russell Cross

- New Terminology to Replace the U. S. RDA** 746
Jonathan C. Allen

News 752

Educational Foundation Honors British Researchers;
 Recycled Newspaper Gains Popularity as Animal
 Bedding; Over 2,200 People Attend American
 Association of Cereal Chemists Annual Meeting
 * * * and much more * * *

Updates 754

HACCP-An Industry Food Safety Self-Control Program-Part XI ...756

Food and Environmental Hazards to Health 759

Association News:

- Announcement for the Developing Scientist Awards Competitions** 733
- Sustaining Members** 736
- From the President** 738
- On My Mind** 739
- New IAMFES Members** 764
- Highlights of the 79th IAMFES Annual Meeting** 765
- IAMFES Awards Presented** 767
- Committee Reports** 770
- Minutes of the 79th IAMFES Annual Business Meeting** 778
- Resolutions Adopted by IAMFES** 779
- Exhibitor Review** 780

Federal Register 762

Business Exchange 784

"Classifieds"

Coming Events 786

Index of Advertisers 787

ABOUT THE COVER . . . *West Agro is a major manufacturer and distributor of potassium iodide, a compound used by a wide variety of industries. Headquartered in Kansas City, Missouri, West Agro, Inc. is part of the Alfa-Laval AB Group of Sweden. West Agro is involved in the development, manufacture and sale of chemical, cleaning and specialty products for agricultural, industrial and veterinary use.*

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

Dairy, Food and Environmental Sanitation (ISSN-1043-3546) is published monthly beginning with the January number by the International Association of Milk, Food and Environmental Sanitarians, Inc. executive offices at 200W Merle Hay Centre, 6200 Aurora Avenue, Des Moines, IA 50322-2838 USA. Each volume comprises 12 numbers. Printed by Heuss Printing, Inc. 911 N. Second Street, Ames, IA 50010 USA. Second Class Postage paid at Des Moines, IA 50318 and additional entry offices. Postmaster: Send address changes to Dairy, Food and Environmental Sanitation, 200W Merle Hay Centre, 6200 Aurora Avenue, Des Moines, IA 50322-2838 USA.

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

Manuscripts: Correspondence regarding manuscripts and other reading materials should be addressed to Margaret Marble, 200W Merle Hay Centre, 6200 Aurora Ave., Des Moines, IA 50322. 515-276-3344. "Instructions to Contributors" can be obtained from the editor.

Orders for Reprints: All orders should be sent to DAIRY, FOOD AND ENVIRONMENTAL SANITATION, IAMFES, Inc., 200W

Merle Hay Centre, 6200 Aurora Ave., Des Moines, IA 50322. Note: Single copies of reprints are not available from this address; address reprint requests to principal author.

Business Matters: Correspondence regarding business matters should be addressed to Steven K. Halstead, IAMFES, 200W Merle Hay Centre, 6200 Aurora Ave., Des Moines IA 50322.

Subscription Rates: \$100.00 per year. Single copies \$10.00 each. No cancellations accepted. U.S. FUNDS ONLY.

Sustaining Membership: A sustaining membership in IAMFES is available to companies at a rate of \$450 per year, which includes \$100 credit toward an ad in the "annual meeting issue" of the Journal, the July issue. For more information, contact IAMFES, 200W Merle Hay Centre, 6200 Aurora Ave., Des Moines, IA 50322, 515-276-3344.

Membership Dues: Membership in the Association is available to individuals only. Direct dues are \$50 per year and include a subscription to Dairy, Food and Environmental Sanitation. Direct dues and the Journal of Food Protection are \$80.00. Affiliate and International Membership include both journals for \$80, plus affiliate

dues. Student membership is \$25.00 per year, with verification of student status, and includes Dairy, Food and Environmental Sanitation or Journal of Food Protection. No cancellations accepted.

Claims: Notice of failure to receive copies must be reported within 30 days domestic, 90 days foreign. All correspondence regarding changes of address and dues must be sent to IAMFES, Inc., 200W Merle Hay Centre, 6200 Aurora Ave., Des Moines, IA 50322, 515-276-3344.

Postage: Canada and foreign add \$15 PER journal subscription. U.S. FUNDS ONLY. ON U.S. BANK. Single copies add \$7.00.

Secretary, F. Ann Draughon, University of Tennessee, P.O. Box 1071, Knoxville, TN 37901-1071, 615-374-7147.

Past President, Damian A. Gabis, Siliker Laboratories Group, Inc., 1304 Halsted St., Chicago Heights, IL 60411, 708-756-3210.

Affiliate Council Chairperson, Ruth G. Fuqua, Fliv-o-rich, Inc., 1055 Shadow Lane, Mt. Juliet, TN 37122, 502-426-6455.

Executive Mgr., Steven K. Halstead, CAE, 200W Merle Hay Centre, 6200 Aurora Ave., Des Moines, IA 50322, 515-276-3344.

IAMFES EXECUTIVE BOARD

President, Michael P. Doyle, Dept. of Food Science, GA Exper. Station, University of Georgia, Griffin, GA 30223; 404-228-7284.

President-Elect, Harold Bangsch, Springfield/Greene Co. Health Dept., 321 W. Turner, Springfield, MO 65803, 417-864-1657.

Vice-President, C. Dee Clingman, General Mills Restaurants, 5313 Foxshire Court, Orlando, FL 32819; (407)850-5330.

EDITORS

STEVEN K. HALSTEAD, *Managing Editor*, 200W Merle Hay Centre, 6200 Aurora Ave., Des Moines, IA 50322, 515-276-3344.

MARGARET THORNTON MARBLE, *Associate Editor*, 200W Merle Hay Centre, 6200 Aurora Ave., Des Moines, IA 50322, 515-276-3344.

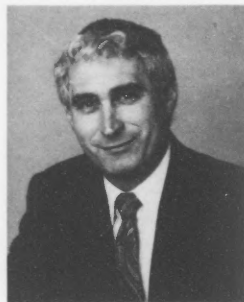
HENRY ATHERTON, *Technical Editor*, 8 E. Terrace, S. Burlington, CT 05403

EDITORIAL BOARD

K. ANDERSON Ames, IA
 H.V. ATHERTON Burlington, VT

K.J. BAKER Rockville, MD
 S. BARNARD University Park, PA
 H. BENSCH Springfield, MO
 F. BODYFELT Corvallis, OR
 J. BRUHN Davis, CA
 J. BURKETT Sioux City, IA
 J. CHAMBERS West Lafayette, IN
 W. CLARK Chicago, IL
 W.W. COLEMAN St. Paul, MN
 O.D. COOK Rockville, MD
 R. DICKIE Madison, WI
 F. FELDSTEIN Culpoper, VA
 R. FUQUA Mt. Juliet, TN
 J. GERBERICH Eau Claire, WI
 P. HARTMAN Ames, IA
 C. HINZ Le Roy, WI
 D. JOLLEY Bradenton, FL
 W. LAGRANGE Ames, IA
 J. LITTLEFIELD Austin, TX
 P. MARTIN Warrenville, IL
 J. MIRANDA Los Angeles, CA
 D. NEWSLOW Orlando, FL
 D. PEPPER Sioux City, IA
 M. PULLEN St. Paul, MN
 J. REEDER Arlington, VA
 D. ROLLINS Springfield, MO
 R. SANDERS Washington, DC
 P.C. VASAVADA River Falls, WI
 E.O. WRIGHT Bella Vista, AR

Thoughts From the President . . .



By
Michael P. Doyle
IAMFES President

A Glimpse of the IAMFES 1993 Annual Meeting

It seems like we just finished the 1992 Annual Meeting and here we are thinking about next year's meeting. Abstracts are due next month and many of us need to plan ahead to budget for the professional meetings in which we will participate in 1993.

The IAMFES meeting is one you won't want to miss. Thanks to the generous support of the International Life Sciences Institute of North American (ILSI-NA) Committee on Food Microbiology, three timely symposia addressing major issues in international food safety will be offered. ILSI-NA is internationally recognized for its sponsorship of food-related research of public health concern. More information about ILSI-NA will be presented in a later issue of *Dairy, Food and Environmental Sanitation*.

The three symposia will focus on microbiological concerns of the international community and will include speakers from Europe, Australia, South America, and North America. Topics will include the implications of microbiological concerns of different countries in international trade, and industry and government perspectives on microbial pathogens such as *Listeria*, *Campylobacter*, and *Escherichia coli* O157:H7. In addition, ILSI-NA will sponsor a research paper session which will include presentations by several prominent scientists studying *Listeria*, *E. coli* O157:H7, and biofilms. This, together with ten "state-of-the-issue" symposia organized by the IAMFES Program Committee and a full complement of food safety-related research papers makes this meeting one you won't want to miss.

For graduate students, a \$300 award for the best paper presented at the poster session has been added to the Developing Scientist Award competition. In addition, several of the monetary awards for those participating in the oral presentations' competition have been increased. All students selected to compete for a Developing Scientist Award are winners by receiving a one-year membership in IAMFES.

Plan to join us in Atlanta for IAMFES '93, and bring your family. Our hotel accommodations are among the finest in Atlanta and the social activities can be enjoyed by the entire family. Mark your calendar now for August 1-4, 1993. Atlanta has something for everyone!

On My Mind . . .



By
Steven K. Halstead, CAE
IAMFES
Executive Manager

is the Toronto meeting....

Beginning on page 765, you will find a recap of the 1992 IAMFES Annual meeting. I would like to add my observations and reflections on that meeting.

- How does one say thanks to the Ontario Food Protection Association and Michael Brodsky in particular for all their work? What a neat bunch of people who really did everything humanly possible to make sure that the meeting went well. It did. Thanks, Michael and Thanks OFPA!

- My fourteen year old is going through a growing spurt which is accompanied by a phase in which he eats anything that gets close to his mouth. Coming back from the ballgame on Tuesday night, he wanted to buy a hotdog from one of the street vendors. When he wondered aloud to me if it was safe to eat, I knew that if we could sensitize him to food safety, there was hope that we could sensitize anyone!

- My Kansas City Royals were able to keep their string intact. After losing to the Blue Jays during the 1989 IAMFES meeting in Kansas City, the Royals lost again during this meeting. Two out of Two. How's that for consistency?

- Perhaps the most outstanding thing about the ballgame was the stadium. The Skydome is almost worth the price of admission by itself. Just as George Brett struck out in the top of the ninth inning to end the ballgame, the dome "slammed" shut. Wow, talk about drama! It wasn't until much later that I found out how rare the event was. Most season ticket holders have never seen it! We were told that it takes over a half hour to close the dome and that it costs \$500—\$5 for electricity and \$495 for the person who makes sure everything goes right. Overtime I suppose. I wonder if he/she has to buy a ticket to the ballgame?

- As the scoreboard was welcoming various groups to the game, it flashed a big welcome to IAMSES. We all wondered what the new "S" stood for. There were suggestions, of course.

- On several occasions, I have talked about how cosmopolitan Toronto seems to be. It really came home to me while riding on the elevators. The variety of languages I

heard there really impressed me. I had not seen anything like it in my visits to Washington, DC, New York City, or Chicago. If you missed our meeting, head for Toronto anyway. You owe it to yourself to see this beautiful, friendly, clean, modern city. Can you tell that I am in love with Toronto?

- Each year at the Annual Meeting, we change the people on the IAMFES Executive Board. This year, Past President Bob Sanders went off the Board and was replaced by Damien Gabis. Although we will miss Bob and his contributions very much, his departure was expected. We had not

expected to lose Ron Schmidt as the Affiliate Council Chairperson. Ron's predecessor had served on the Board for three years and we had thought that Ron would do the same. However, the crush of his teaching

and research load demanded that he give something up. I will miss Ron's humor and thoughtful contributions.

- At the same time, we welcome two new faces to the Board, Secretary Ann Draughon and Affiliate Council Chairperson Ruth Fuqua. Both are outstanding additions and we look forward to working with them.

- You may not have noticed it, but there was a great deal of cooperation demonstrated at the meeting. The New York State Association of Milk and Food Sanitarians provided the slide projectors and the overhead projectors while Dan Fung's graduate students from Kansas State operated them. The NYSAMFS also acted as session hosts. All Anna Lammerding (the OFPA Audio Visuals Coordinator) had to do was . . . coordinate all this!

- And finally, I would like to thank Mark Banner and the Program Advisory Committee for their tremendous work. You may not know it, but this group started work at the meeting in Louisville; met again in Chicago in January and finished their work about the end of March. The outstanding (words hardly do justice to its quality) program was the result of their efforts on your behalf. By the time the meeting rolls around, their work is finished and they simply stand in the wings and watch it happen. Let's bring them out of the wings and show them our appreciation. Extremely well done, folks!

The success of this meeting was the result of the efforts of many people — in particular Michael Brodsky, Mark Banner, the PAC, the IAMFES Officers, the Staff, and the Foundation Fund, the Ontario Food Protection Association, NYSAMFS, Dan Fung's graduate students, the speakers, and everybody who attended.

Food Safety in Child Care Facilities

Julie A. Albrecht¹, Ph.D., Susan S. Sumner², Ph.D., and Alice Henneman³, M.S., R.D.,

¹Extension Food Specialist and Assistant Professor, Dept. of Nutritional Science and Hospitality Management,
202 Ruth Leverton Hall, University of Nebraska-Lincoln, Lincoln, NE 68583-0807

²Extension Food Microbiologist and Assistant Professor, Dept. of Food Science and Technology,
356 Food Industry Building, University of Nebraska-Lincoln, Lincoln, NE 68583-0919

³Extension Agent, Lancaster County Cooperative Extension,
444 Cherrycreek Road, University of Nebraska-Lincoln, Lincoln, NE 68528-1507

Young children are particularly susceptible to diseases associated with foods. Infants and children are vulnerable due to the fact that they have underdeveloped immune systems and they are not in control of their food preparation. With increases in the number of mothers of small children working outside the home, commercial child care facilities and private child care homes are also increasing. It is estimated that 10.5 million children under age 6 have mothers that work outside the home (Dirige et. al., 1991). Most of these children are under the supervision of a child care provider. While at a child care facility, most of these children eat at least one meal.

The food handlers in child care centers are responsible for providing safe food to children. Child care providers are exposed to many situations which represent food related risks. One incident of improper food handling by a child care provider has the potential of affecting many children who are at risk for foodborne illnesses.

Foodborne outbreaks have been estimated to be as high as 5 million per year with estimated costs between \$1 to 10 billion in terms of medical costs, loss of productivity, and product loss through recall by the manufacturer (Zottola and Smith, 1991). Limited data on the actual number of children involved in foodborne outbreaks is available. The largest reported outbreak of *Campylobacter* was associated with the consumption of raw milk, and resulted in illness among 2500 school children (Stern and Kazini, 1989). During 1991, 202 cases of hepatitis were reported in Nebraska; many involved child care facilities (Nebraska Department of Health, 1991). One foodborne outbreak incurred by children in a child care setting could result in additional costs, such as increased child care costs, absence from work by the healthy working parent(s) and loss of income to the child care provider (temporarily and possibly, long term).

Approximately 80% of reported foodborne outbreaks occur from foods consumed at retail food and restaurant operations. The remaining 20% of the reported outbreaks occur from food prepared and consumed at home. It is estimated that many cases are unreported or are misdiag-

nosed as the flu (Bryan, 1988). Numerous factors which contribute to foodborne outbreaks from food prepared in food service establishments have been identified (Bryan, 1990). These factors are improper cooling which includes leaving cooked foods at room temperature and storing foods in large containers in refrigerators; lapse of 12 or more hours between preparation and eating; colonized/infected persons handling foods; inadequate reheating; improper hot holding; contaminated raw foods/ingredients; foods from unsafe sources; improper cleaning of equipment and utensils; cross contamination from raw to cooked foods; and inadequate cooking.

Child care facilities exist in commercial facilities and in private homes. Factors which have been reported as causes of foodborne outbreaks also are critical for food handlers in child care facilities to provide safe meals and to prevent foodborne illnesses. As the number of child care facilities increase, the potential for foodborne illness outbreaks also increases.

Commercial child care facilities are subject to inspection by local or state health agencies. In contrast, many child care providers which operate in private homes have limited screening or inspection by a regulatory agency. In Nebraska, a "staff person responsible for menu planning shall obtain at least 4 clock hours of training in the area of nutrition and food service during the first year of employment" (Nebraska Department of Social Services, 1984).

A recent survey of child care providers indicated a need for nutrition education, including improving food safety (Dirige et. al., 1991). From their survey of child care providers, 61 percent of the respondents were interested in food safety education. In another survey of food service in child care centers, administrators and staff not trained in food service carried out these food service responsibilities as secondary assignments (Pond-Smith et. al., 1992). As a result, the authors stated that the non-foodservice staff lack the knowledge and commitment to quality foodservice; which in turn, contributes to problems in nutrition, sanitation, and foodservice management. The American Dietetic Association position statement on nutrition standards on day-care programs for children states that day-care centers must comply with local and state regulations related to wholesomeness of food, food preparation facilities, food

Published as paper No. 10058, Nebraska Agriculture Research Division, University of Nebraska. This article is based on a project supported by the University Nebraska Extension and Service Council.

Order your complete set of
**3-A Sanitary Standards and
 Accepted Practices Today.**

To Expedite Your Order,
 Use a Credit Card, Complete this
 Form and **FAX to IAMFES at:**
515-276-8655

For More Information,
 call **IAMFES at:**
800-369-6337 (U.S.)
800-284-6336 (Canada)
515-276-3344 (International)

3-A SANITARY STANDARDS AND ACCEPTED PRACTICES

The Complete book of 3-A Dairy and E-3-A Egg Sanitary Standards and Accepted Practices is available from the IAMFES Office. These standards detail the design, materials and fabrication of dairy and egg processing equipment to assure proper cleanability and sanitation.

Standard Sets Available

Price per Set

3-A Dairy Sanitary Standards	IAMFES Member: \$33.00	Non-Member: \$49.50
E-3-A Egg Sanitary Standards	IAMFES Member: \$28.00	Non-Member: \$42.00
Both Sets Combined	IAMFES Member: \$48.00	Non-Member: \$72.00
3-A Five Year Update Service	IAMFES Member: \$44.00	Non-Member: \$66.00

(add \$3.25 shipping charge for each item ordered, Outside the U.S., add \$8.25 shipping per item.)
 To Order, call Sue at 800-369-6337 (U.S.) or 800-284-6336 (Canada), or complete and return this card, with payment, to IAMFES.

Name _____		Company _____		Street Address _____	
City/State/Zip _____		Phone _____			
Qty. ____	Item: _____	Price: _____	Shipping: _____	Total: _____	
Qty. ____	Item: _____	Price: _____	Shipping: _____	Total: _____	
Qty. ____	Item: _____	Price: _____	Shipping: _____	Total: _____	
TOTAL AMOUNT ENCLOSED: \$ _____					
Or Charge To: VISA MASTERCARD AMERICAN EXPRESS (circle one) _____ US FUNDS US BANK					
CARD # _____		EXP. DATE _____		SIGNATURE _____	

IAMFES Members

INVITE A COLLEAGUE TO JOIN THE ASSOCIATION

You, as a member of IAMFES, can contribute to the success of the Association and the professional advancement of your colleagues by inviting them to become a part of IAMFES. On your behalf, we would be happy to send a colleague a membership kit, including complimentary copies of *Dairy, Food and Environmental Sanitation* and the *Journal of Food Protection* and an invitation to join IAMFES. It's easy, just fill in the following information and return this card to IAMFES. (Please Print)

Name: _____ Company: _____

Address: _____ City: _____

State/Prov.: _____ Zip: _____ Phone: _____

Your Name: _____ Your Phone: _____

**WHEN ORDERING, PLEASE PLACE THIS CARD
IN AN ENVELOPE, WITH YOUR PAYMENT.**

RETURN TO:

IAMFES, INC.

200W MERLE HAY CENTRE

6200 AURORA AVE.

DFS
11/92

DES MOINES, IA 50322 USA

OR FAX TO 515-276-8655

**FOR MORE INFORMATION, CALL
800-369-6337 (U.S.) OR 800-284-6336 (CANADA)**

Place
Stamp
Here

DFS
11/92

IAMFES

**200W Merle Hay Centre
6200 Aurora Ave.
Des Moines, Iowa 50322**

safety and sanitation (Farthing and Phillips, 1987a). Compliance with the regulations in each state was stressed. Public health sanitarians were suggested as a source of information on safe, sanitary foodservice in child care facilities (Farthing and Phillips, 1987b). The authors of this position paper recommended that foodservice staff members be trained to plan, prepare and serve nutritious, sanitary food in child care programs. Sanitarians in many states are overloaded with inspection responsibilities and time for education programs is limited. Cooperative Extension, in cooperation with regulatory agencies, has a food safety priority initiative and personnel with expertise to deliver educational programs to food handlers.

Education Program

With the critical need for safe food handling in child care facilities in mind, the authors developed and conducted an educational program with a group of child care center food handlers. The program targeted techniques for improved safe food handling such as food storage, food handling practices, and stressed important practices particular to child care center food handlers. The educational program included experiential activities, a slide presentation on food safety and quality, and support materials for implementing safe food handling practices in child care centers.

The program included the development of the following materials:

1. A modular slide set with a core module which included basic information on safe food handling; two additional modules were developed to address specific food safety practices for child care providers and senior citizen center providers.
2. Educational experiential activities; use of a Glo-Germ® kit (Anon, 1990) to demonstrate the importance of handwashing, food safety quiz.
3. A food safety/food storage poster for placement in the child care center kitchen as a constant reminder of proper food handling techniques; a poster was obtained from the Egg Council on egg safety.
4. A food labeling system for child care center pantry rotation.
5. Thermometers for maintaining proper storage temperature for refrigerators and for checking proper food temperatures.

Program Evaluation

At the end of the educational program, participants provided an immediate evaluation. Follow-up impact evaluation was conducted in the following manner: At the end of the educational session, participants were asked "As a further service, we would like to give you a call in approximately 3 months to discuss any concerns you may have regarding food handling practices in your center; when would be an appropriate time to contact you?" Participants were conducted by phone three months after the training session to measure the impact of the program. Questions addressed implementation of food safety techniques covered in the educational program.

The targeted audience, child care center food handlers, is a relatively small but critical group in providing a safe

food supply for children, a population at high risk for foodborne illnesses. Demographic data of the program participants is given in Table 1. Approximately one half of the participants were between 31-55 years of age. The majority of the program participants had some education beyond high school. The impact of changing to safer food handling practices is evident in the number of meals prepared and served by the child care facility food handlers (Table 1). A total of 2542 meals/snacks were reported served by the 29 participants; on the average 88 meals/snacks were served per person daily.

Table 1. Demographic data of child care workshop participants.

Number of Participants	29
Number of Centers Represented	17
Age of participants	
19-30	5
31-55	12
Over 55	3
No response	9
Education Level	
Less than high school	1
High school graduate	1
Some college/vo-tech	10
College graduate	8
No response	9
Number of children served for:	
Breakfast	658
A.M. Snack	190
Lunch	891
P.M. Snack	803
Dinner	0
Total	2542

A food safety quiz was given to the participants before the educational program was conducted. The questions were based on unsafe food handling practices reported by Bryan (1990).

The questions measured the food handling knowledge of the participants. Responses to select questions (Tables 2 and 3) indicate that several unsafe practices may be occurring in child care facilities if the participants are carrying out the practices indicative of their knowledge base. The majority of the participants incorrectly answered questions which dealt with eating raw eggs, either in cookie dough or a beverage. If this knowledge is translated to practices in child care homes, a large number of children may be at risk of foodborne illness due to possible *Salmonella* contamination in raw eggs.

Approximately one-fourth of the respondents incorrectly answered the proper cooling question and about 40% did not correctly answer the adequate reheating question. If transferred to practices, again children are placed at risk for foodborne illness.

Three questions focused on appropriate temperatures for food storage, and reheating or holding foods. Most of the respondents (90%) answered either the correct or more conservative temperature.

Proper handwashing techniques were covered in the educational program and reinforced by the use of the Glo-Germ® kit (Anon, 1990). Participants applied the Glo-Germ® solution to their hands and viewed them under an ultraviolet light before and after washing.

Table 2. Assessment of child care food handlers knowledge of safe food handling practices.

Food Safety Question (Concept)	Percent of respondents who answered:			
	Correct Answer	True (%)	False (%)	No Answer (%)
Persons who have a cold or flu should not prepare salads in food service kitchens. (colonized/infected persons handling foods)	True	93	7	
Raw cookie dough is safe for young children to eat. (food from an unsafe source, inadequate cooking)	False	86	14	
Orange Julius drinks made with raw eggs are safe to drink. (food from an unsafe source, inadequate cooking)	False	79	21	
An acrylic cutting board is safer than a wooden cutting board. (proper equipment/ utensils)	True	93	7	
Leftover stew should be cooled to room temperature before refrigerating it for later use. (improper cooling)	False	24	72	4
Hands should be washed with warm soapy water for 20 seconds after changing a baby's diaper. (colonized/infected persons handling foods)	True	83	17	
Leftover chili only requires warming before eating. (inadequate reheating)	False	38	62	
Mayonnaise in salads is the cause of foodborne illness. (misinformation)	False	79	17	4

Table 3. Knowledge assessment of selected food handling practices of child care food handler

Food Safety Question (Concept)	Percent of respondents who answered:			
	Very Risky (%)	Moderately Risky (%)	Slightly Risky (%)	Not Risky (%)
Baby formula in a bottle leftover from one feeding can be left out of the refrigerator and used for the next feeding. (improper cooling, cross-contamination)	76	10	14	0
Meatballs can be mixed, shaped, and refrigerated a day before use in spaghetti. (lapse of 12 or more hours between preparation and eating)	14	38	34	14
Baby food can be eaten directly from the jar, resealed, and refrigerated for later use. (cross-contamination)	72	17	4	7
Corn from a dented can may be used in a casserole. (food from an unsafe source)	52	31	10	7

At the end of the program, participants were asked what changes they will make as a result of the program. Response categories were:

- use of smaller containers to refrigerate foods
- improve hand washing techniques
- check food temperatures
- require purchased treats when brought by parents
- stiffer sanitation measures
- improve food service by limiting handling of the food to one person, use of gloves or purchase tongs
- handling eggs properly

Participants were asked what new information they learned or what practices were reinforced. Response categories were:

- proper handwashing techniques
- food safety temperatures
- foodborne illness
- cross-contamination
- personal hygiene
- unsafe sources of food, ie. dented cans, egg handling

- sanitation/cleaning practices
- proper refrigeration and cooling foods
- use of cutting boards

Several participants provided weekly menus from their centers during the nutrition program held for these same child care center food handlers. The menus provided an insight into the types of foods prepared and the potential food handling/food safety problems that could occur. Many of the noon meals consisted of casserole/mixed dishes which include either hamburger, ham, chicken or tuna. Soups, stews and sandwiches also were common. Vegetables were usually cooked and fruits were often canned products, although tossed salads and raw fruits and vegetables were served. Eggs or egg dishes were seldom served. Most of the foods prepared were in small bite sizes or could be eaten as finger foods. Considerable handling would be involved with these types of foods. In addition, casserole-type dishes, soups and stews could be subject to temperature abuse.

Follow-Up Evaluation

Participants from 13 of the initial 17 centers were available for the three month follow-up evaluation. At the educational meeting, each center was provided with a thermometer, food safety poster, food labels for storage, and a set of handouts. During the follow-up interview, participants were asked if and how they used these items. (Table 4).

Table 4. Use of Food Safety Materials Provided at the Workshop

	Number of participants who answered:	
	Yes	No
Thermometer	8	5
Poster	11	2
Labels	6	7
Handouts	9	4

Most of the center participants hung the poster in their center. The thermometer was mainly used for monitoring the temperature of the refrigerator. Those who used the labels used them for leftovers. The information from the handouts was shared with employees; many shared the information with clients (parents), friends and relatives. The information they stated that they shared was on sanitation/cleaning, egg handling practices, and handwashing techniques.

Twelve of the 13 respondents made changes in their centers as a result of attending the educational program. The changes include:

- proper handwashing techniques
- checking temperatures more often/proper reheating
- purchased tongs and/or use plastic gloves
- changed thawing procedure to refrigerator or microwave rather than on the counter
- transfer baby food from jar to bowl
- require treats brought by parents to be store purchased
- use smaller/shallower containers for food storage

Implications

From the results of our workshop evaluations, we recommend the following for educational food safety workshops for child care food handlers:

1. Involve participants in experiential activities such as a quiz, and the Glow-Germ®
2. Give specific examples of safe food practices in child care settings via a slide presentation
3. Provide support materials such as handouts, food safety posters, thermometers for participants to utilize in their centers

From the brief assessment of food safety knowledge of child care center food handlers, these personnel carry out

unsafe practices that could contribute to foodborne illness outbreaks reported by Bryan (1990). This educational food safety program targeted to child care food handlers helped change their food handling practices.

Acknowledgments

The authors would like to thank Kay Rockwell, Extension Program Evaluation Specialist for her help in developing the evaluation instruments and Jennifer Segal for conducting the follow-up telephone interviews. Funding for this project was provided by the Nebraska Extension and Service Council.

References

- Anon. 1990. Germs you can see. Glo-Germ Company, Moab, Utah.
- Bryan, F.L. 1990. Hazard Analysis Critical Control Point (HACCP) systems for retail food and restaurant operations. *J. Food Prot.* 53:978-983.
- Bryan, F.L. 1988. Risks of practices, procedures and processes that lead to outbreaks of foodborne disease. *J. Food Prot.* 51:663-673.
- Dirige, O.V., A.C. Oglesby, and B.Z. Bassoff. 1991. An assessment of the nutrition education needs of day care providers. *J. Amer. Dietet. Assoc.* 91:714-715.
- Farthing, M. C. and M.G. Phillips. 1987a. Position of the American Dietetic Association: Nutrition standards in day-care programs for Children. *J. Amer. Dietet. Assoc.* 87:503.
- Farthing, M. C. and M.G. Phillips. 1987b. Nutrition standards in day-care programs for Children: Technical support paper. *J. Amer. Dietet. Assoc.* 87:504-506.
- Nebraska Department of Health. 1991. Personal communication.
- Nebraska Department of Social Services. 1984. Minimum Regulations for Day Care Centers. Nebraska Department of Social Services, Lincoln, NE 68509.
- Pond-Smith, D., Richarz, S.H., and Gonzalez, N.L. 1992. A survey of foodservice operations in child care centers in Washington State. *J. Am. Dietet. Assoc.* 92:483-484.
- Stern, N.J. and S.U. Kazini. 1989. In. M.P. Doyle (Ed.), *Foodborne Bacterial Pathogens*, Marcel Dekker, Inc., New York.
- Zottola, E.A. and L.B. Smith. 1991. The microbiology of foodborne disease outbreaks: An update. *J. Food Safety* 11:13-29.

The National Advisory Committee on Microbiological Criteria for Foods: Future Directions

H. Russell Cross, Administrator, Food Safety and Inspection Service,
U. S. Department of Agriculture, Washington, DC 20250

This paper was presented as part of the symposium "Activities of the National Advisory Committee on Microbiological Criteria for Foods Symposium" at the 79th IAMFES Annual Meeting in Toronto, Ontario, July 28, 1992.

The work of the National Advisory Committee on Microbiological Criteria for Foods is critical to improving the microbial safety of all foods. For the future, we intend to make full use of the committee's expertise as we strive to make food even safer.

One priority is to encourage all food manufacturing plants to adopt the prevention-oriented Hazard Analysis and Critical Control Point (HACCP) system, and for the Federal government to define the role of regulatory agencies within a HACCP system.

Another priority will be to ensure we have the microbiological data to make important regulatory decisions. No changes should be made unless they can be justified in this manner.

A third priority will be to ensure we are placing our resources where the greatest risks to the public health may be found. This will involve assessing and managing food safety risks — a big challenge in itself.

The National Advisory Committee on Microbiological Criteria for Foods will play a major role in helping the Federal government meet these challenges.

It's a pleasure to participate in your symposium. IAMFES is to be commended for serving as a forum through which important public health issues can be identified and debated. It also is a pleasure to follow this distinguished panel, which provided an excellent update on the progress of the National Advisory Committee on Microbiological Criteria for Foods.

Although I have been administrator of the Food Safety and Inspection Service for a relatively short time, I am impressed with the committee's professionalism, its progress, and with the important role it serves in our overall mission of protecting the public health. Over the past four years, the Committee has provided recommendations to the Departments of Agriculture, Health and Human Services, Defense, and Commerce on a number of critical microbiological food safety issues. While the recommendations cover a wide variety of areas, from refrigerated thermally processed foods to fresh meat and poultry and from *Listeria monocytogenes* to HACCP, a basic theme runs throughout

— that we must use good science to reduce food safety risks.

The work of the Committee is particularly important considering the priority the Federal government is giving to food safety and, specifically, to the microbial safety of all foods. We know that microbial contamination is the number one risk to the safety of the food supply, and our priorities reflect this. Establishing this priority is the easy part, however. The hard part is to develop practical recommendations based on good science that can be implemented in a regulatory program.

Future of the National Advisory Committee

We have a difficult job ahead of us. That is why, today, I want to affirm my commitment to this Committee and its continuing work. For the future, we want to make sure we are using the Committee to our fullest advantage. Our new director of Microbiology, Dr. Ann Marie McNamara, has been nominated to serve on the Committee as a link between the Committee and the interests of the agency. This link is vitally important to ensure that the Committee's work is focused as clearly as possible on our greatest public health needs.

Directions for the Future

We have a lot of work ahead of us to improve the microbial safety of the food supply. For example, one of our priorities is to build on our successes with the Hazard Analysis and Critical Control Point (HACCP) system. We know that HACCP is essential to good manufacturing operations, and we would like to see all food manufacturing plants adopt this prevention-oriented system. The Committee's recommendations on HACCP are critical to achieving this goal. We are particularly pleased that the Committee focused on the development of systems to prevent and control pathogenic microorganisms because that is our number one public health priority.

A challenge for the future will be for us as regulatory agencies to determine how we can best regulate a HACCP-

oriented industry. We hope the Committee will assist us in defining the role of regulatory agencies within a HACCP system. While HACCP has been around for a long time, its use as a regulatory tool is in its infancy.

Another challenge will be to continue the expansion of the HACCP concept to the farm, retail, and even to the consumer level. We heard that theme mentioned here today. We have had much HACCP activity at the Federal level, but we need to look at HACCP in a broader context than we ever have before in order to receive the full benefits. Today's discussion of basic HACCP for the consumer illustrates just how broad the HACCP concept must be applied.

At the other end of the HACCP spectrum are effective on-the-farm interventions to help reduce microbial contamination. This Committee is beginning to tackle this issue, and we are anxious for its input.

Another priority will be to ensure we have the microbiological data to justify our actions. For the future, we will use our own data coupled with credible data from other sources, including the industry, to make important regulatory decisions. As an example, we are beginning a new microbiological monitoring program to determine the microbiological profile of beef as an important first step before we make any future changes in our inplant procedures.

We also need more and better data on foodborne pathogens so we can be proactive in evaluating risks and developing effective food safety strategies. The data we are receiving from this Committee on *Campylobacter* is just one example.

A third priority will be to ensure that we are placing our resources — both money and people — where the greatest risks to the public health may be found. Do we need to inspect all food manufacturing operations with the same intensity, or can we do a better job at targeting our resources? Approximately sixty percent of our present inspection efforts address economic adulteration rather than the protection of public health. That must change.

Certainly we can do a better job, but effectively assessing and managing food safety risks is a formidable task. This is where the regulatory agencies may have the greatest role — in determining which recommendations from the Committee are the most cost-effective.

Closing

I guarantee we will use this Committee to help us answer these questions. At the same time, I want to emphasize the word "advisory" in the Committee's title. There are no right or wrong answers to these questions, and the regulatory agencies involved will have the final word on how the Committee's advice is used. This makes sense considering this advice must fit into a regulatory program that by nature has other constraints, including fiscal constraints.

We are committed to soliciting input from a variety of sources before we make future decisions. That means, in addition to advisory committees, we will seek input from other Federal agencies, academia, and the industry when appropriate. I'm sure you agree this is the best strategy we can follow to make the food supply even safer.

1992 IAMFES Exhibitor

Please circle No. 134 on your Reader Service Card

ATKINS

Thermometers

HACCP-Ready

Choose one of these thermometers to read hot and cold temperatures!

New Recorder-Thermometer



Scroll the display to read recorded data; use computer to print out!
Series 371 & 372
from \$395
Info Pak #303

New! $\pm 0.5^\circ$ Accuracy

including Platinum RTD reduced-tip needle. A temperature "Lab Standard".
Series 360
\$159
Info Pak #304



$\pm 1^\circ$ Accuracy

including thermocouple. Fast reading needle or surface temperature models.
Series 330
\$115-\$149
Info Pak #305
Kit available

All Made In Florida,
USA By Atkins

24 HOUR AUTO-FAXED INFORMATION:

- Call 1-800-888-1335
- Key in the Info Pak numbers you want
- Information will be immediately faxed to you!

OR CONTACT US AT:

Atkins Technical Inc.

Thermometer Manufacturing
Gainesville, FL USA
(904) 378-5555
FAX to (904) 335-6736
Attn: Dept. 306
Call 1-800-284-2842 EXT 306

New Terminology to Replace the U.S. RDA

Jonathan C. Allen, Assistant Professor,
Department of Food Science, North Carolina State University, Raleigh, NC

Introduction

The nomenclature that presently defines human nutrient requirements in the United States is often confusing, and may become more obscure with new additions to this vocabulary in the next few years. A professor in psychology with whom I talked recently was beginning to investigate the relationship between cognitive development and nutritional needs in third world countries. He had data on nutrient intake for his population, and had looked up the Recommended Dietary Allowances (RDA) for comparison. These gave him a breakdown of requirements by age and sex. For his analysis, this professor really wanted a single set of numbers for comparison with his intake data, much like we see with the U.S. RDA on food packages. His question to me was, "When there are so many categories of requirements, why do I see only one set of numbers on the back of a package?" I responded that the U.S. RDA as seen on a package represents the highest values selected from the group of allowances. Those numbers were not meant to represent a required intake and therefore are an inappropriate standard with which to compare nutrient intakes of a population.

To many people, the purposes for the different standards are not clear. This article will attempt to provide a basic comparison among the various nutritional recommendations, those we use now and those proposed for use in nutritional labeling in the future. The discussion will cover differences among the existing terms, RDA, and U.S. RDA, and the new terms, RDI, DRV and Daily Values. These last three terms are part of the proposed regulations from the Food and Drug Administration (FDA) (FDA, 1991; FDA 1990) in response to the Nutrition Labeling and Education Act of 1990 (Pub. L. 101-535.) The regulations are likely to be finalized in November of 1992, and food labels will have to reflect the changes six to eighteen months later.

RDA (Recommended Dietary Allowance)

Recommendations on dietary intake for various subgroups of healthy Americans were produced by a highly selected committee of nutrition scientists reporting to the National Research Council (NRC) of the National Academy of Sciences (NRC, 1989a). The recommendations have been updated according to advances in understanding of nutrient requirements every five to ten years since the first publication in 1943.

¹Presented at a workshop, "Food Labeling in Light of Proposed Regulations", January 15-16, 1992, North Carolina State University, Raleigh, NC.

The current and latest edition, the *10th Revised Edition of the RDAs*, was published in 1989. The book is subtitled as the "Most Authoritative Source of Information on Nutrient Allowances for Healthy People", which reflects its impact. Although the book contains about 270 pages of text, most people only look at a few tables. The Recommended Dietary Allowances for eighteen age-sex categories of people are listed in one large table. For some nutrients there is insufficient scientific data on which to base the RDA. Those are listed under the Table, "Estimated Safe and Adequate Daily Dietary Intakes" (ESADDI). People consuming nutrients within these ranges show neither symptoms of deficiency nor toxicity. The book contains other tables for energy intake and electrolytes.

The RDA is a nutrient intake adequate to meet the needs of nearly all healthy Americans. "Nearly all" is defined as those people with a requirement less than 2 standard deviations above the mean of the population, where the population has a normal distribution significantly greater than zero (see Figure 1). (The RDA for energy is set at the population's mean.) Thus for most people, the RDA is greater than their requirement, because of the safety factors built into its calculation.

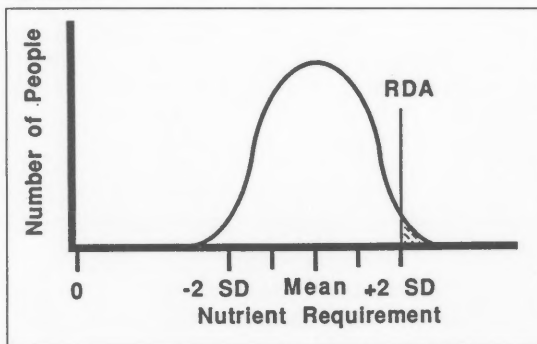


Figure 1. Normal distribution of a nutrient requirement among the population. The vertical axis shows the number of people, or percentage of the population whose requirement for the nutrient is equal to the level on the horizontal axis. To meet the requirement for most of the population (unshaded area under the curve) while avoiding possible toxicity, the RDA is set approximately 2 standard deviations above the mean nutrient requirement of the population.

Another way of looking at the safety factors of the RDA is by comparing the intake of breast-fed infants with the RDA for certain nutrients. The solid lines in Figure 2 show a 95% confidence interval and mean intakes of energy, protein, calcium and magnesium by a group of healthy,

totally breast-fed infants throughout lactation (Allen et al., 1991). The straight dashed lines show the RDA for the first and second six months of life (NRC, 1989a). These RDAs were previously determined based on assumptions about breast milk composition, the quantity consumed, and that the nutrient requirements of breast-fed infants are met by their intake. The safety factors that account for the difference between the assumed intake and the RDA are shown for calcium and magnesium (Figure 2C, 2D). For energy and protein (Figure 2A, 2B), the NRC recognized that intake should be proportional to body weight, and suggested factors for calories of energy and grams of protein per kilogram of body weight that change abruptly at six months of age. The suggested intakes using these factors do not closely match the patterns of actual intakes of breast-fed infants, suggesting that requirements change over time due to factors we do not yet understand. The single recommended value for the amount of each nutrient to consume daily represents a further simplification of what we know about requirements. However, such simplifications are necessary to make the RDAs useful for diet planning and evaluation. The point of this illustration is to show that the RDAs will normally exceed the nutrient requirements of most people in the population because of the assumptions and factors used in their calculation.

Is the RDA useful for populations or individuals? The committee states that the recommendations are for the intake of the population. Others argue that because the requirement for the population is based on data from individuals, individuals can use the RDA as their own requirement (Beaton, 1988). Each individual in the population probably requires less than the RDA. However, few people actually know their requirement for any nutrient. If they consume less than the RDA, there is a significant probability that they will not meet their requirement. By consulting the RDA, an individual can be 95% confident that he will have met his requirement. Most individuals don't care what the population requires: they want to know how much to eat to avoid a deficiency. Consuming an amount equal to the RDA for their age, sex and weight will meet the requirement of most people.

U.S. RDA (United States Recommended Daily Allowance)

The U.S. RDA was proposed in 1972 by the FDA; the final rule was adopted in 1973 (FDA, 1990). The purpose of this regulation was to create a single set of nutrient intakes adequate to meet the needs of nearly all healthy people. The values for the U.S. RDAs were based on the 7th Edition of NRC's *Recommended Dietary Allowances*, published in

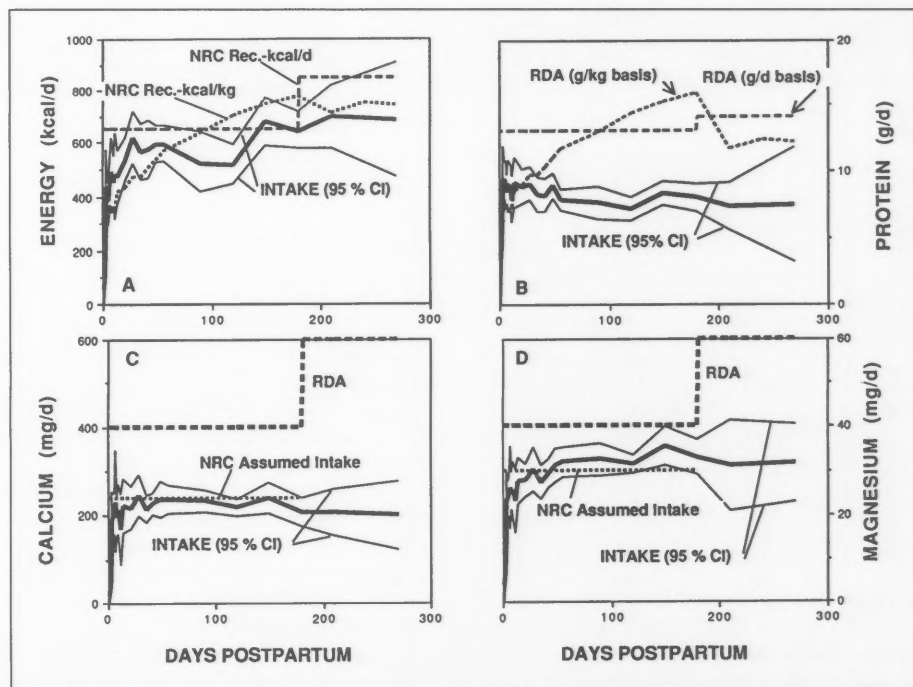


Figure 2. Daily intakes of nutrients by a group of 10 totally breast-fed infants over a 9-month period in comparison with the RDA. Intake data are from Allen et al. (1991). Solid lines show the mean (thick line) and a 95% confidence interval (thin lines) for the group's intake. The RDA for infants (NRC, 1989a) increases at 6 months of age. A. Energy, calculated from protein, carbohydrate and lipid intakes using 4, 4, and 9 kcal per g. There is no RDA for energy, but the NRC recommends intake as either 650 kcal/day for 0 to 6 months and 850 kcal/day for 6 to 12 months (long dashed line), or 108 kcal/kg body weight for 0-6 months and 98 kcal/kg body weight for 6-12 months (short dashed line, based on the weights of these infants). Unlike other nutrients, the recommended energy intake employs no safety factor. B. Protein. The RDA for protein is 13 g/day for 0-6 months and 14 g/day for 6-12 months (long dashed line) or 2.2 g/kg body weight for 0-6 months and 1.56 g/kg body weight for 6-12 months (short dashed line, based on the weights of these infants). C. Calcium. NRC assumed intake is the value for intake of breast-fed infants used in the calculation of the RDA (NRC, 1989a). Safety factors for lower absorption of other calcium sources and individual variability were used in this calculation. D. Magnesium. The percentage absorption is higher than for calcium, but other assumptions and calculations are similar.

1967, and have not been changed. The RDAs chosen to become U.S. RDAs were the maximum values from groups for which RDAs were set. The values came from the category of adult males for all nutrients but iron.

The terminology was designed to distinguish between U.S. RDA and RDI; i.e. the "United States Recommended Daily Allowance" implied something different from "Recommended Dietary Allowance." The FDA has been repeatedly asked to clarify the differences since adopting the U.S. RDA. There is generally poor consumer understanding of the differences between these terms.

The U.S. RDA was not designed to reflect the nutrient needs of individuals (or of the entire population), but was implemented as a useful means of comparing the relative contribution of various foods to the overall diet. In current nutritional terminology, it was meant to express the relative nutrient density of particular foods. This concept also is probably not well understood among consumers. Many people, such as the professor mentioned earlier, look to the values on the label as a guide to their intake or as the average person's intake, and assume they should consume 100% of the recommended amount daily.

The U.S. RDA also included values for biotin, pantothenic acid, copper and zinc, even though no RDA had been set by NRC. (Data for these nutrients were in the ESADDI table at that time.) In formulating the U.S. RDAs, the emphasis was placed on meeting nutrient requirements and preventing deficiencies. There was little awareness of the diet and health relationships concerning over-consumption in the early '70's.

RDI (Reference Daily Intake)

In the new labeling regulations, the FDA has proposed a terminology change from U.S. RDA to RDI in order to further reduce confusion between the RDA (from NRC) and U.S. RDA. The FDA's intended uses for the RDI are as a food labeling reference value, which was the original intention for the U.S. RDA. The RDI is not a dietary allowance for individuals, again like the U.S. RDA. However, the RDI will be a population-adjusted mean: these values could be used for evaluating intakes of a population, provided the population structure is similar to that from which the RDI was calculated. This is unlike the U.S. RDA. The RDI could be used for the purposes the professor needed, although the values are probably not applicable to people in underdeveloped countries.

The method of calculation for the RDIs will differ from that used for the U.S. RDAs. Most food labels will use the set of RDI values for adults and children four or more years old. There are 13 groups in this range in the RDA Table (NRC, 1989a). For each group, the FDA multiplied the values from the RDA table by 1990 census data to arrive at the total U.S. daily recommended allowance for each nutrient. These values divided by the U.S. population (1990 census) gives the RDI (see Table 1). A similar technique was applied to the ESADDI table to give RDI values for biotin, pantothenic acid, copper, manganese, fluoride, chromium and molybdenum. Chloride is a special case. In the 10th edition of the NAS' RDA, sodium, potassium and chloride

Table 1. Reference Daily Intakes (RDIs) for adults and children 4 or more years of age (FDA, 1990). Values are a population-adjusted mean RDA (NRC, 1989a), derived by summing the requirements for the U.S. population in each age-sex category of the RDA table to obtain the daily U.S. need (right column below), and then dividing by the population (232,373,000).

NUTRIENT	RDI Units	Daily US Need (kg)
Phosphorus	900.00 mg	209135.70
Calcium	900.00 mg	209135.70
Magnesium	300.00 mg	69711.90
Vitamin C	60.00 mg	13942.38
Niacin	16.00 NE 1	3717.97
Zinc	13.00 mg	3020.85
Iron	12.00 mg	2788.48
Vitamin E	9.00 TE 2	2091.36
Pantothenic Acid	5.50 mg	1278.05
Manganese	3.50 mg	813.31
Fluoride	2.50 mg	580.93
Copper	2.20 mg	511.22
Vitamin B6	1.50 mg	348.56
Riboflavin	1.40 mg	325.32
Thiamin	1.20 mg	278.85
Vitamin A	875.00 RE 3	203.33
Folate	180.00 µg	41.83
Molybdenum	150.00 µg	34.86
Iodine	150.00 µg	34.86
Chromium	120.00 µg	27.88
Vitamin K	65.00 µg	15.10
Biotin	60.00 µg	13.94
Selenium	55.00 µg	12.78
Vitamin D	6.50 µg	1.51
Vitamin B12	2.00 µg	0.46

1 One NE (niacin equivalent) equals 1 mg of niacin or 60 mg of dietary tryptophan.

2 One TE (alpha-tocopherol equivalent) equals the activity of 1 mg d-alpha tocopherol.

3 One RE (retinol equivalent) equals 1 µg retinol or 6 µg beta carotene.

were moved to a new table called "Estimated Minimum Requirements for Healthy Persons." In the previous (9th) edition, these electrolytes were part of the table of ESADDI. The new minimum requirement for chloride is 500-750 mg per day, compared with the earlier ESADDI of 700-5100 mg. In calculating the RDI, the FDA used the 9th edition table to calculate the population-adjusted means: 650 mg for infants, 1000 mg for toddlers, 3150 mg for adults and children four years or older, and 3400 mg for pregnant and lactating women.

The FDA notes that selenium, fluoride and chromium are not available in GRAS form for supplementation or fortification of foods, nor does creating an RDI value constitute a recommendation for such. The intended use of these numbers is only to express the content of these elements in foods.

RDI values have also been set for 3 other population groups. For 1-3 year-old children and for pregnant women, the existing RDAs will become the new RDI. For lactating women, the RDA for the first 6 months of lactation will be the values used for the RDI.

For protein, the U.S. RDA for adults was set at 45 g/d if protein quality, as measured by protein efficiency ratio (PER) was equal to or greater than the quality of casein. The U.S. RDA for protein was set to 65 g/d for proteins with PER less than that of casein. (Protein Efficiency Ratio is measured by growth rates of weanling rats fed the test protein,

relative to growth rate of rats fed casein.) The RDI for protein will be set at 50 g for adults and children four or more years of age, 16 g for children less than four, 14 g for infants, 60 g for pregnant women, and 65 g for lactating women, as calculated for other nutrients using the regular population-adjusted RDA values.

Protein Quality. In contrast to other nutrients, there is an additional step required for getting from the crude protein in the food to the Percent of Daily Value for protein that will be needed for the label. FDA originally planned to retain the PER method, and allow other methods, for measuring protein quality of foods. They would retain casein as the reference protein so as to calculate a relative protein quality value that was equal to the food's protein quality value relative to casein. However, during the initial comment period after announcement of proposed regulations, comments received by FDA and also published elsewhere (Young and Pellet, 1991), suggested that PER is an obsolete measurement of protein quality and suggested use of the Protein Digestibility-Corrected Amino Acid Score (PDCAAS) method. This method is the product of protein digestibility as determined from a rat balance study and an amino acid score taken against a reference pattern of amino acid requirements for preschool children (FAO/WHO/UNU, 1985). This approach is based on the ideas that protein is made from twenty different amino acids and that our protein requirement is actually a requirement for the nine essential amino acids that our bodies do not synthesize, plus a source of nitrogen for the non-essential amino acids that we do synthesize. To evaluate protein quality, each amino acid in the test protein is divided by the requirement for that amino acid. After surveying all essential amino acids this way, the lowest value is the Amino Acid Score. The essential amino acid in least supply relative to its requirement will set the limit for the amount of protein that can be synthesized. Other amino acids cannot be used in its absence.

The Amino Acid Score multiplied by the rat fractional protein digestibility gives PDCAAS (see Figure 3). In their proposed rules (FDA, 1991), FDA agreed to accept this method and proposed requiring the PDCAAS method for food proteins. The PDCAAS factor should be multiplied by the crude protein content of the food and divided by the RDI to derive the percentage of Daily Value for the label. This procedure is applicable for children over one year of age and adults.

Because the amino acid requirements for infants appear to differ from those of toddlers and adults, FDA recommends retaining the PER method, and to retain casein as the standard for expressing protein relative to RDI in foods to be used by infants.

The effect of these changes is that the rat will still be used as a model for digestion, but human amino acid requirements for growth and development become the standard rather than casein. The amino acid composition of casein is representative of a typical U.S. amino acid intake, but not of human amino acid requirements. Rat protein metabolism is not the same as human protein metabolism, particularly when comparing rapidly growing rats and slowly growing humans, although the process of digestion appears similar between these two species. The new procedure

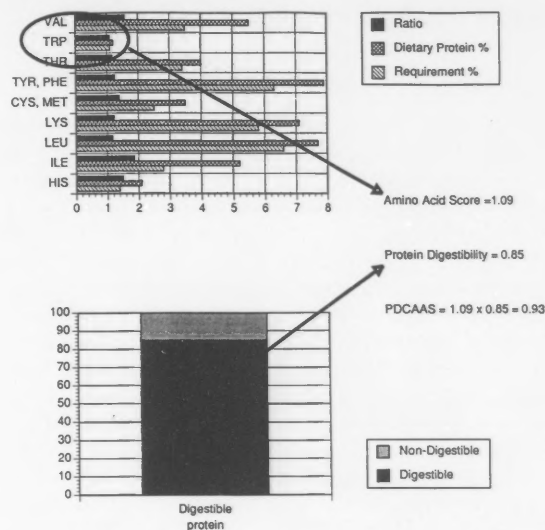


Figure 3. illustration of the two steps in the calculation of the Protein Digestibility Corrected Amino Acid Score (PDCAAS) for protein quality. The Amino Acid Score selects the lowest ratio of essential amino acid in the food protein to amino acid requirement (Top). Protein digestibility is measured in a rat balance trial (Bottom). The PDCAAS, the product of the two factors, is then multiplied by the crude protein content of the food to determine the grams of protein for the label.

promises to provide a more accurate measurement of protein content of a single food relative to human requirements, but it neglects the effects of complementary amino acids from different foods eaten together. We seldom eat only one type of protein food at a meal, and the limiting amino acid in one food may be supplemented by an excess of that amino acid in another food. Furthermore, PDCAAS does not remove the requirement for animals in testing, which has been a political motivation for moving away from the PER method of protein quality analysis.

DRV (Daily Reference Values)

In addition to RDIs, the FDA is proposing a second set of factors for nutritional evaluation of foods called Daily Reference Values (DRVs). DRVs are for nutrients related to health problems other than overt deficiency symptoms. The sources of recommendations for DRVs come from several recent publications (NRC, 1989b; DHHS, 1988; DHHS-USDA, 1990).

The purpose of including nutrients on this list is to establish a reference for the usefulness of food with respect to nutrients or non-nutrient components that have significant links to chronic disease. There are two groups of nutrients in this list. The first includes substances linked to caloric intake: fat, saturated fatty acids, unsaturated fatty acids, carbohydrate and fiber.

The reference caloric intake was calculated from the RDA Table (10th edition). The population adjusted mean intake was rounded to 2350 calories per day. (FDA chose to avoid the terms kcal or kilocalories). The purpose of this

value is for calculation of reference intakes for nutrients that contribute energy.

Lipids. Dietary fat is linked to risk factors for cardiovascular disease, such as high serum cholesterol. The consensus of the committees evaluating nutrition and health is that fat should not provide in excess of 30% of total calories, or 705 calories per day with a 2350 calorie diet. Using 9 calories per gram of fat and rounding down, the DRV is 75 grams of fat per day. (This is equivalent to the fat in approximately one half pound of cheddar cheese.) The general recommendation for intake of saturated fatty acids is not more than 10% of total calories, which rounds to a DRV of 25 grams per day. The FDA defines saturated fats as the sum of those fatty acids which have been most consistently linked to elevated serum cholesterol: lauric, myristic, palmitic, and stearic acids. The calculations assume the fatty acids are all present in the form of triglycerides.) This is a nutritional definition, not a chemical one, because a number of other fatty acids are saturated in chemical terms. However, there are nutritional studies that suggest that stearic acid should not be listed among the cholesterol-elevating fatty acids. Additional research is needed in this area before the FDA's definition of saturated fatty acids can be equated with the "unhealthy fats" in foods.

The FDA plans to require the term, "unsaturated fatty acids", on labels rather than polyunsaturated and monounsaturated fatty acids. Nutritional guidelines recommend 10% of calories come from monounsaturates and not more than 10% from polyunsaturates. The DRVs therefore recommend that 20% of total calories or 2/3 of fat be from unsaturated fatty acids. Their calculations round was reference to 50 grams per day. Unsaturated fatty acids are defined as the sum of all polyunsaturated and monounsaturated fatty acids, both *cis* and *trans* isomers. Although the DRVs do not distinguish mono- from polyunsaturated fatty acids, these may be declared voluntarily on the label. In contrast to saturated fatty acids, this is more a chemical definition than a nutritional one. Nutritional studies suggest that polyunsaturated fatty acids tend to lower serum cholesterol, whereas monounsaturates neither lower nor elevate this risk factor for cardiovascular disease. However, high levels of polyunsaturates, may be associated with diseases resulting from oxidative damage to lipids. Lumping these categories together in the DRVs ignores these distinctions.

Carbohydrates. The DRV for carbohydrate derives from the *Diet and Health* (NRC, 1989b) recommendation that 55% of total energy should come from carbohydrate. This amounts to 325 grams from a 2350 calorie diet, using 4 calories per gram of carbohydrate. The recommendation for 55% of calories from carbohydrates comes from the breakdown of calories fat, 15% from required protein, and the balance from carbohydrate. The dietary goal of 30% of calories from fat was chosen as an achievable, but not necessarily optimum, level. Healthy diets that are lower in fat could be higher in carbohydrates. There is little evidence that 325 g of carbohydrates in a 2350-calorie diet is healthier than some other amount.

Fiber. Few quantitative recommendations based on sound scientific studies are available for fiber intake, but FDA believes that consumers want this information on

labels. Recommendations in the publications cited above are in the range of 20-35 grams per day. To set a DRV for fiber, FDA rounded down from the midpoint of this range to 25 grams per day.

Sodium and potassium are the two non-calorie related nutrients in the DRVs. As with chloride, FDA ignored the minimum sodium requirement of 500 mg per day set in the 10th edition of the RDAs. Instead, they focused on the *Diet and Health* (NRC, 1989b) recommendation to limit intake of salt to 6 grams per day because of the association between sodium intake and hypertension. Because salt is 40% sodium, 2400 mg per day of sodium was set for the DRV. Similarly, the 10th edition of the RDA set a minimum potassium requirement at 2 grams per day. However, *Diet and Health* states that 3500 mg per day are associated with beneficial effects relative to hypertension, so the FDA set the DRV for potassium at 3500 mg.

To avoid confusion, it should be pointed out that the DRV for sodium is a level that should not be exceeded and the DRV for potassium is a goal that a healthy diet should approach. Similarly, the DRVs for total fat, saturated fat and cholesterol should be designated as maximum values, whereas changes in the average diet will be needed to increase fiber and carbohydrate intakes to the level of the DRV.

Daily Values

The FDA has proposed a list called "Daily Values" that is simply a combination of the RDI and DRV lists to simplify the label and the message to the consumer. This is the term that should be used on the label. Normally, the nutritional analysis of a food will be expressed as "Percent of Daily Value", and the number referred to will be the list for adults and children four or more years of age.

The purpose of this list of nutrients is to present the nutritional content of a food product in terms of a percentage of RDI and DRV on the label. The FDA agrees with comments it has received that using "Percentage of U.S. RDA" on the label is meaningless or confusing to consumers, so new labels will substitute what may be a simpler term, "Percent of Daily Value." At the least, using a term with whole words rather than an acronym should avoid some confusion. FDA believes one term (Daily Value) will be less confusing to consumers than two (RDI and DRV). The FDA invited comments on the term "Daily Value." Comments received suggest that some people relate value to cost, not to amount. Moreover, because of nutrient storage and homeostasis, it is not necessary that intake of nutrient requirements be met on a daily basis. Some averaging of daily intakes over time may be sufficient for many nutrients. Also, it is unfortunate that the FDA neglected to carry the word "reference" from RDI and DRV to the common term. That might have emphasized the point that these numbers are meant to be used for evaluation and comparison of foods, and not as an intake for any individual.

Conclusions

The U.S. RDA, based on the 1967 RDA table, selected maximum values for most nutrients, and guessed at others.

U.S. RDA values are greater than the nutritional requirements of almost all Americans. The proposed RDIs are based on the 10th (current) edition of the RDA table, and are population-adjusted for most nutrients. RDIs are still greater than the requirements of most Americans, because the RDA exceeds the true requirement for the average person in the group they were prescribed for. DRVs focus on nutrition and chronic disease relationships. They are maximum recommendations for some nutrients, and minimums for others. DRVs are less related to the requirements of individuals than are RDIs, for the reason that there are strong genetic components in the incidence of most chronic diseases. In contrast, if an individual is deficient in a particular vitamin or mineral, the enzymes that require that cofactor simply will not function.

Daily Values are the numbers needed for labelling. They combine the RDIs and the DRVs. The daily values are meant to serve the same purpose as were the U.S. RDAs. "The use of reference values as part of nutrition labeling serves to assist consumers in interpreting information about the amount of nutrient present in a food and in comparing nutritional values of food products. These values will assure that nutrition labeling is not misleading for lack of completeness. They provide a basis on which to judge the nutritional value of a food and its overall contribution to the daily diet" (FDA, 1990). Individuals should not attempt to consume amounts equal to the Daily Value. However, educating people to understand this will be an enormous task. Because many people will assume the Daily Value is their personal requirement, the population adjustment procedure used to calculate the RDI's make them a big improvement over the U.S. RDA for nutrition labeling.

However, U.S. RDAs have and Daily Values will continue to be used for wider purposes. Many opinions and pressures have contributed to the changes from U.S. RDA to Daily Values. Labeling foods with the DRVs will tend to make the recommendations of nutrition committees over the last decade into nutrition policy for the future. Few nutritional questions have simple answers. Implicit in the values for labeling are guidelines that have resulted from condens-

ing and simplifying current research on the health effects of the nutrients listed as DRVs, which is far from complete. The new terms are part of the first change in nutritional labeling in twenty years. Lets hope that nutrition policy in the future can be changed more rapidly as nutrition research provides more answers to today's questions. The nomenclature of nutritional recommendations may be confusing, but it is worth the effort for consumers to learn what these terms mean, to understand how they should be used, and to demand their further refinement and clarification in the future.

REFERENCES

- Allen, J. C., R. P. Keller, and M. C. Neville. 1991. Studies in human lactation. Milk composition and daily secretion rates of macronutrients in the first year of lactation. *Am. J. Clin. Nutr.* 54: 69-80.
- Beaton, G.H. 1988. Criteria of an adequate diet. In M. E. Shils and V. R. Young (eds.) *Modern Nutrition in Health and Disease*. (7th ed.), Lea and Febiger, Philadelphia.
- DHHS (Department of Health and Human Services) 1988. The Surgeon General's Report on Nutrition and Health, DHHS (PHS) Pub. No. 88-50210, U.S. Government Printing Office, Washington, D.C.
- DHHS - USDA. 1990. Nutrition and Your Health, Dietary Guidelines for Americans. Home and Garden Bulletin, No. 232, U.S. Government Printing Office, Washington, DC, 1990.
- FAO/WHO/UNU (Joint Food and Agriculture Organization/World Health Organization/United Nations University Expert Consultation). 1985. Energy and protein requirements. Tech. Report Ser. No. 724, World Health Organization, Geneva, Switzerland.
- FDA (Food and Drug Administration) 1990. Food labeling; Reference Daily Intakes and Daily Reference Values. Fed. Reg. 55:29476-29486.
- FDA (Food and Drug Administration) 1991. Food labeling; general provisions; nutrition labeling; nutrient content claims; ingredient labeling; state and local requirements; and exemption; proposed rules. Fed. Reg. 56:60366-60891.
- NRC National Research Council), Subcommittee on the 10th edition of the RDAs, Food and Nutrition Board, Commission on Life Sciences, NRC, 1989a, Recommended Dietary Allowances, (10th Edition). National Academy Press, Washington, D.C.
- NRC, Committee on Diet and Health, Food and Nutrition Board, National Research Council. 1989b. Diet and Health, Implications for Reducing Chronic Disease Risk. National Academy Press, Washington, D.C.
- Young, V. R. and P. L. Pellet. 1991. Protein evaluation, amino acid scoring and the Food and Drug Administration's proposed food labeling regulations. *J. Nutr.* 121:145-150.

Educational Foundation Honors British Researchers

Anna M. Snelling, Kevin G. Kerr and John Heritage, of the Department of Microbiology, University of Leeds, Leeds, Great Britain, recently received the 1992 Norbert F. Sherman Award from The Educational Foundation of the National Restaurant Association. The award is presented annually by the Foundation in recognition of an outstanding article on foodservice food protection selected from the *Journal of Food Protection* or *Dairy, Food and Environmental Sanitation*. The award honors the late Norbert F. Sherman, former treasurer of the Foundation and an advocate of improved industry standards in food protection.

The researchers were honored for their article, "The Survival of *Listeria monocytogenes* on Fingertips and Factors Affecting Elimination of the Organism by Hand Washing and Disinfection," published in the May 1991 issue of the *Journal of Food Protection*.

The article investigates the survival times of *Listeria* on human fingertips of unwashed, washed, and washed and sanitized hands. The presented results show that *Listeria* can survive for up to five hours and that simple handwashing with soap usually fails to decontaminate the fingertips.

These results indicate the importance of foodhandlers using thorough handwashing techniques with antibacterial agents. The article states that this observation could have serious implications for the food production, distribution and retailing industries.

This year's recipients were recognized at the 79th Annual Education Conference of the International Association of Milk, Food and Environmental Sanitarians in Toronto.

The Educational Foundation is the foodservice industry's leading trainer in food safety. More than 300,000 people have completed the Foundation's Applied Foodservice Sanitation course which was introduced in 1974.

For more information contact Susan Brophy at (800)765-2122, ext. 752.

Eric D. Bastian Joins Department of Food Science and Nutrition

Eric D. Bastian joined the Department of Food Science and Nutrition at the University of Minnesota, St. Paul, Minnesota, in August, 1992, as Assistant Professor. He came to the U of M from Utah State University, where he was a research associate. His prior experience includes a research associate position at the Danish

Government Research Institute for Dairy Industry, Hillerød, Denmark.

At Minnesota, he is developing teaching and research programs in the areas of cheese production, primarily in coagulation and ripening enzymes. He is interested in cheese made from ultrafiltered milk and in low-fat cheese technology.

Bastian, a professional member of IFT, the American Dairy Science Association (ADSA), and Council for Agricultural Science and Technology (CAST), received his Ph.D. and M. S. in Nutrition and Food Sciences, and his B. S. in Dairy Science, from Utah State University, Logan, Utah. He was elected to Phi Kappa Phi Honor Society in 1987 and 1989, and awarded second place in the graduate student paper competition at the annual meeting of ADSA, Edmonton, Canada, in 1988.

For more information contact Sybil Woutat, Coordinator, Department of Food Science and Nutrition, University of Minnesota, (612)624-1764.

Impact of ISO 9000 to be Discussed at Seminar in Chicago

A seminar to provide companies in the food industry with information to enter the potentially lucrative European market and to improve their own quality at the same time has been scheduled in Chicago, December 1-2, at the Embassy Suites, Airport O'Hare.

ISO 9000 — The Impact on the Food Industry will present the European experience through presentations by the staff of Leatherhead Research Association in England who have been assisting companies in adapting to these quality standards.

The American Institute of Baking is conducting this seminar in collaboration with Leatherhead Food RA and has assembled presenters with international trade experience to discuss these crucial standards. Many analysts predict that ISO 9000 will also become a standard for inter-company trade in the United States.

"ISO 9000 is being used by the European Economic Community to provide a universal framework for quality so that when European trade barriers come down with economic unification, there will be a common tool to ensure cross-border quality," explained Dr. William Hoover, President, AIB.

Dr. Hoover added that since these quality prerequisites are here to stay, the challenge is to make them pay off and to use them as a vehicle for implementing a basic quality program that can reduce costs and increase competitiveness.

Dr. Mark Kierstan, Director of Leatherhead Food RA, will keynote the seminar with his views of the

challenges and opportunities for U. S. firms in the European Community. Other specific topics discussed include quality certification, how to become a certified manufacturer, auditing procedures, introducing ISO 9000 to a new site, and developing and implementing corrective action programs.

Case studies of how companies are meeting these ISO 9000 standards will also be presented as well as an analysis by Morton E. Sosland, Milling and Baking News, of the affect of ISO 9000 on world trade.

"Members of the ISO 9000 Registrar Accreditation Board will be meeting concurrently at the same location giving participants the opportunity to meet them during the social hour at the conclusion of the seminar's first day," Dr. Hoover added.

Tuition fees are \$575 per participant. For further information write to the Registrar, American Institute of Baking, 1213 Bakers Way, Manhattan, Kansas 66502 or call (913)537-4750 or (800)633-5137.

Recycled Newspaper Gains Popularity as Animal Bedding

The number of Pennsylvania farmers using recycled newspaper as animal bedding is rising, according to a waste management specialist in Penn State's College of Agricultural Sciences.

Guy Temple, community development agent for Penn State Cooperative Extension in Union County, has conducted statewide surveys each spring for the past three years to track the use of newspaper bedding. Cooperative Extension agents from 54 counties responded to the 1992 survey by providing estimates of newspaper bedding use in their counties.

The data show that an estimated 1,217 dairy herds and more than 68,000 cattle were bedded with newspaper in 1992, up from 733 herds and 58,400 cattle in 1991. Farmers used newsprint bedding for an estimated 673 herds and 45,300 cattle in 1990.

"Newsprint has gained popularity among farmers because it's cost-effective bedding material that's absorbent, relatively dust-free and breaks down readily in soil," Temple says.

"Also, more communities are participating in recycling programs to conserve landfill space and they need markets for recycled newsprint. Providing newspaper for livestock bedding is an attractive option."

Costs to farmers for newsprint ranged from nothing to \$60 per ton, but most paid \$40 to \$50 per ton, not including shipping or transportation.

Besides the environmental benefit of increased recycling, using newspapers for animal bedding provides economic development and job opportunities. Thirty-six private firms in counties surveyed in 1992 were supplying chopped and baled newsprint for farm use.

Temple says farmers and solid waste authorities are using innovative strategies to help meet the market for

newspaper bedding, and more farmers are placing small trucks, sheds or trailers at the end of their lanes, allowing friends, neighbors and city residents to drop off newspapers.

Although newsprint as animal bedding shows great promise, Temple says more can be done. "We still need better systems for consistently getting newsprint to farmers in a usable form," he says. "If we can provide farmers with a steady supply of quality shredded paper, evidence indicates they will use the product."

For more information contact Charles D. Gill at (814)863-2713.

Over 2,200 People Attend American Association of Cereal Chemists Annual Meeting

Approximately 2,200 people attended the 77th American Association of Cereal Chemists Annual Meeting, September 20-23, in Minneapolis, Minnesota.

Ten percent of the attendees were from Austria, Australia, Belgium, Canada, Denmark, Dominican Republic, England, Finland, France, Germany, Hong Kong, Holland/Netherlands, Israel, Italy, Japan, Mexico, New Zealand, Peru, Taiwan, South Africa, Spain, Sweden, Switzerland and Venezuela.

These participants from the cereal science industry attended the technical program which included over 300 technical presentations. Topics addressed areas such as nutrition, flavor/additives, carbohydrates, milling and baking, protein, rheology, rice and engineering and processing. Also, a special symposium offered discussion on crisis in research: human and economic.

There were 280 exhibitors who introduced the latest technical innovations in equipment and services at the Table Top Exhibits. These exhibits also presented information on new products, ingredients, services and laboratory equipment at the new products/services sessions.

Approximately 160 spouses/guests participated in the spouse/guest program. This program included the Minneapolis city tour, a luncheon cruise on Lake Minnetonka, the Mall of America, Cooks of Crocus Hill tour and the historic St. Paul tour.

On Sunday, September 20, 144 golfers participated in the Annual AACC Bill Doty Memorial Golf Tournament at Majestic Oaks Golf Course, 30 tennis players played in the 9th Annual AACC Tennis Tournament at the Downtown Minneapolis Tennis and Athletic Club, and 30 people went fishing at the 1st Annual Fishing Trip at Lake Minnetonka.

Other annual meeting activities included the fall harvest welcome reception, the opening session and breakfast, the division functions and the AACC Foundation Silent Auction.

For more information contact Joan M. Schimml, Meetings Coordinator, at (612)454-7250.

Updates . . .

Ontario Food Protection Association 1992 Spring Workshop

The Ontario Food Protection Association 1992 Spring Meeting was a one-day workshop on *Rapid Methods and Automation in Microbiology*, held May 6 at the University of Guelph, Ontario, Canada. The twenty-six workshop participants included managers, technologists and researchers from both industry and government. The day's program offered hands-on demonstrations of products from BDH, BioControl, bioMérieux/Vitek, BioTrace, Difco, IsoGrid, Malthus, Organon Teknika, Oxoid, Petrifilm (3M), and Wellcome Diagnostics. Information was provided on Spiral Systems and air samplers, the HGMF Interpreter System, and the Cathra Replianalyzer System. Dr. Daniel Fung of Kansas State University was invited as the workshop leader and he discussed the many options available to food microbiologists during a luncheon lecture. In addition, presentations were given on new technologies: bioluminescence, by guest speaker Dr. Mansel Griffiths, Department of Food Science, University of Guelph; DNA probes, by Gene Trak; polymerase chain reaction (PCR), by Perkin-Elmer, Inc.; use of PCR for detection of *Salmonella* by guest speaker Kris Rahn, researcher with the Health of Animals Laboratory, Agriculture Canada; and the Vicam Listerest, a new diagnostic test for *Listeria*.

U.S. Post Service			10 Publications No.			1 Date of First			
STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION Required by 39 U.S.C. 3685									
1. Title of Publication	Dairy, Food and Environmental Sanitation						10 Publications No.		9/24/92
2. Frequency of Issue	Monthly		3a. No. of Issues Published Annually	12		3b. Annual Subscription Price	\$55 Agency \$25 Student \$100-Subscriber \$50 Member & Affiliate		
4. Complete Mailing Address of Known Office of Publication (Street, City, County, State and ZIP+4 Code) (Do not print a P.O. Box unless it is the only office of publication)									
200 W Merle Hay Centre, 6200 Aurora Avenue, Des Moines, IA 50322									
5. Complete Mailing Address of Headquarters or General Business Office of Publisher (Not printer)									
200W Merle Hay Centre, 6200 Aurora Avenue, Des Moines, IA 50322									
6. Full Name and Complete Mailing Address of Publisher, Editor, and Managing Editor (Do not print a P.O. Box unless it is the only office of publication)									
International Association of Milk, Food and Environmental Sanitarians, Inc.									
Editor (Name and Complete Mailing Address)									
Margaret Marble, 200W Merle Hay Centre, 6200 Aurora Avenue, Des Moines, IA 50322									
Managing Editor (Name and Complete Mailing Address)									
Margaret Marble, 200W Merle Hay Centre, 6200 Aurora Avenue, Des Moines, IA 50322									
7. Section of census to be completed, or name and address must be stated and also immediately thereafter the names and addresses of individuals owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a corporation, its name and address must be stated (This must be completed.)									
Full Name: Complete Mailing Address:									
International Association of Milk, Food and Environmental Sanitarians, Inc. 200W Merle Hay Centre, Des Moines, IA 50322									
8. Section 3685(b), Mergers, and Other Security Matters Owing to Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities (If none, so state)									
None									
9. For Completion by Nonprofit Organizations Authorized to Mail at Special Rates (GNM Section 402 (f) only). The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes (Check one)									
<input checked="" type="checkbox"/> Has Not Changed During Preceding 12 Months <input type="checkbox"/> Has Changed During Preceding 12 Months <input type="checkbox"/> Has Changed During Preceding 12 Months (If changed, indicate date and nature of change)									
10. Extent and Nature of Circulation			Average No. Copies Each Issue During Preceding 12 Months			Actual No. Copies of Single Issue Published Nearest to Filing Date			
A. Total No. Copies (Net Press Run)			3,625			4,400			
B. Paid and/or Requested Circulation			0			0			
1. Sales Through Dealers and Carriers, Street Vendors and Counter Sales									
2. Mail (Include paid and requested)			3,189			3,185			
C. Total Paid and/or Requested Circulation (Sum of B1 and B2)			3,189			3,185			
D. Free Distribution by Mail, Carrier or Other Means (Samples, Complimentary and Other Free Copies)			19			19			
E. Total Distribution (Sum of C and D)			3,208			3,204			
F. Copies Not Distributed			417			1,196			
1. Office use, left over, unsolicited, spoiled after printing									
2. Return from News Agents			0			0			
G. Total (Sum of E, F1 and F2—should equal net press run shown in 10A)			3,625			4,400			
I certify that the statements made by me above are correct and complete									
Signature and Title of Editor, Publisher, Business Manager, or Owner						Margaret Marble			

CALL FOR PAPERS FOR THE 80TH IAMFES ANNUAL MEETING

Waverly Stouffer Hotel
Atlanta, Georgia
August 1-4, 1993

This is an invitation to all IAMFES Members to submit a paper for presentation at the 80th IAMFES Annual Meeting, to be held at the Waverly Stouffer Hotel, in Atlanta, Georgia, August 1-4, 1993. Abstract forms are published in the September and October issues of *Dairy, Food and Environmental Sanitation*.

To receive more information on submitting a paper for presentation at the 80th IAMFES Annual Meeting, contact IAMFES at (800)369-6337 (U.S.) or (800)284-6336 (Canada) or (515)276-3344, or write IAMFES, 200W Merle Hay Centre, 6200 Aurora Avenue, Des Moines, IA 50322.

Deadline for Submission of Abstracts:
DECEMBER 15, 1992

ATTENTION IAMFES MEMBERS 1993-1994 ANNUAL MEMBERSHIP DIRECTORY

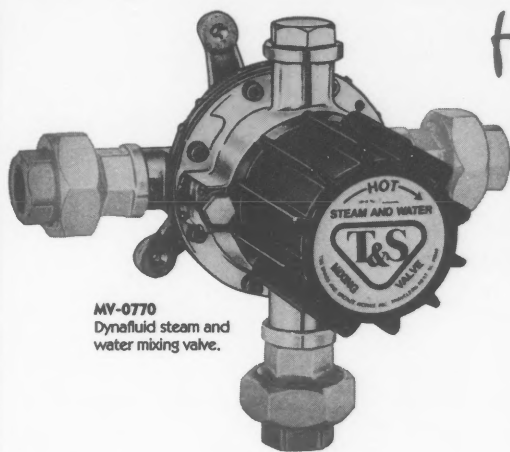
Advertising Space for the 1993-1994 IAMFES Annual Membership Directory is now available.

Once again, the Directory will feature **COMMERCIAL LISTINGS** in addition to listings of IAMFES Members, Associations and Government Agencies. **To Reserve Your Company's Listing in this valuable reference source:**

Call an Advertising Executive
at (800)369-6337 (US) or (800)284-6336 (Canada).

Deadline for Listings: **January 4, 1993.**

Please circle No. 159 on your Reader Service Card



MY-0770
Dynafluid steam and
water mixing valve.

Hot Water

WHEN AND WHERE YOU WANT—
Instantly with **Dynafluid**™

Dynafluid automatic Hot Water Generators could well be the answer to many of your sanitizing or process problems. They use a Steam and Water Mixing Valve to combine the functions of temperature control, a reducing valve, and a heat exchanger into one compact, efficient and versatile unit — unique in the field. And they're "fail-safe."

The valve is available in four sizes ($\frac{1}{2}$, $\frac{3}{4}$, 1, and $1\frac{1}{2}$ inches) to suit most requirements — even customized to meet varying steam pressures. And you know they're quality built for long life — they're from T&S.

Write for Industrial Products Buyer's Guide from T&S.

APPLICATION-ENGINEERED
TOP-QUALITY PLUMBING PRODUCTS

> WITHOUT EQUAL



T&S BRASS AND BRONZE WORKS, INC.

A firm commitment to application engineered plumbing products

Route 4, Old Buncombe Road/Travelers Rest, SC 29690

(803) 834-4102/Telex 57-0311/FAX (803) 834-3518

T&S BRASS-EUROPE/'de Veenhoeve'/Oude

Nieuwveenseweg 84/9451 NE Nieuwveen/The Netherlands

Please circle No. 111 on your Reader Service Card

1992 IAMFES Exhibitor

SILLIKER LABORATORIES SHORT COURSES

Laboratory Methods in Food Microbiology

Dates and Locations:

November 9-13, 1992*

January 18-22, 1993*

April 5-9, 1993*

* All held in Chicago Heights, IL

Principles of **FOOD** Microbiology

Dates and Locations:

January 26-28, 1993

Atlanta, GA

April 27-29, 1993

San Jose, CA

For additional information please contact:

SILLIKER LABORATORIES GROUP Education and Information Services Dept.

1304 Helsted

Chicago Heights, IL • 60411

(708) 756-3210 • FAX (708) 756-2888

MICROBIOLOGY • CHEMISTRY • CONSULTING • RESEARCH

Space is
limited!

Register
Today!

Food System Supplier Quality Assurance (QA) HACCP Certification Criteria

O. Peter Snyder, Jr., Ph.D.,
Hospitality Institute of Technology and Management,
830 Transfer Road, Suite 35,
St. Paul, MN 55114

Supplier HACCP Not Mandatory

While mandatory hazard-based quality assurance programs for the wholesale industry should be expected, both the USDA and the FDA are considering voluntary programs. Therefore, if the retail industry is to obtain safe food from the wholesale sector, it will need to require these programs of their suppliers.

Effective Supplier HACCP Program

The first step in establishing a HACCP program is to get as effective a control as possible over suppliers. The following are the components of an effective HACCP management program:

Management, supervisor, and employee responsibility for food safety

1. Demonstrate **management commitment** through food safety promotion actions (e.g., safety committees, incentives, awards, etc.).
 - a. Set challenging, measurable, and attainable improvement safety goals.
 - b. Set the safety example in all activities.
 - c. Interview employees during walkaround, to hear and respond to their suggestions for process improvement.
2. Allocate **sufficient resources** to accomplish food safety goals.
3. Establish an **organizational chart** showing assigned line and staff responsibility for specific workplace food hazard controls.
4. Establish the system to measure the **cost saving** from doing the right tasks right the first time.
5. Develop **food safety committees**.
6. Establish **accountability measurers** for meeting food safety responsibilities.
7. Hold regular **staff meetings** to reinforce the safety principles and to listen to employee improvement suggestions.
8. Implement **ongoing inspection and monitoring** programs to identify and improve controls of changing workplace hazards.

Hazard analysis and control

1. Identify and analyze **workplace food hazards** through food safety audits, environmental monitoring, and self-inspections to identify jobs that have hazards which

could lead to foodborne illness.

2. Examine **each job hazard** and list the following:
 - a. Sequence of job process steps identifying ingredients, time, temperature, and equipment essential to hazard control.
 - b. How hazards can lead to illness.
 - c. Procedures and standards which, when used, will control the hazards.
3. Make arrangements for a **hazard control quality-assured manager** to be available on all work shifts.
4. Evaluate the **safety performance** of new equipment, supplies, and materials before purchase, and processes before implementation to assure zero-defect control.
5. Institute appropriate **equipment programs** to cover the calibration, use, cleaning, maintenance, and eventual replacement of equipment.

Written program with clearly stated goals and objectives for food safety assurance, that promotes safe and sanitary working conditions, and has a clearly stated plan for meeting the goals and objectives

1. Write an executive food safety **policy statement** to control hazards specific to the workplace.
2. Write a **food safety action plan and program** clearly describing how food safety assurance (pre-control), safety control, and safety improvement goals will be met.
3. Develop and implement **written zero-defect-based food safety procedures and standards**.
4. Write plans for conducting and documenting at least an **annual review** of the program effectiveness, and then for improving the program based on the findings.

Communication and training

1. Communicate the **food safety program** to all employees.
2. Allow for **employee input** in bringing hazardous food operating conditions to management's attention.
3. Provide **training prior to all new job assignments** including training on specific hazard controls.
4. Update **training** at least annually or as work processes and ingredients change.
5. Maintain **records of training** (date/topic/content/attendance).
6. Train **supervisors** in pertinent food safety matters, food safety leadership, coaching, and employee empower-

- ment to take action at any time to prevent a problem.
7. Evaluate **training needs** to determine specialized training and retraining. Use supervisors and employees to give feedback as to how to improve training.

Process control problem investigation and corrective action

1. Develop **procedures** for process control problem reporting, problem investigation, corrective action, and follow-up.
2. Conduct **workplace prevention** inspection of facilities and equipment (e.g., refrigeration, cooking and hot holding devices, pot and dish washing and sanitizing, insect and rodent control).
3. Write reports following process control problems showing what **preventive/corrective action** is being taken to prevent similar problems; for example:
 - a. Equipment modified.
 - b. Work method modified.
 - c. Equipment changed or added.
 - d. Employee retrained or special needs accommodated.
4. Maintain, summarize, and analyze **foodborne illness data** (e.g., first reports of illness) to determine tasks and operations where incidents have occurred. Take action to prevent recurrence.

Program enforcement

1. Write an **enforcement statement** on safe food operation practices, food safety rules and standard operating procedures.
2. Maintain **records of disciplinary actions and warnings**.
3. Develop policies that hold **managers and supervisors accountable** for fulfillment of food safety responsibilities. Safety is behavioral control. Hold everyone responsible for his/her safety behavior.

The checklist, **Food System Supplier Quality Assurance (QA) HACCP Certification Criteria**, should be given to each supplier, and a visit made to individual suppliers in order to find out if they can sufficiently answer the questions or meet the requirements on the checklist. Suppliers should be carefully selected.

Food System Supplier Quality Assurance (QA) Certification Criteria

For a wholesale or retail food operator to be certified as having a Quality-Assured (QA) Operation, he or she must be able to show and demonstrate application of the following QA operational elements.

1. Executive Management Quality Assurance Leadership

- There is executive management commitment to customer safety and quality satisfaction.
- There is commitment by company officers and employees to ethical practices and to be an honest, dependable, and reliable supplier.

- There are product and service guarantees.
- There is commitment to the letter and spirit of all FDA, USDA, local laws and regulations applicable to the production, manufacture, distribution, and sales of products produced and services provided.
- There is quality leadership and an enthusiastic on-going Quality Excellence in-house communications program.

2. Quality Results and Customer Satisfaction Information and Analysis

- They continually strive for performance improvement by listening to and valuing all customer feedback.
- They have an accurate, up-to-date understanding of customer requirements and expectations and know how well they are performing.
- They provide customers with an effective Just-In-Time delivery system that assures that all products and services will meet customer expectations, that there will be no rejections, and that there is no need for customers to carry emergency stock.
- There is accurate knowledge of company total quality performance.

3. Company Financial Support of Quality Assurance

- There is profitability that guarantees their continuing performance improvement in supporting customers.
- There is adequate capital spending on process improvement to assure continuing product and service improvement.
- Customer costs are competitive with the marketplace.
- They innovate continuing improvements in the cost of quality and share savings with the customers.

4. Quality Assurance of Products and Services

- They can demonstrate an effective Total Quality Assurance program that does not try to inspect quality in, but rather strives for zero defects (ZD) in meeting customer product and service standards through effective planning and pre-control of all inputs and processes.
- There is a long range plan for improved ZD performance.
- There is an organization chart and everyone knows exactly how they fit into providing company ZD customer performance.
- The responsibility for ZD performance is assigned to the person doing the task. Supervisors are responsible for coaching their terms and building team ZD productivity through improved individual performance.
- There is an operations and training PP&S manual that describes exactly how each task is to be done. Employees are encouraged to suggest ways to improve their task performance.
- No one is allowed to change a procedure or standard without QA department approval.
- There are process flow charts for all processes and fish bone diagrams that specify the critical control elements.
- There is continual research to find strengths and weaknesses of the operating system. This includes all departments and functions in the company.
- There is continual research to find out how to more

adequately meet the customer needs, wants, and expectations tomorrow.

- There is Statistical Process Control at all levels. It is used to track the process and find opportunities to improve the process.
- The company knows precisely the critical process variables, and these are correctly monitored.
- All quality and safety audit data and incidents are documented and acted upon.
- There is an adequate laboratory to control QA, and the laboratory procedures are audited against certified standards.
- There is a supplier certification program of vendors to the company.

5. Personnel Development and Utilization

- Training of employees includes:
Controlled operating procedures and standards
Statistical Process Control
Government regulations/inspection
Chemical handling/Material Safety Data Sheets
Food Hazard Analysis and Critical Control Points
Food technology knowledge development; microbiology, chemistry, engineering, food formulation
Incident documentation and reporting
- There is personnel pre-operation performance certification
- There is positive reinforcement for correct performance and immediate coaching for substandard performance
- There are employee Quality Management Teams to involve employees in process improvement
- There is an active Employee Quality of Work Life program

6. Manufacturing Process

- Specifications for products and procedures include:
Finished product specifications
Ingredient specifications
Process control QA procedures and standards specifications
Packaging materials specifications
Specification deviations authority

- Controls include:
Lot numbers of finished product that can be traced to production time, people, and ingredients.
Process and product inspections that are done by the person doing a task and the next person to receive the product.
- Operational QA methods include:
Personnel work habits, hygiene, and dress
Safety devices
Traffic patterns that prevent cross-contamination
Container labelling

7. Cleaning and Pest Control

- Equipment cleaning program includes:
Strategy for achieving microbiological control
Use of approved and effective chemicals
Schedule and procedures for employee action
Auditing and documentation of results
- Facilities cleaning program (inside and outside) includes:
Strategy for achieving microbiological control
Use of approved and effective chemicals
Schedule and procedures for employee action
Auditing and documentation of results
- Pest and Insect Control Program includes:
Correct strategy for control
Use of approved and effective chemicals
Schedule and procedures for employee action
Auditing and documentation of results

8. Maintenance

- Equipment maintenance program includes:
Calibration of gauges and thermostats
Preventative maintenance
- Facilities maintenance program includes:
Lighting
Plumbing
Adequate aisles
Ventilation
Tightness of openings to elements and vermin
Floors
Walls, doors, ceilings
Paint and rust

Food and Environmental Hazards to Health

Locally Acquired Neurocysticercosis — North Carolina, Massachusetts, and South Carolina, 1989-1991

From October 1989 through November 1991, three persons with neurocysticercosis acquired in the eastern United States (North Carolina, Massachusetts, and South Carolina) were reported to CDC. This report summarizes clinical and epidemiologic information for these cases.

Patient 1. On October 4, 1989, a previously healthy man residing in New Jersey had a syncopal episode while at work. Although physical examination was normal, magnetic resonance imaging (MRI) at a New York City hospital revealed multiple (>20) cystic lesions throughout the brain. A serum specimen was positive for cysticercosis by immunoblot assay. The patient was asymptomatic on anticonvulsant medication until June 1991, when left-sided hemiparesis and weakness were noted. In July, he was treated with albendazole (10 mg/kg per day for 28 days) administered with dexamethasone. His condition improved, and he remains asymptomatic.

The patient was born and raised on a farm in North Carolina and had moved to New Jersey in July 1989; he had never traveled outside the United States. Although there was no family history of neurologic illness or tapeworm infection, some of the workers who were hired seasonally to assist on the farm had immigrated from countries with endemic cysticercosis.

Patient 2. On August 26, 1990, a 16-month-old girl in Boston had a seizure. Cranial contrast-enhanced computerized axial tomographic (CAT) scan showed ring-enhancing lesions in the left parietal and frontal cortex and a solid right parietal lesion. The immunoblot assay for cysticercosis was positive in both serum and cerebrospinal fluid. Stool examination for ova and parasites showed *Giardia*. The patient was treated with metronidazole for giardiasis, but no specific anthelmintic medication was given. In November 1989, the lesions were resolving, and the patient remains asymptomatic on anticonvulsants.

The patient had always resided in Boston and had never traveled out of Massachusetts. Her parents had emigrated from the Cape Verde Islands 18 months before her birth. Although no immediate family members had been acutely ill, serum specimens obtained from three of four family members were positive for cysticercosis in the immunoblot assay. Stool specimens obtained from the patient's father contained eggs of *Taenia* sp. All family members were treated with a taeniocidal dose of niclosamide.

Patient 3. In February 1990, a previously healthy girl in South Carolina developed generalized seizures. A CAT scan revealed a single contrast-enhancing right parietal lesion consistent with a tumor. Biopsy of the lesion showed nonspecific inflammation. In May, follow-up examination by MRI demonstrated a recurrence of the lesion, which was

resected. The lesion was identified as a cysticercus (larval cyst) of *Taenia solium*. The patient remains asymptomatic on anticonvulsant medication.

The patient lived in Laurens County, South Carolina, and had never traveled out of state. To identify the source of the infection and possible additional persons with neurocysticercosis, the Upper Savannah District of the South Carolina Department of Health and Environmental Control conducted interviews and voluntary diagnostic tests among 26 family members and contacts. None of these persons had traveled outside the United States or eaten uncooked pork, and none reported previous tapeworm infections, subcutaneous nodules, seizures, or other neurologic symptoms. Serum specimens from all 26 persons were negative in the immunoblot assay for cysticercosis. One contact, a neighbor who had immigrated from Mexico, was seronegative, and the one stool specimen obtained from him was negative for eggs and proglottids of *Taenia* sp. However, the health department obtained serum specimens from five of the neighbor's friends who also had immigrated from Mexico and who often stayed in the neighbor's residence (often visited by the patient), of which three were positive for cysticercosis by immunoblot assay. One of the seronegative persons reported a history of tapeworm infection several years previously. All five refused stool examination for intestinal parasites.

Editorial Note: Neurocysticercosis is infection of the central nervous system with the tissue-invading larval stages (cysticerci) of the pork tapeworm *T. solium*. Cysticercosis is acquired by ingesting tapeworm eggs shed in human feces, not by ingesting pork. Although cysticerci may localize throughout the body, most clinical manifestations are related to their presence in the central nervous system, where they can invade parenchyma, the subarachnoid spaces, and the ventricular system, causing seizures, hydrocephalus, and other neurologic dysfunction.

Cysticercosis is widely endemic in rural areas of Latin America, Asia, and Africa. During the 1980s, however, neurocysticercosis has been increasingly recognized in the United States through improved brain imaging by CAT and MRI. Most cases have been diagnosed in the western states among immigrants from areas with endemic cysticercosis. In addition, from 1988 through 1990, 7.3% of 138 cases reported to the Los Angeles Department of Health Services were acquired locally (i.e., in patients born in the United States who had not traveled to foreign countries with endemic cysticercosis). Epidemiologic investigation of these cases identified as possible sources of infection household contact with persons who had imported tapeworm infections.

Because none of the patients in this report had traveled outside the United States they could not have acquired their infections in areas of known endemic cysticercosis. Moreover, because *T. solium* cysticercosis is virtually unknown in swine in the United States, transmission through the pig-human cycle was unlikely. The highly variable and usually

prolonged (i.e., >1 year) incubation period of neurocysticercosis has complicated attempts to identify sources for individual infections; however, the investigations suggest two of these patients may have been infected from household (fecal-oral) exposure to persons with imported tapeworm infections. This explanation is supported by the demonstration of *Taenia* sp. eggs in the stools of the father of patient 2 and the history of previous tapeworm infection and demonstration of antibodies to *T. solium* in the immigrants who were household contacts of patient 3. Although the source of infection for patient 1 is less clear, infection may have been associated with exposure to migrant laborers employed for seasonal farm work; in 1987, a survey for intestinal parasites in migrant workers in North Carolina determined that *Taenia* sp. were present in stool specimens obtained from 3% of persons of Central American origin (S. Ciesielski, Ph.D., J.R. Seed, Ph.D., University of North Carolina School of Public Health, personal communication, 1991).

In the United States, sewage disposal systems are adequate to prevent transmission of helminths that require a period of soil incubation to become infective. Thus helminth infections among immigrant populations in the United States are not considered a major public health problem. However, in contrast to most helminth parasites, the eggs of *T. solium* are immediately infectious when passed in the stool and may be transmitted directly by person-to-person contact. Intestinal *T. solium* infections may persist for many years, and substantial numbers of infective eggs can be passed in the host's stools; eggs have been recovered from fingernail dirt, skin, and clothes of carriers.

Patients with cysticercosis and their household and other personal contacts should be screened for tapeworm infection since treatment with a single dose of niclosamide or praziquantel will eradicate the tapeworm and remove a potential source of transmission. Consideration should be given to screening persons at high risk for *T. solium* infections for intestinal parasites if those persons are to be employed as food handlers or housekeepers. Persons having household or other close contact (i.e., contact that exposes them to inadvertent infection through the fecal-oral route) with a person with a documented tapeworm should be screened for cysticercosis by medical history and serologic testing; if such an assessment suggests cysticercosis, neurologic examination and brain scan is advised.

Clinical manifestations of neurocysticercosis are varied, nonspecific, and related to the number and location of lesions. A heightened index of suspicion is a critical first step in establishing the diagnosis; the most sensitive and specific diagnostic tool is brain imaging by CAT or MRI. The diagnosis can be confirmed serologically using the recently developed enzyme-linked immunoelectrotransfer blot that is 100% specific and highly sensitive for persons with multiple intracranial lesions. Although the assay is less sensitive for infected persons having solitary cysts, serologic testing may obviate the need for invasive biopsy. While cysts often resolve without anthelmintic treatment, praziquantel or albendazole is effective in persons with serious clinical manifestations and viable cysts.

In most states — including the eastern United States — cysticercosis is not a reportable condition. However, the cases described in this report suggest local transmission has occurred in diverse locations in the United States. Cases of cysticercosis may be reported to CDC's Division of Parasitic Diseases, National Center for Infectious Diseases through state and local health departments.

MMWR 1/10/92

Food Safety in the Air

With temperatures in the 70s, New York was unseasonably warm last Nov. 14. A catering truck, its front door open, rolled slowly towards an airplane at John F. Kennedy Airport.

Most people looking on would see nothing wrong. But Donald Borges, an interstate travel sanitation specialist with FDA's New York district office, saw a health risk. Through that open door, outside heat would move inside, possibly warming the food to temperatures that could foster the growth of bacteria.

FDA requires foods to be chilled at 7.2 degrees Celsius (45 degrees Fahrenheit) when they are put on interstate vehicles that serve food.

At JFK on a routine inspection of the United Airlines catering service, Borges decided to check out this open door. He followed the truck to the airplane, which he boarded, and began measuring the food's temperatures. A few foods had slightly elevated temperatures, but, because cold air would be circulating around them on the plane, Borges judged they would soon be down to FDA's safety zone.

However, Borges also observed roach infestation and dirty cooking equipment in the dining unit. He saw that workers weren't soaking wiping cloths in disinfectant between uses and that the foods weren't labeled with the ingredients and catering source, as FDA requires. The agency's New York district issued a warning letter, and United's catering representative promised to correct the situation. Borges said he would check back in a month.

The United Airlines food service is among 32 interstate and foreign caterers Borges inspects on a regular basis every year, with follow-up calls as needed to confirm corrections.

Trains and interstate ships, such as ferries, seldom have temperature violations, Borges says, because their galleys usually are large enough to house refrigerators. Airlines, on the other hand, depend upon chilled food at delivery and the use of dry ice for cooling food during international or long-haul transcontinental flights.

"About 20 to 25 percent of the visits to airlines turn up problems with food," Borges said. "This is particularly true in the summertime with elevated air temperatures, increased numbers of passengers to serve, and weather conditions such as thunderstorms delaying departures. I try to concentrate my airplane inspections from about mid-May until September."

Not all inspections by Borges are routine, however.

Last Sept. 17, while driving home from work, he heard a radio newscast that a communications breakdown had forced the closing of JFK Airport. He immediately went

there and determined the status of flights through the individual airlines operations control offices.

The first airline he checked was United, where a supervisor told him food had been stored the longest on a San Francisco flight. Scheduled to depart at 5:40 p.m., it had been catered about an hour earlier.

"I was on board a little before 9," he said. "First-class entrées tested between 17.2 C (61 F) and 20 C (68 F), and the plane was expected to be on the ground for another two hours. There was no problem with coach meals, because they were stored in carts with dry ice with chilled air circulating through the carts."

Borges notified the supervisors, and they saw that all the first-class meals were removed. The caterer voluntarily

removed the same food items off another United flight to Los Angeles.

Next, Borges visited MGM Grand Air, a nonstop flight to Los Angeles, and its meals also had to be removed because of time/temperature deviations. At Pan American Airlines, he found that the caterer, anticipating long delays, had provided extra dry ice as needed. Last, a check of Trans World Airlines determined that flight attendants on the planes awaiting takeoff had served the meals to passengers while the planes were at the gates.

The food service industry has cooperated with FDA for about six years in training airline employees and catering firms on ways to prevent airline food hazards.

FDA Consumer 3/92

Please circle No. 191 on your Reader Service Card

**THE
TWO
DAY**



OK

LISTERIA TESTING

Organon Teknika Listeria Tek

**Why wait 7 days for the other guy
to identify routine negatives when
MVTL can give you an answer in just 2 days?**

- Rapid Assay**
- USDA Approved In Regional Labs**
- Detects All Species of Listeria**
- 2-Day Routine Negative**

**Call Tina Kenefick at MVTL (507) 354-8517
or (800) 782-3557 in Minnesota, for more
information**



**Minnesota Valley
Testing Laboratories**
1126 North Front St.
New Ulm, MN 56073

Copyright ©1991 Minnesota Valley Testing Laboratory

Federal Register

Animal and Plant Health Inspection Service

Veterinary Services Programmatic Environmental Impact Statement

Agency: Animal and Plant Health Inspection Service, USDA.

Action: Notice.

Summary: We are advising the public of the proposed scope of study of a programmatic environmental impact statement (EIS) we intend to prepare for the Veterinary Services Program of the Animal and Plant Health Inspection Service. This notice identified potential issues to be analyzed in the EIS, and requests public comment on these and other issues.

Dates: Consideration will be given only to comments received on or before November 23, 1992.

Addresses: Please send an original and three copies of your comments to Mr. Carl Bausch, Environmental Analysis and Documentation, Biotechnology, Biologics, and Environmental Protection, APHIS, USDA, room 828, Federal Building, 6505 Belcrest Road, Hyattsville, MD 20782. Please state that your comments refer to Docket No. 92-110-2. Comments received may be inspected at USDA, room 1141, South Building, 14th Street and Independence Avenue, SW., Washington, DC, between 8 a.m. and 4:30 p.m., Monday through Friday, except holidays.

For Further Information Contact: Mr. Carl Bausch, Environmental Analysis and Documentation, Biotechnology, Biologics, and Environmental Protection, APHIS, USDA, room 828, Federal Building, 6505 Belcrest Road, Hyattsville, MD 20782, (301)436-8565.

Supplementary Information: The Animal and Plant Health Inspection Services (APHIS), U. S. Department of Agriculture, intends to prepare a programmatic environmental impact statement on the Veterinary Services Program. A Notice of Intent was published in the **Federal Register** on July 23, 1992 (57 FR 32771-32772, Docket No. 92-110-1).

The Veterinary Services Program, which is responsible for protecting livestock and poultry from certain diseases, comprises four major activities: prevention, surveillance, control, and eradication. Implementation is in accordance with applicable Federal, State, and local authorities. The disease prevention activities administered by Veterinary Services are designed to reduce or prevent certain diseases from entering the United States or spreading to other States. Cooperation with States also prevents intrastate movement of infected and exposed animals. Most diseases for which

Veterinary Services administers programs are listed by the U. S. Animal Health Association or the Office of International Epizootics.

The programmatic environmental impact statement will focus on the environmental effects of activities designed to deal with communicable diseases of livestock and poultry and to examine alternatives and the effects of those alternatives on the environment. The environmental impact statement also will serve as the document to which APHIS can tier an environmental assessment, and others may use as legally permissible, should the need arise to make decisions on program plans or a site-specific emergency.

Producers of livestock and poultry, land use planners, financiers, and others interested in animal production should actively participate in the environmental impact statement process. They will find it useful for raising disease issues to be considered when planning and designing production facilities and management strategies. States should find this process useful in their planning for management of diseases (including outbreaks and Federal-State cooperative disease eradication programs) and, insofar as legally permissible, will be able to tier their disease program to the environmental impact statement.

This notice of proposed scope of study identifies potential issues to be analyzed in the environmental impact statement. Public input regarding the issues discussed and the identification of any other issues is requested.

The Scoping Process

The initial step in the process of developing an environmental impact statement (EIS) is issue scoping. Scoping includes the solicitation of public comments in scoping meetings or by written comments. APHIS is inviting written comments from the interested public; Federal, State and local agencies; industry; environmental groups; and Federal and State agencies that have either jurisdiction by law or special expertise regarding any program issue or environmental impact that should be discussed in this EIS. The comments should identify those Veterinary Services activities believed to have consequential impact on the environment. Information obtained from scoping will be evaluated and used to target issues, including alternative means of accomplishing program goals, for study in the context of the EIS process. Information obtained by the scoping process also will be used to identify any environmental statute, regulation, policy, or custom of other interested parties or State or Federal agencies that might conflict with APHIS regulations, policies, or procedures related to disease prevention, surveillance, control, or eradication.

The Veterinary Services Program

If animal diseases are not continuously abated by public and private interests, the effects on the human environment could be severe. There are over 100 diseases and pests that can spread from animals to man and an even larger number

that can spread from livestock and poultry to wild animals. When certain diseases are discovered in the United States, it sometimes is necessary to control or eradicate the disease by: destroying all infected and exposed animals; disposing of carcasses, manure, and waste in a biologically safe manner; and cleaning and disinfecting the premises using chemicals approved by the Environmental Protection Agency (EPA) or other appropriate devices. Insects and other animals capable of transmitting the disease (i.e., vectors and reservoirs) may need to be eliminated with pesticides, poison baits or other appropriate means.

In general, disease prevention and surveillance practices are less likely to affect the environment than control measures. Prevention and surveillance measures minimize the spread of diseases and pests. To this end, Veterinary Services regulates the movement of animals and animal products. Requirements for inspection, testing, treatment, quarantine and other similar procedures are designed to detect as many of the infected/infested carrier animals as possible. It is not possible to detect all animals that are infected with pathogenic microorganisms or infested with parasites. Some products derived from these carrier animals also may contain viable pathogens which can be responsible for the further spread of disease. Therefore, there is always a risk of spreading diseases with the movement of animals and animal products that have not been treated in a manner that would inactivate all microorganisms.

Information obtained in the scoping process will be carefully examined for ideas, concepts, and strategies that will enhance prevention and surveillance without increasing environmental impact.

In addition to adhering to all Federal statutes, APHIS has identified the following issues for closer scrutiny to determine whether they should be analyzed in the EIS:

- Pesticides used for vector and reservoir control. The pesticides used are those registered by EPA under the

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and used according to the label. Nevertheless, pesticides or their degradation products could accumulate over time, and/or run off or leach into surface and ground waters near dipping and spraying operations. Additionally, there may be concern for the safe storage and disposal of pesticides.

- Cleaning and disinfecting compounds. These chemicals could accumulate near cleaning and disinfecting sites if the rate of use is greater than the rate of degradation. Runoff and leaching of these compounds could contaminate surface and ground water. Areas potentially susceptible to environmental accumulation include areas where animals have been destroyed and that have subsequently been cleaned and disinfected, and areas where trucks, planes and other vehicles used in the transport or holding of animals are cleaned and disinfected. There also may be concern for the safe storage and disposal of these compounds.

- Disposal of carcasses and contaminated manure and debris. This may be of particular concern when disposal is on the farm-of-origin. Such disposal must ensure that the decomposing materials do not contribute to the further spread of disease or to environmental degradation or contamination. These activities must be conducted in accordance with all appropriate Federal, State, and local statutes.

Comments on this notice are welcome. Following the comment period, a notice of final scope, reflecting, as appropriate, views and opinions submitted for consideration, will be published in the **Federal Register**. Any additional opportunities for public participation will be announced in the **Federal Register**.

Done in Washington, DC, this 5th day of October 1992.

Lonnie J. King,

Acting Administrator, Animal and Plant Health Inspection Service.

(FR Doc. 92-24661 Filed 10/8/92; 8:45 am)

Federal Register/Vol. 57, No. 197/Friday, October 9, 1992/Notices

New IAMFES Members

Arizona

Chris G. Sexton
Yavapai County Health Dept.
Prescott

California

Everett R. McClellan
San Bernardino Co.
Grand Terrace

Colorado

Jason Byrne
University of Colorado
Boulder

Illinois

Terry Carling-Kelly
Chemidyne Corp.
Rock Island

James K. Stock
Prairie Farms Dairy
Granite City

Maryland

Marjorie Wier
New Horizons Diagnostics
Columbia

Massachusetts

Dr. Robert Katz
Wellesley Health Dept.
Wellesley

Michael Pietrowski
Ken's Foods Inc.
Marlboro

Minnesota

Diran Ajao
University of Minnesota
St. Paul

Kyle Sasahara
University of Minnesota
Minneapolis

David Seefeldt
Marigold Foods, Inc.
Minneapolis

Missouri

Douglas L. Holt
University of Missouri
Columbia

Montana

Dave Duffy
Daigold Farms
Bozeman

New York

Maurice L. Weinstein
Wenner Bread Products
Merrick

North Carolina

Stan Herndon
Fast Food Merchandisers
Rocky Mount

Robert W. Tucker
Laurinburg

Ohio

Martin Lamping
Delex Chemicals
Cincinnati

Texas

Bryan J. Cobb
Vet Science Div., AHS
Ft. Sam Houston

Richard A. Garcia
Surlean Meat Co.
San Antonio

Margaret D. Hardin
Texas A&M University
College Station

John R. Stone
Uncle Ben's Inc.
Houston

Virginia

Mark Tubbs
Div. of Dairy and Foods
Richmond

Washington

Mike Gould
APV Crepaco, Inc.
Seattle

Mary M. Jens
Seattle

Owen Wilmot
Daigold Farms
Enumclaw

Wisconsin

Gail Anderson
Jefferson

Gerry Masse
Ace Chemical Products, Inc.
Milwaukee

Timothy P. Weigner
US Army Vet Services
River Falls

Canada

Anne Burke
Ryerson Polytechnical Institute
Mississauga, Ontario

Jinru Chen
University of Guelph
Guelph, Ontario

Lynn McIntyre
University of Guelph
Guelph, Ontario

Nadean Moore Kennedy
Ault Foods
London, Ontario

Paul Stone
Regional Municipality of Waterloo
Waterloo, Ontario

Cheryl Page
Holland College
Summerside, Prince Edward Island

Denmark

Flemming Hansen
A/S Foss Electric
Hilleroed

Hans Henrik Huss
Technological Laboratory
Ministry of Fisheries
Lyngby

Puerto Rico

Torben Lyster-Clausen
Borden Puerto Rico
San Juan

79th IAMFES Annual Meeting

Toronto, Ontario, Canada

A Review

The 79th Annual Meeting of the International Association of Milk, Food and Environmental Sanitarians was held July 26-29, 1992 in Toronto, Ontario, Canada. The sessions, symposia and exhibits were housed in the well appointed Sheraton Centre Toronto Hotel & Towers. The theme of this year's meeting was "Global Issues in Food Safety", quite an appropriate topic in view of recent world events.

Global food safety-related areas such as international food standards, food irradiation, seafood inspection, dairy product safety and activities of the U.S. National Advisory Committee on Microbiological Criteria for Foods were addressed by many of the meeting symposia. In addition, over 65 technical presentations covered an array of international topics ranging from the cholera epidemic in Latin America, to natural disaster preparedness, to Canadian seafood inspections.

The Ontario Food Protection Association co-hosted this year's meeting. Under the direction of Michael Brodsky, Local Arrangements Chair, the OFPA helped plan and conduct a well run and entertaining Annual Meeting. Their year-long efforts resulted in an enjoyable and memorable meeting for all.

IAMFES was fortunate to have the participation of two other respected organizations in the 1992 Annual Meeting. Cosponsoring symposia were the National Mastitis Council and the Canadian College of Microbiologists. Their collaboration served to enhance the scientific and educational information being presented. A brief review of the entire Annual Meeting program will illustrate what excellent information was available.

Annual Meeting Program Review

Pre-Meeting Workshops

Two timely and informative workshops were held prior to the start of this year's Annual Meeting. Dr. Frank Bryan conducted the workshop on Hazard Analysis at Critical Control Points on July 24th and 25th. Dr. J. Russell Bishop headed the Monitoring/Measuring Environmental Sanitation in Food and Dairy Plants workshop on July 25th. Both workshops were filled to capacity and received excellent reviews by the participants.

Opening Session / Wine and Cheese Reception

The opening session of the 79th IAMFES Annual Meeting began with a welcome by President Dr. Damien Gabis. President-Elect Dr. Michael Doyle introduced the keynote

speaker, Dr. J.B. Morrissey. Dr. Morrissey, Assistant Deputy Minister with Agriculture Canada gave the Ivan Parkin Lecture on "Global Issues in Food Safety". The Ivan Parkin Lectureship is sponsored by the IAMFES Foundation Fund which is supported by the contributions of IAMFES Sustaining Members. Dr. Morrissey received a \$1,000 honorarium and commemorative plaque for his presentation.

Following the opening session, the speakers and audience were "piped in" to the Exhibit Hall for the annual Wine and Cheese Reception. Representatives of the Metropolitan Toronto Police Pipe Band led the procession to the Exhibit Hall in regal style. The Wine and Cheese Reception afforded the attendees the chance to get acquainted while viewing displays of technical equipment, services and products. A review of the 1992 IAMFES Annual Meeting Exhibitors can be found on pages 780-783 of this issue.

Technical Sessions

During the three days of the Annual Meeting, there were four technical sessions of submitted presentations. These covered:

"Foodborne Pathogens" convened by J. Scott and K. Glass

"Dairy Microbiology" convened by R. Daggs and P. Vasavada

"Laboratory Methods" convened by J. Dickson and S. Ingham

"Foodborne Microbiology" convened by R. Nickelson and M. Cirigliano

These technical sessions offered over 40 scientific presentations reporting research on such topics as:

Predictive Modeling of Psychrotrophic *Bacillus cereus*

Lethal Effect of Dimethyl Dicarbonate on *Listeria* and *Salmonella*, and its Potential for Use in the Treatment of Fresh Produce

Effective Method for Dry Inoculation of *Salmonella* Cultures

Effective Recovery of *Campylobacter* in the Presence of Mixed Culture

Fluorometric Analysis of Alkaline Phosphatase Inactivation Correlated to *Salmonella* and *Listeria* Inactivation

Microbiology HACCP Determination at a Poultry Processing Plant

Microbial Ecology of Modified Atmosphere Packaged Pork

Symposia

The IAMFES Annual Meeting also featured 11 scientific symposia of invited presentations. Annual Meeting participants were able to attend the following sessions during the course of the meeting:

- "Milk Quality Symposium" convened by K. Leslie
- "Update on Foodborne Pathogens Symposium" convened by A. Lammerding and J. Smith
- "Sanitation and Disaster Control Symposium" convened by M. Banner
- "Activities of the National Advisory Committee on Microbiological Criteria for Foods Symposium" convened by F. Shank and R. Cross
- "Automation in Dairy Process Control Symposium" convened by D. Seiberling
- "Seafood Regulatory Symposium" convened by C. Hackney and E. Todd
- "Dairy Symposium" convened by D. Henning and M. Griffiths
- "Consumers' and Scientists' Views on Irradiation and Food Safety Symposium" convened by M. Brodsky and N. Stern
- "Seafood Safety Symposium" convened by C. Hackney and E. Todd
- "Food Irradiation Symposium" convened by J. Borsa
- "Computer/Predictive Modelling Symposium" convened by R. Buchanan and D. Whiting

There were over 60 presentations given during the various symposia. Among these were:

- Cowside Antibiotic Residue Tests: Current Status on Availability, Use and Interpretation**
- Listeria monocytogenes*: Current Issues in Perspective**
- Salmonella* Control in Canada**
- Emergency Management of Health and Safety Risks Associated with Marketed Food Commodities in Canada**
- Food Handling Practices**
- Process Design and Extended Shelf Life of Dairy Products**
- Regulatory Aspects/Inspections of Pasteurizers**
- Bioluminescence: An Enlightening Technology**
- Safety Ramifications of Food Irradiation**
- Modeling Bacterial Inactivation/Survival**
- Predicting Microbial Behavior Under Changing Conditions**

Poster Session

In order to convey the greatest amount of information in the limited time of the three day Annual Meeting, 24 presentations were given in a technical poster session convened by Bruce Langlois. Posters were also utilized to present reports of the IAMFES Committees.

Video Theatre

In an effort to find new and innovative ways of conveying technical information to meeting attendees, a

video theatre was held for the viewing of video tapes available through the IAMFES Lending Library. Selections were run throughout the day on Monday, July 27th and Tuesday morning, July 28th, with Monday's selections being repeated on Wednesday, July 29th.

General Session

On Tuesday afternoon, July 28th, a plenary session was held. The session, entitled "International Food Standards" was convened by J. Scott and R. Holley. This session was held so that all Annual Meeting attendees would be able to hear presentations on:

- The International Dairy Federation - Development of IDF Standards and Bulletins**
- Food Standards and Food Safety in Japan**
- International Labeling and Advertising Requirements: Effect on Trade**
- Food Safety Issues in Europe - An Update**

Annual Business Meeting

Following the General Session, the Annual Business Meeting was held. Two resolutions were passed in this session. More details of the Annual Business Meeting can be found on page 778 of this journal.

IAMFES Committee Meetings

In conjunction with the 79th IAMFES Annual Meeting, various committees met to discuss their activities of the past year and plan for the coming year. Complete committee reports can be found beginning on page 770.

Social Events

No IAMFES Annual Meeting would be complete without the enjoyable, family oriented entertainment and events planned by the local hosts. This year the Ontario Food Protection Association did a superb job.

Casa Loma Dinner - The historic Casa Loma castle, Toronto's only real castle, was the site of this year's Monday night social event. Meeting attendees were treated to a lavish buffet dinner. Before and after dinner costumed guides provided informative tours of the medieval surroundings.

Blue Jay Baseball - Over 200 meeting goers saw the now World Series Champion Toronto Blue Jays defeat the Kansas City Royals 4-3 in a Tuesday night game. For most of them, this outing included a buffet dinner and "bird's eye view" at the Windows restaurant in the SkyDome.

Awards Banquet - Over 300 people attended the Annual Awards Banquet to enjoy a fine meal and applaud the award winners for their accomplishments. A write-up of Annual Awards and their winners begins on page 767.

**Make Plans Now to Attend the
80th IAMFES Annual Meeting
August 1-4, 1993 in Atlanta, Georgia**

IAMFES Awards Presented . . .

IVAN PARKIN LECTURESHIP



IAMFES President-Elect, Michael Doyle (r) presenting the Ivan Parkin Plaque to Dr. J. B. Morrissey (l).

. . . was presented by **J. B. Morrissey**, Assistant Deputy Minister, Agriculture Canada, Ottawa, Ontario. Dr. Morrissey's lecture was "Global Issues in Food Safety" and set the theme for the 79th IAMFES Annual Meeting.

The Ivan Parkin Lecture is sponsored by the IAMFES Foundation Fund and is supported by the Sustaining Members.

SAMUEL J. CRUMBINE CONSUMER PROTECTION AWARD



Kay Forward upon acceptance of the Samuel J. Crumbine Consumer Protection Award.

. . . is presented annually for excellence in a comprehensive program of food and beverage sanitation at the local level. The award was presented by Charles Felix to **Kay Forward** of the Boulder County Health Department, Boulder, CO.

NORBERT F. SHERMAN AWARD

. . . is sponsored by the Educational Foundation of the National Restaurant Association, Chicago, IL. This award was won by **Anna M. Snelling, Kevin Kerr, and John Heritage** for their article, published in *Journal of Food Protection*, May 1991, "The Survival of *Listeria monocytogenes* on Fingertips and Factors Affecting Elimination of the Organism by Hand Washing and Disinfection." No one was present to accept this award. The authors received a plaque and \$500.

3-A SYMBOL COUNCIL APPRECIATION AWARD



Mr. Warren Clark (r) presenting the 3-A Symbol Council Appreciation Award to Mr. A. Richard Brazis (l).

This special award was presented by Mr. Warren Clark of the 3-A Symbol Council to Mr. A. Richard Brazis for his long time service as a Symbol Council Trustee.

DAIRY, FOOD AND ENVIRONMENTAL SANITATION ARTICLE AWARDS

The IAMFES Foundation awarded certificates and \$250 to authors with outstanding articles in *Dairy, Food and Environmental Sanitation* during 1991. This year's winners were:

Dairy Article: "The Yogurt Story — Past, Present and Future" by Ebenezer Vedamuthu, Quest International, Sarasota, FL.

Food Article: "America's 'Safe' Food" by O. P. Snyder, Hospitality Institute of Technology & Management, St. Paul, MN, and D. M. Poland.

Environmental Article: "Insects Found During Sanitary Inspections" by Lester Hankin, The Connecticut Agricultural Experiment Station, New Haven, CT, and Ken Welch.

AFFILIATE CHARTER



Elizabeth Johnson upon acceptance of the Affiliate Charter for the Carolina's Association of Milk, Food and Environmental Sanitarians.

Carolina's Association of Milk, Food and Environmental Sanitarians was adopted into the IAMFES family at the Awards Banquet Wednesday evening. Elizabeth Johnson accepted the charter for the New Carolina's Affiliate.

CERTIFICATE OF MERIT AWARD

... is presented to those affiliate members who are active within their state/province affiliate group and IAMFES. This year the award was presented to **Richard Holley**, OFPA, Toronto, Ontario and **William Coleman**, MAS, St. Paul, MN.

MEMBERSHIP ACHIEVEMENT AWARD

... is presented to the IAMFES Affiliate which has had the most new members in the past year. This year's winners are the Associated Illinois Milk, Food and Environmental Sanitarians and the California Association of Dairy and Milk Sanitarians.

SHOGREN AWARD

... is presented to an Affiliate of IAMFES for service to its members in the past year. This year the Georgia Association of Food & Environmental Sanitarians received a certificate and \$100 check for their services and contributions.

DEVELOPING SCIENTIST AWARDS



The Developing Scientist Award Winners are (l to r): Lynn McIntyre, Fourth Place; Kyle Sashara, Third Place; Janice Baker, Second Place; Grey Leyer, First Place. Not pictured: Kwang Yup Kim, Fifth Place.

... were presented to five students, judged on their paper and presentation at the IAMFES Annual Meeting. These awards are sponsored by the IAMFES Foundation Fund. First place went to **Greg J. Leyer** of University of Wisconsin, Madison, WI. Greg received \$500 and a plaque for "Adaption to Acid Promotes Survival of *Salmonella* in Cheese." **Janice M. Baker** of University of Guelph, Guelph, Ontario won second place with \$200 and a certificate for her presentation "Predictive Modeling of Psychrotrophic *Bacillus cereus*." Third place received \$100 and a certificate for "The Use of Epifluorescent and Phase Microscopy in Evaluating Mixed Biofilms" and went to **Kyle Sashara** of the University of Minnesota, St. Paul, MN. The winner of fourth place was **Lynn McIntyre** of University of Guelph, Guelph, Ontario. She won \$50 and a certificate for "Accelerated Growth of *Listeria monocytogenes* by Moulds." Fifth place went to **Kwang Yup Kim** of the University of Georgia, Athens, GA. He received \$50 and a certificate also. His presentation was titled "Effect of Growth Nutrients on Attachment of *Listeria monocytogenes* to Stainless Steel."

CITATION AWARD



Damien Gabis (r) presenting the Citation Award to Ewen C. D. Todd (l).

... for many years of devotion to the ideals and objectives of the Association. A plaque was presented this year to **Ewen C. D. Todd** of Ottawa, Ontario.

HAROLD BARNUM INDUSTRY AWARD



Dee Clingman (r) presenting the Harold Barnum Industry Award to Ronald Case

... given in recognition of outstanding service to the public, IAMFES, and the profession of the Sanitarian. This award is sponsored by NASCO International, Fort Atkinson, WI. A \$1,000 check along with a plaque was presented to **Ronald Case** of Kraft General Foods in Champaign, IL.

EDUCATOR AWARD



Henry Atherton (l) presenting the Educator Award to William S. LaGrange.

... presented by Henry Atherton to an educator in recognition of outstanding service in academic contributions to the profession of the Sanitarian went to **William S. LaGrange**. The award is sponsored by IBA Incorporated, Milbury, MA. LaGrange is with Iowa State University, Ames, IA. He received a \$1,000 check and a plaque.

SANITARIAN AWARD

... in recognition of outstanding service to the profession of the Sanitarian, was presented this year to **Mr. Dick B. Whitehead**, Consumer Safety and Health Consultant, Brandon, MS. Mr. Robert Prescott received the award for Mr. Whitehead who was unable to attend.

Whitehead received a plaque and \$1,000. The Sanitarian Award is sponsored and presented annually by the Klenzade Division of Economics Laboratory, St. Paul, MN, Diversey Corporation, Wyandotte, MI, and the Monarch Division of H.B. Fuller Co., Minneapolis, MN.

HONORARY LIFE MEMBERSHIP



A. Richard Brazis (l) receiving the Honorary Life Membership Award from IAMFES President, Damien A. Gabis (r).

... for devotion to the high ideals and principles of IAMFES. This award, sponsored by IAMFES, entitles the winner to life membership with IAMFES including the *Journal of Food Protection and Dairy, Food and Environmental Sanitation* and a plaque. This year's winners were **Harry Haverland**, FDA, Public Health Service, Springdale, OH and **A. Richard Brazis**, Laboratory Quality Systems Consultant, Bellevue, NE.

PAST PRESIDENT'S AWARD



President-Elect (r) Michael Doyle presenting the Past President's Award to Damien A. Gabis.

Committee Reports

If you wish to serve on an IAMFES committee, please contact the IAMFES Office so that we may put you in contact with the committee chairperson, (800)369-6337 (US), (800)284-6336 (Canada) or (515)276-3344.

Affiliate Council

The IAMFES Affiliate Council Meeting was called to order on July 25, 1992 at 1:15pm by chairman Ron Schmidt.

Nineteen affiliate delegates were present (see next page) with Dee Buske, IAMFES Affiliate Liaison, and Joe Hall, representing the new Carolinas affiliate also in attendance. Quorum declared.

The minutes of the 1991 Affiliate Council meeting were read by Council secretary Ruth Fuqua and approved as amended.

Dee Buske presented the IAMFES report. Requests were made to the delegates to make suggestions regarding IAMFES relationship to the Affiliates. Dee is compiling historical information about each affiliate, and requested that each affiliate send her what information is available. Discussion by the delegates indicated that early archives are not available at some affiliates, and Dee will send what the IAMFES office has available back to the delegates.

Old Business

1. Affiliate status

a. A new affiliate has been formed called the Carolina's Association of Milk, Food and Environmental Sanitarians. The charter for the new affiliate will be presented at the IAMFES awards banquet.

b. Oregon is still in the process of rechartering an IAMFES affiliate.

c. Idaho membership has fallen below the 10 IAMFES members required for affiliate status. The consensus of the vote of the Affiliate Council indicated the Idaho Affiliate will be allowed until the 1993 IAMFES annual meeting to boost the membership rolls.

d. Other affiliate formation work is still ongoing in New Jersey, Chesapeake (MD/Delaware) and Europe. Further suggestions for new affiliates were Quebec and South America. Delegates were encouraged to recruit additional affiliates in states and provinces.

2. Affiliate Council delegate survey

Chairman Schmidt reported on the Affiliate Council delegate survey regarding 1991 discussions on bylaws and elections.

Twenty percent of the delegates responded to the survey. 67% indicated a need for bylaws for the affiliate council, 67% indicated the secretary should not automatically succeed to chairman.

3. Affiliate Ad Hoc committee on Bylaws

Chairman Schmidt reported that the Ad Hoc committee on bylaws resulted in no recommendations on the proposed bylaws.

The council approved a motion to defeat the proposed bylaws. The council approved the appointment of a committee to study the redefinition of the existing IAMFES bylaws as apply to the affiliate council and recommend to the council improvements or changes to be made. (Committee of Ron Schmidt, Ruth Fuqua, Charlie Price, Rick Molahon, Grace

Steinke. The committee will report back to the Council at a second 1992 affiliate council meeting on Wednesday, July 29, 1992.

Discussion regarding scheduling of the affiliate council meeting at future IAMFES annual meetings was conducted. The consensus of the delegates was that the affiliate council meeting should be scheduled at a time when no other official IAMFES meetings were being held. The council indicated a strong preference for a Sunday morning time slot. Discussion indicated strong concern that the affiliate council chairperson should attend all Executive Board meetings to adequately represent the affiliate council in all board deliberations.

Reports from affiliate delegates were presented to share the activities of each affiliate.

A breakout session of delegates was held to consider the following:

1. What is the role of the affiliate council in IAMFES regarding:
 - a. IAMFES policy
 - b. leadership in the organization
 - c. strength of the council's role
2. What expectations does the affiliate council have:
 - a. with the affiliate liaison
 - b. with the executive manager/staff
3. What should the role of the affiliate council be in 5 and 10 years?

Reports from the breakout groups include the following suggestions:

- a. There is a lack of free flowing information from the Executive Board to the affiliate council. Suggestions for improvement included Executive Board minutes being sent to delegates, IAMFES financial reports being presented to delegates, and general discussions between the Executive Board and the affiliate council.
- b. There is need to have some continuity to the affiliate council delegation. While the affiliates are autonomous organizations, it was suggested that the IAMFES affiliate delegates also serving a minimum 2-3 year term on the affiliate council, with the delegates serve on the state affiliate's executive board during their term as affiliate delegate.
- c. A stronger IAMFES presence is needed at affiliate meetings. In addition to the affiliate liaison or another representative from the IAMFES staff, affiliates should be able to call on other representatives of IAMFES, such as past presidents to provide an additional advisory capacity.
- d. To ensure that a quorum is reached for the annual meeting of the Affiliate Council, affiliates should appoint alternates for each delegate.
- e. The affiliate council should have more input on program content for the annual meeting.
- f. To provide further strengthening of the Affiliates, an affiliate delegate should be on the nominating committee for

IAMFES each year. Nominees for IAMFES office should be strong in affiliate work.

g. Evaluation of strengthening the role of the affiliate council should be conducted to determine if the affiliate council should take an active role in concurring with Executive Board actions concerning IAMFES policy.

h. The local affiliate host for the annual meeting should be more involved in site selection early in the planning.

As a result of the breakout sessions, a committee was formed to come up with mechanisms to implement some or all of the suggestions of the council. The committee is Ruth Fuqua, Charlie Price, Terry Musson, Susan Sumner, and John Bruhn.

In further action, the Affiliate Council passed a motion to recommend to the Executive Board that a policy be established that no campaigns for any office in IAMFES would be conducted.

A second Affiliate Council meeting was to be held at the 1992 IAMFES meeting on Wednesday, July 29 at 11:00am.

The introduction of new Affiliate officers for 1992-93 was made. Ruth Fuqua is Affiliate Council Chair and Charlie Price (IL) is Affiliate Council Secretary.

The Affiliate Council meeting was adjourned.

Ruth Fuqua
Affiliate Council Secretary

Affiliate Council Affiliate Delegates Present, July 25, 1992

James Steele	Alberta
John Bruhn	California
Ron Schmidt	Florida
David Fry	Georgia
Charles Price	Illinois
Randy Hansen	Iowa
Rick Molohon	Kentucky
Douglas Marshall	Louisiana
John Kowalczyk	Michigan
Paul Nierman	Minnesota
Grace Steinke	Missouri
Susan Sumner	Nebraska
Terry Musson	New York
Gloria Swick	Ohio
Krista Mountjoy	Ontario
Mike John	Pennsylvania
Ruth Fuqua	Tennessee
Tom Owen	Virginia
Joseph Disch	Wisconsin

Applied Laboratory Methods Committee

The meeting was called to order at 1:35 pm on July 26, 1992 at The Sheraton Centre, Toronto Ontario, Canada. Presiding was Dr. Ann Draughon, Chair, Dr. Jim Dickson, Vice-chair and Dr. Tom Graham, Vice-chair Elect. The meeting was attended by approximately 31 people. Copies of the agenda and the 1991 minutes were distributed. As there were no corrections or additions the 1991 minutes were approved as written.

Old Business

1. The proposed Mission Statement of the Committee was read and discussed.

Mission Statement

To provide a forum for the exchange of information related to laboratory methods and procedures and to encourage and promote studies to address relevant analytical concerns of industry, academia and regulatory agencies.

The purpose of the Statement is to augment the goals of the Committee, namely to stimulate new methods development, review and identify problems and propose solutions, create a network of information through the establishment of a list of experts, and to serve as a review group for articles to be published. The Mission Statement was approved as read.

The development of a list of experts to serve as contact persons was discussed. It was decided that the areas of expertise would follow the format established by the AOAC. Dr. Mike Brodsky and Ms. Sue McAllister agreed to formalize the list and report back to Dr. Jim Dickson for further action as necessary. Once completed the list would be made available to help direct those seeking information to people most likely able to assist them.

2. Lawrence Roth reported on a comparison study on the extended incubation of LST broth for the detection of coliforms by the MPN method. Mr. Roth reported that extending the time from 48 to 72 hours resulted in a slightly higher MPN value but may not be of practical significance. Discussion indicated that extending the time could be used routinely in many cases, however, it was felt that it should not be used for regulatory work. The results of the study will be published under the auspices of the Laboratory Committee.
3. Dr. Mike Brodsky reported on the status of a manuscript on the efficacy of refrigerating inoculated plates prior to incubation. Results indicate that there are no obvious detrimental effects when plates are refrigerated up to 72 hours prior to incubation and could aid in the recovery of some organisms that may not have grown if the plates were incubated immediately. The study is scheduled to be published early next year.
4. A report on an optical somatic cell count method compared to direct microscopic counting was not presented.
5. A report on 13 methods used for the detection of 24 drug residues was not presented.
6. An announcement was made that those interested in obtaining information on laboratory accreditation programs and/or sources of reference materials should contact Dr. Mike Brodsky directly.
7. The problem of upper counting limits on various selective media was discussed. Upper counting limits appear to be species and media dependent. It was agreed that the problem needs to be addressed and a preliminary decision was made to do a study. Several attenders expressed interest in assisting.
8. The final item of old business concerned the AOAC Collaborative Study process. There was general agreement that the process, in many cases, needs to be faster. The new AOAC rapid validation procedure which will be used to validate the claims of drug test kits was mentioned as one way in which the process has been expedited. For more information attenders were directed to contact Nancy Palmer at AOAC's office in Virginia.

New Business

1. The reorganization of IAMFES committees was discussed. It was indicated that the Laboratory Committee is considered a professional development group. Aspects of the reorganization were discussed as they pertained to the Committee. Dr. Jim Dickson indicated that he would solicit additional information and report back to the Committee. The Committee passed a motion indicating that it was in support of the concept of redefining the groups.
2. Dr. Ann Draughon asked for input on the possibility of the Laboratory Committee putting together a symposia. Various topics were proposed including laboratory collaborative studies, rapid methods and laboratory quality assurance. The possibility of hosting a workshop was also proposed. Dr. Mike Brodsky indicated that the AOAC could be contacted to offer a laboratory quality assurance workshop and Dr. Jim Dickson indicated that Dr. Dan Fung of Kansas State University could be contacted to put on a rapid methods workshop. It was agreed to pursue the workshop idea.
3. Rapid methods in use, those available, their reliability and need for other methods was next discussed. Some felt that with new methods and technologies microbiology could start getting away from colony counting.
4. Attenders were encouraged to publish in the *Journal of Food Protection and Dairy, Food and Environmental Sanitation*.
5. The next order of business was the election of the new vice-chair elect. It was indicated that someone from industry should be considered. Ms. Sue McAllister from 3M Health Care was nominated and elected as the new Vice-chair Elect. She was uncontested.

Other Business

Dr. Jim Dickson asked if there was any interest in the Committee getting involved in the writing of a standard methods book for meat and meat products. He indicated that there appeared to be a lack of standardized methodology in meat testing and felt there was a need for such a book. There was general discussion with no decision made. A comment was made that with the large number of standard method type publications available it is often confusing on which to use. It was mentioned that only collaboratively studied methods, such as AOAC, should be used. Also it was discussed that there should be international involvement (harmonization) in collaborative type studies.

There was no further business. Dr. Jim Dickson, on behalf of the Committee, expressed thanks for all the work that Dr. Ann Draughon had done with and on behalf of the Committee during her term as Chair. The meeting adjourned at approximately 3:45 pm.

Respectfully submitted,
Thomas E. Graham, Ph.D.
Vice-Chair Elect 1992

BISSC Committee

Since 1949 members of the IAMFES BISSC Committee have played a vital role in formulating and preserving Public Health Requirements and eventual publication of construction Standards covering 42 categories of Baking Equipment.

Over the past four to five years, the IAMFES BISSC Committee has been called upon to act in a consulting capacity to the General BISSC Committee and the BISSC Office of Certification in an ever increasing number of areas.

As Chairman of the IAMFES BISSC Committee, I have not only represented IAMFES at the 1992 Annual General Meeting in Chicago in February, but also served in a consulting capacity to Task Committee activities regarding proposed revisions to Standard #29 (Electric Motors).

In January 1992, I was requested to serve as a consultant to the Task Committee for Electric Motors and the Long Range Planning Committee of the BISSC organization.

In view of the accelerated number of requests made to the IAMFES BISSC Committee to act as consultants, it has become evident and imperative that additional IAMFES members be recruited to serve on the BISSC Committee.

In an effort to recruit additional committee members, I have devoted considerable time to contacting Sanitarians, with expertise in the field of Baking Equipment evaluation, from both the regulatory and industry sectors, with only spotty response.

Some of the reasons for the lack of interest among Sanitarians and Industry people are: IAMFES has not and does not offer a symposium on Baking Equipment Review and Bakery Sanitation during their Annual Meeting. Secondly, since IAMFES fails to assign a High Priority to Baking Sanitation and Baking Equipment Review, Regulatory Agencies as well as the Baking Industry are reluctant to provide the necessary funding to enable their employees to attend IAMFES BISSC Committee Meetings held during the IAMFES Annual Meeting.

Among our goals for the coming year are to contact Sanitarians with expertise in Bakery Sanitation and Equipment Review and solicit suggestions for the preparation of an agenda for a symposium to be submitted to the IAMFES Executive Board for inclusion in the 1993 Annual Meeting.

In addition, request Bakery Sanitarians to prepare a list of pieces of bakery equipment, in use, displaying the BISSC Seal of Acceptance, but which do not comply with specific BISSC Standards, including Basic Criteria and if possible, itemize the areas that are difficult to clean because of improper design, and forward them to me at the address below.

Emphasis should be placed on enlisting Sanitarians to exchange ideas and to offer specific recommendations for the design and manufacture of equipment used in the production of bakery products and suggest changes that would be beneficial in making a standard(s) more practical and all inclusive.

I would like to take this opportunity to request that the Executive Board give very serious consideration to allotting time during the 1993 Annual Meeting for a symposium on Bakery Sanitation and Baking Equipment Review and an in depth discussion on BISSC and how Sanitarians can be of assistance to make the BISSC Program more viable.

Respectfully,
Martyn A. Ronge, Chairman
IAMFES BISSC Committee
2400 Farnsworth Lane
Northbrook, IL 600062
(708)272-7626

Communicable Diseases Affecting Man

Members Present: F. L. Bryan, Chairman
J. Guzewich
E. Todd

Presiding: F. L. Bryan

Summary of Activities and Actions Taken

The committee with the assistance of some observers reviewed questionnaires concerning the implementation of the Hazard Analysis Critical Control Point concept into food safety activities of state/provincial and local health departments. Data are being tabulated and summarized. Afterwards, it will be decided whether additional information will have to be sought or that the summarized data will be interpreted and either submitted for publication in one of the Association's journals or used for revision of the IAMFES-HACCP manual.

Over 5,000 copies of the HACCP manual have been sold and some modifications will be made in the reprinted manuals.

A manual on foodborne disease surveillance was discussed. This would probably be done either in addition to the manual on Procedures to Investigate Foodborne Illnesses or as a substantial part of the 5th edition of that manual.

Recommendations to the Executive Board

None at this time.

Submitted by:
Frank Bryan

Dairy, Food & Environmental Sanitation Management Committee

Chair: Ruth Fuqua

Committee Members Present:

Larry Mendes	Earl Wright
Bob Wilkinson	Henry Atherton
John Bruhn	P.C. Vasavada
Tom Gilmore	Nelson Cox
Chris Newcomer	Bob Strong
K.H. Dean	Christine Verplank

Minutes of Meeting

The meeting was called to order by Ruth Fuqua.

Margie Marble, Associate Editor of DFES, reported that last year's recommendation to add a column each month from an IAMFES past president has been accomplished beginning with the July 1992 issue. Also, the cover photos have been changed to reflect DFES activities, and are being donated by the Sustaining Members.

The committee suggested that abstracts are needed on all articles published to aid in computerized literature searches.

The committee reviewed the current list of the editorial review board. The review board has not been updated since the inception of DFES, and many on the list are inactive. A letter will be sent to IAMFES members listed on the editorial review board to determine sustained interest in serving in that capacity. The list will be revised and terms appointed (1-3 years).

Additional suggestions include

- 1) the possibility of reprinting multi-part articles as a package for sale by IAMFES
- 2) the feasibility of video taping presentations at affiliate meetings to be transcribed for publication.

The committee voted to accept a motion to recommend to the Executive Board that a survey should be conducted by IAMFES to evaluate the value of DFES to its members. The survey will be designed to ask demographic questions, ask for suggestions, evaluate columns and article content value. The committee members will submit specific suggested questions to be included in the survey.

The committee discussed the awards for best articles in DFES funded by the Foundation committee. It was felt that the \$250 award for each category was sufficient, but criteria for evaluation needed to be specified, and/or honorable mention certificates could be used.

Also, during judging, the abstracts should be available with the lists of titles and authors to facilitate judging.

The DFES Management Committee adjourned at 2:40pm.

Ruth Fuqua
DFES Management Committee

Dairy Quality and Safety Committee

The Dairy Quality and Safety Committee is divided into two groups: the Farm Section, chaired by Mr. John Scheffel, and the Plant Section chaired by Mr. Gaylord Smith. Each section also has a leadership cadre.

The Farm section leadership cadre includes Mr. Ted Hickerson, Ms. Brenda Holman, Mr. Terry Mitchell, Mr. Charles Price, Mr. Joseph Scolaro and Mr. Gary Trimmer.

The Plant section leadership cadre includes Dr. Sid Barnard, Mr. Robert Darrach, Mr. J. J. Jezeski, Ms. Diane Lewis, Mr. Darwin Kurtenbach, Ms. Ginny McArthur, Mr. William McCarty, Mr. Vince Mills and Mr. Bruce Meyers.

Both sections share a common mission statement:

"This IAMFES committee works to improve quality and safety in production, processing and distribution of dairy products from farm to consumer."

Each section works toward this goal using the same key activities:

- * Identify the needs of the dairy industry.
- * Develop procedures and recommendations which address these needs.
- * Disseminate information to appropriate dairy industry groups.

Farm section Chairman John Scheffel conducted a meeting of the Farm section on Sunday, July 26, 1992 at 9:30 am.

Membership lists were updated, goals reviewed and minutes of the previous meeting accepted. At the previous meeting we had accepted a dairy farm milk pipeline installation application and decided that it should be presented to 3-A for inclusion in the 3-A sanitary practice governing milking systems. It was also decided that it should be published in "Dairy, Food and Environmental Sanitation" and provided to IAMFES affiliate groups.

The 3-A submission was made and the proposal is progressing through the 3-A system. Mr. Steve Sims was delegated to followup and submit the form for publication and provide it

to the affiliates. Mr. Sims was also delegated to transmit farm inspection course planning materials to the affiliates.

After some discussion of future alternatives and several field concerns the committee selected two tasks to pursue.

1. A communication liaison group (John Scheffel, Gaylord Smith and others to be named by them) was set up to share information with Northeast Dairy Practices Council (NDPC).
2. To explore the need for and feasibility of our group producing an up-to-date dairy farm field persons handbook.

The farm section of the Dairy Quality and Safety committee will meet again in February in conjunction with the National Mastitis Council meetings.

Plant section Chairman Gaylord Smith conducted a meeting of the Plant section on Sunday, July 26, 1992 at 10:30 a.m.

There were 28 members and guests present.

Membership lists were updated, goals reviewed and previous minutes read and accepted.

The information liaison with NDPC was discussed and endorsed. A task group was formed and charged with developing recommended guidelines for in plant product return product separation. The committee also proposed submission of NCIMS problems (probably two) to cover vitamin addition in milk. Language of the problems will be prepared for IAMFES Executive Board review at their October meeting.

Respectfully submitted,

Steven T. Sims

IAMFES Dairy Quality and Safety Committee Chairman

Foundation Fund

The IAMFES Foundation Fund met at the Sheraton Centre in Toronto on July 26, 1992. The meeting began at 11:00 a.m. with Earl Wright as the chairperson. Attending the meeting were Earl Wright, Bob Marshall, Bob Sanders, Dick Brazis, Damien Gabis, Margie Marble and Steve Halstead. Those present noted with sadness, the absence of Harry Haverland.

Bylaws: The group discussed a report from Mr. Halstead regarding the incorporation of the Foundation. He identified that IAMFES is working toward changing its site of incorporation from New Jersey to Iowa. Thus the Foundation should be incorporated in Iowa but only after IAMFES is incorporated in Iowa.

Because of the legal complexity of the move, it is difficult to project how long it will take to complete the task.

Identifying the need to formalize its procedures, the Foundation decided that it needs to develop "Bylaws" now - that it cannot wait. These could easily become the formal Bylaws of the Foundation following incorporation.

The Foundation decided to recommend to Executive Board that it adopt the final draft of the Foundation's Bylaws (following review by legal council) as the operation guidelines of the Foundation.

MOTION That the Foundation allocate up to \$5,000
Bob Marshall to the Executive Board to help defray
Damien Gabis Annual Meeting expenses of speakers at
PASSED the 1993 Annual Meeting. The Board was
directed to report the results of the Program back to the Foundation.

Lending Library: The Foundation received an activity report from the Lending Library covering the past year. That report showed that the Lending Library had served 507 of the 810 requests it had received - a vast improvement over just two years ago. Improvement is still possible and will be the primary goal for next year.

Funds are still needed to facilitate these improvements.

MOTION To Allocate up to \$5,000 for the Lending
Bob Marshall Library in FY '93.
Damien Gabis
PASSED

Developing Scientist Competition: The Foundation discussed the need to modify the cash awards for the Developing Scientist Competition.

MOTION To provide the following cash prizes for the
Bob Marshall 1993 Developing Scientist competition.
Damien Gabis
PASSED

First	\$500
Second	\$400
Third	\$300
Fourth	\$200
Fifth	\$100

The Foundation also indicated to Mr. Gabis its willingness to fund a greater portion of the Lending Library's operating expense. Currently, the Foundation pays only for audio visual materials, shipping supplies and postage/shipping. The Foundation asked that it be provided with information concerning salaries, benefits, overhead (heat, light, water, sewage, rent, maintenance, etc.) and telephone.

The Foundation directed that a report be sent to all sustaining members outlining the accomplishments of the Foundation and identifying future opportunities. The IAMFES office will draft the report, Damien Gabis will edit it and the chairman will do the final review for signature.

Respectfully submitted,

Earl O. Wright

Foodservice Sanitation Committee

Members Present: Sixteen

Presiding: Bennett H. Armstrong, RS
Senior Quality Assurance Manager
General Mills Restaurants, Inc.

Summary of Activities and Actions Taken

1. Dee Clingman presented a "global position" for IAMFES to take on the area of food safety in the event of a disaster. Specific disasters such as earthquakes, hurricanes, flooding, and other natural disasters where the occurrence is predicated give a community, business, or regulatory agency time to prepare if a "disaster manual" were available. A decision was reached to create a sub group to be chaired by Gloria Swick. Gloria and her group would conduct a review and revision of a submitted manual for our association. All persons interested in providing assistance and reviewing the proposed manual please contact Gloria Swick at 7923 Cheshire Road, Galena, Ohio 43021

- or myself at P.O. Box 205, Gainesville, Virginia 22065
2. Charles Felix and Charles Otto discussed the completion date of October 16th, of the camera ready copy for IAMFES distribution for "Temporary Foodservice" events. The camera ready copy would highlight a "HACCP" flow of events for both a foodservice operator and a regulatory official to take and assure the public a safe meal at a temporary event.
 3. A copy of a video discussing food safety for fifth grade students was proposed to be sent to our lending library committee for review.
 4. Charles Otto discussed the "F.D.A. Prime Connection" as a computer system to assist users with information requests and education needs, for all subscribers. Their is no subscription fee. Presently more than 1600 subscribers are "on line."

Recommendations to the Executive Board

1. To consider including in the journal the page of "tests" on temperatures, foodborne illness prevention procedures, and other issues to keep up our membership's skills on sanitation issues.

Submitted by: Bennett H. Armstrong

Food Equipment Sanitary Standards

IAMFES was represented by Duain Shaw, Chief, Food Service Facilities, Pennsylvania Department of Resources, on the National Automatic Merchandising Association's Health Industry Council (AMHIC) and the National Sanitation Foundation's Joint Committee on Food Equipment (NSF). Both of these organizations serve very important public health functions, nationally and internationally, and are represented by public health regulatory officials, users and industry. I look forward to continuing as IAMFES' representative in 1992-93. The following is the report for 1991-92.

The AMHIC meeting was held on October 4, 1991, at McCormick Place, Chicago. The National Automatic Merchandising Association's (NAMA) vending machine evaluation program experienced very few problems with the companies participating in the program. Six new companies (manufacturers of water vendors) were added to the program in 1991. Starting 1992, vending equipment evaluated and listed as meeting NAMA's standards will have a field identification mark.

Effective July 1, 1992, refrigerant gas must be recycled. NAMA and the vending industry are under the impression that service technicians will be required to be trained and certified to recover and/or reclaim refrigerant gases.

The vending industry continues to change, and as reported by a Public Health Consultant to NAMA, some 1991 innovations include: A pizza dispensing machine that uses infrared heat and a non-microwave energy source to cook pizzas in less than 90 seconds; Non-perishable snack food machines that are also equipped with refrigeration units that helps preserve the freshness of chocolate and chocolate covered products; Combination vending machines that dispense two or more types of products, such as a snack, hot beverage and/or cold canned drinks; Counter top water vending units that have remote treatment equipment; and, Several models of food and beverage vending machines are being designed and constructed to meet European and Japanese standards in addition to NAMA's.

The NSF also plays a key role in developing food equipment criteria and standards. NSF has expanded its scope within the past several years and is now NSF International. Considering the unity goals of Europe and the United Kingdom, it is important for NSF to focus globally. The equipment standards developed by NSF is a consensus process and includes all levels of government, user groups and manufacturers. NSF's goal is to provide uniform minimum requirements for acceptance in domestic and world markets.

At last year's IAMFES meeting it was suggested that our position with NSF should be reviewed towards a "global view in evaluating equipment that is in use or being imported into the U.S....." I believe this issue has been addressed by NSF through its commitment to public health and the environment. The Executive Board may want to follow-up on NSF's suggestion that consideration be given for the appointment of an international IAMFES member to the NSF Joint Committee on Food Equipment as a non-voting member. This individual would be provided draft equipment standards and could provide comments for consideration by the Committee. Canada is currently represented on the Committee by a representative from the Canadian Institute of Public Health Inspectors. NSF is also actively pursuing input on standards and projects in various European and UK standards development activities.

At the NSF Joint Committee's fall meeting, the following items were reviewed:

* Standard 4 - Commercial Cooking and Hot Food Holding Equipment. The update to Standard 4 was accepted. A Task Group will develop standards to evaluate the performance requirements for non-enclosed food holding cabinets.

* Standard 5 - Commercial Hot Water Generating and Heat Recovery Equipment. The review and update of this standard was completed. The scope of Standard 5 will include steam heat exchangers.

* Standard 8 - Commercial Powered Food Preparation Equipment. The Committee accepted the update to Standard 8 and forwarded it to the NSF Council of Public Health Consultants.

* Standard 12 - Automatic Ice Making Equipment. The Committee accepted the inclusion of in-place cleaning methods in the proposed update and revision.

In conclusion, the Pennsylvania Department of Environmental Resources, Division of Food Protection, produced a fifteen minute training video titled "Foodborne Disease: It's Your Business." The video emphasizes the development and implementation of a HACCP system in foodservice. A copy of the video has been provided to the IAMFES film library and it is also available upon request from the PA Department of Environmental Resources, Division of Food Protection, PO Box 2357, Harrisburg, PA 17120.

Submitted by: Duain B. Shaw
July 21, 1992

Journal of Food Protection Management Committee

Items considered at the Annual Meeting

1. Report of the Editor on Volume 54 (1991) which contained 162 research papers and 11 review papers as compared with the 5-year average of 162 research papers and 17 review papers. It was observed that the committee and the editor need to work on obtaining additional review papers.
2. Report of the publishing office (Ames) on flow of manuscripts. Increased efficiency is expected in operation of the

manuscript scanner to which recently was added an automatic page feeder (eliminates need for a person to feed the scanner page by page).

3. Review of copywrite policy and procedure. This is an item to be given attention in 1992-93.
4. Recommended to the IAMFES Executive Board that the Editor of the Journal of Food Protection be responsible for administering his office salary fund rather than having that done from the Ames office.
5. Decided not to pursue at this time the use of computer discs to transmit and process manuscripts accepted following peer review. Rather the committee will monitor the experience of other associations in using this approach, especially the American Dairy Science Association (Journal of Dairy Science).

Members of the Committee:

Michael Davidson	Joseph Frank
Stephanie Doores	John Bruhn
Ewen Todd	Bob Marshall, Chair
Damien Gabis, President (ex-officio)	
Steve Halstead, Executive Manager (ex-officio)	
Lloyd Bullerman, Editor (ex-officio)	

Program Advisory Committee Report

Dates of Meetings: July 24, 1991, January 17-18, 1992
Presiding: M. Banner, Chairman, Prog. Advisory Comm.
M. Doyle, IAMFES President-Elect

Summary of Activities and Actions Taken:

July 24, 1991 Meeting:

Meeting Activities:

- Comments on 1991 Program
- A list was drawn up of potential topics for symposia and workshops for the 1992 annual meeting
- Names of potential conveners for the symposia/workshops were suggested

Actions to be taken:

- PAC Chairman was to contact potential conveners to determine potential for developing topics into symposia and workshops.
- PAC Chairman to present list of topics and possible conveners for symposia and workshops to IAMFES Executive Board, Oct. 24-25, 1991.
- PAC Chairman to confirm symposia/workshop conveners and topics by January, 1992 PAC meeting.

January 17-18, 1992 Meeting:

Meeting Activities:

- Review submitted abstracts
- Set schedule for symposia

Actions to be taken:

- PAC Chairman send letters calling for revision or rejection of abstracts.

Recommendations to the Executive Board:

As travel costs increase, many people are having a difficult time getting approval to attend conferences such as IAMFES. Also, there is a growing number of technical conferences, symposia, etc., which, to some extent, are competing for the top speakers. A number of potential speakers I have spoken to have turned down invitations to speak at IAMFES due to a lack of funding from within their own organizations and/or a lack of stipends from the organization. I would, therefore, like the Executive Board of IAMFES to develop a plan to address and solve this problem.

Secondly, I would suggest that with the world now a global market, IAMFES should do more to encourage international membership and participation in the organization. IAMFES has established itself as the leading society in North America in the areas of food protection, safety, sanitation, etc. and as such, has a great deal to both offer to and gain from the world marketplace.

I would also recommend that the Program Advisory Committee establish a written set of guidelines and standards to be used for judging the acceptability of abstracts submitted for presentation at the annual meetings. This would ensure that all abstracts were being judged on the same basis.

Submitted by: Mark J. Banner

Sanitary Procedures Committee Report

During the past year the committee held two meetings. The first was October 28, 1991 in Chicago, IL. This was CSP/USPHS meeting in conjunction with the DFISA Show.

The other was on May 20-22, 1992 in Milwaukee, Wisconsin and in conjunction with the 3-A Sanitary Standards Committees.

Members attending at least one meeting were:

Randy Chloupek	Norris Robertson, Jr.
Dale Cooper	Dr. Ron Schmidt
Joe W. Hall, Jr.	James Strange
Everett Johnson	Donald Wilding
Bruce Marzolf	Tom Williams

Unable to attend but contributing written comments were Robert Ryan and Dick Whitehead.

Joe W. Hall, Jr., presided at both meetings.

During these meetings the committee reviewed seven standards. Of those reviewed six were approved for signature with modifications. The other was sent back to the task committee for extensive review.

A part of the 3-A meeting was an educational conference conducted by H. L. M. Lelieveld of the European Hygiene Equipment Design Group (EHEDG). From this beginning a plan to share more information is being developed.

The hope is that this sharing will benefit both industry and consumers.

We recommend that IAMFES continue supporting the committee by publishing and providing reprints of the 3-A standards and practices in a timely manner.

Submitted by: Joe W. Hall, Jr., Chairman

Special Report of the 3-A Sanitary Standards Symbol Administrative Council

The purpose of this report is to review the significance of the 3-A Symbol and its value to the dairy food industry, as well as to present a brief overview of the 3-A Symbol Council - its mission, organizational structure and activities over the past year.

The 3-A Symbol was developed by IAMFES and registered with the U.S. Patent Office in 1952. In 1955, following organization of the Symbol Council, the registered 3-A Symbol was transferred to the Council.

The 3-A Symbol displayed on dairy equipment signifies that the equipment complies with all of the requirements of the 3-A Sanitary Standard which covers that type of equipment. This mark of compliance is useful to everyone concerned. For example, for the user of equipment, the 3-A Symbol signifies that the equipment complies with all applicable sanitation codes, that it can be cleaned properly, and that inspections by sanitarians are likely to go smoothly. The equipment manufacturer can expect broad acceptance of his product by users and sanitarians, thereby reducing the need for special designs and the associated high costs and extended delivery times. Sanitarians have the assurance that the equipment was designed and manufactured to a precise set of standards, which were developed in collaboration with their professional colleagues.

The primary mission of the 3-A Symbol Council is to administer the use of the 3-A Symbol. This involves authorizing the use of the 3-A Symbol by manufacturers who make application and whose equipment complies fully with the applicable 3-A Sanitary Standard. Since authorization to use the Symbol must be kept current by renewing annually, the Council also processes all renewals. Additionally, the Council processes all amendments to authorizations and pursues reports of non-compliance or misuse of the Symbol.

Organizationally, the Symbol Council consists of an eight member Board of Trustees, two Trustees representing the Dairy Industry Committee (DIC), two representing Dairy and Food Industries Supply Association (DFISA) and four representing IAMFES. The current Trustees are as follows:

Representing Dr. Warren S. Clark, Jr., Chicago, IL, Chairman
DIC: Mr. William L. Arledge, Louisville, KY

Representing Mr. Carl F. Nielsen, St. Cloud, MN, Vice
DFISA: Chairman
Mr. Robert L. Nissen, Kenosha, WI

Representing Dr. Henry V. Atherton, Burlington, VT
IAMFES: Mr. David D. Fry, Atlanta, GA
Mr. Earl O. Wright, Bella Vista, AR, Sec/Treas.
Mr. Robert L. Sanders, Gaithersburg, MD

The day to day activities of the Council are carried on at the Symbol Council office located in Cedar Rapids, IA. The

office staff consists of the Administrative Officer Mr. Walter F. Laun and an office secretary, Ms. Maureen A. O'Brien. The bulk of the activities involve authorizations to use the 3-A Symbol, including the issuing of new authorizations and renewing or amending existing authorizations. Currently, there are 401 authorizations in effect, although this number tends to fluctuate. While the number fluctuates, the overall trend is on the increase as equipment manufacturers become more aware of the advantages the Symbol offers. For example, 5 years ago, there were 316 authorizations in effect. Updated lists of current holders of Symbol authorizations are published biannually in the IAMFES magazine, *Dairy, Food and Environmental Sanitation*. The 3-A Symbol is recognized world-wide and many authorizations are held by manufacturers located outside the United States.

Responding to reports of non-compliance or misuse of the Symbol makes up a relatively small fraction of Council activities. Reports of equipment not meeting 3-A Standards are very few. Violations usually involve misuse of the 3-A Symbol in advertising literature and usually manufacturers respond quickly with corrective action when they are notified of the violation. For those manufacturers unwilling to correct their violations, the Council may revoke its previously granted authorization to use the 3-A Symbol.

The Council publicizes the 3-A program by participating as an exhibitor in major industry events such as the Food & Dairy Expo, which was held in Chicago last October, the IAMFES Annual Meetings, held in Louisville, Kentucky in July of 1991, and in Toronto this year, and the International Dairy Show, which was held in New Orleans this Fall.

In addition, the Symbol Council has completed an educational video presentation that describes the 3-A Sanitary Standards and 3-A Symbol Council program. VHS Video tapes are available on a loan basis from DFISA or from IAMFES. Copies of the tape are also available for purchase from the 3-A Symbol Council office.

In addition to producing the video, the Symbol Council brochure, titled *Mark of Compliance*, has been updated and reprinted. Soon the brochure will be available in Spanish to better promote the 3-A Program in Spanish-speaking parts of the world.

In conclusion, the 3-A Sanitary Standards program is based on the cooperative efforts of public health agencies, equipment manufacturers and processors of dairy foods — all working together to create a program which is respected world wide. We are appreciative of the ongoing support of DIC, DFISA and IAMFES, and look forward to continuing to serve the well-being of the dairy industry and its constituency, both domestically and internationally.

Submitted by: Dr. Warren S. Clark, Jr., Chairman
Walter F. Laun, Administrative Officer

Minutes of the IAMFES 79th Annual Business Meeting

3:15 p.m. July 28, 1992 Toronto, Ontario

Welcome and Introduction: President Elect Michael Doyle welcomed those assembled and introduced IAMFES President Damien A. Gabis.

Presidential Address: Mr. Gabis proceeded to deliver the 1992 Presidential Address.

Business Meeting:

I. Call to Order: Following his address, President Gabis called the 79th Annual Meeting of the International Association of Milk, Food, and Environmental Sanitarians, Inc. to order at 3:47 p.m. on Tuesday, July 28, 1992 at the Sheraton Centre Hotel located in Toronto, Ontario. A quorum, as defined by the IAMFES Constitution, was declared to be present.

II. Moment of Silence: Mr. Gabis asked the audience to rise and to observe a moment of silence in memory of departed colleagues.

III. Minutes of the Last Meeting: Secretary C. Dee Clingman reminded the meeting that the Minutes of the 78th Annual Meeting had been printed in the November, 1991 issue of *Dairy, Food, and Environmental Sanitation*. He proceeded to identify highlights of the meeting.

MOTION To dispense with the reading of the Minutes Arledge of the 78th Annual Meeting and to approve Brazis them as printed in the November, 1991 *Dairy, PASSED Food, and Environmental Sanitation*.

IV. Reports: The meeting then received the following reports:

- A. Executive Manager: Steven Halstead
- B. Affiliate Council: Ronald Schmidt
- C. *Dairy, Food, and Environmental Sanitation* Management Committee: Ruth Fuqua
- D. *Journal of Food Protection* Management Committee: Robert Marshall

V. Old Business: J. Russell Bishop, chairman of the Nominating Committee reported that Susan Sumner and Ann Draughon had been nominated to the office of IAMFES Secretary and that in the ensuing election, Ms. Draughon had been elected to the post. The President thanked Mr. Bishop and his committee for their work and directed Mr. Bishop to destroy the ballots.

There was no other Old Business to come before the Association.

VI. New Business: President Gabis named Norman Stern as Chairman of the Nominating Committee for the 1993 election of the IAMFES Secretary.

There was no other New Business to come before the Association.

VII. Resolutions: Immediate Past President Robert Sanders presented two resolutions to the meeting for its consideration:

Resolution #1: Relating to the meeting's gratitude to the Ontario Affiliate for their outstanding performance as hosts of the 79th Annual Meeting.

MOTION To adopt Resolution #1.

Price
Darrah
PASSED

Resolution #2: Relating to the meeting's gratitude to the Sheraton Centre Hotel for its outstanding performance in serving the 79th Annual Meeting.

MOTION To adopt Resolution #2.

Fry
Wright
PASSED

President Gabis directed that the resolutions be attached to these Minutes as Addenda and that they be printed in an upcoming issue of *Dairy, Food, and Environmental Sanitation*.

VIII. Adjournment: There being no further business to come before the meeting, President Gabis called for a motion to adjourn.

MOTION To adjourn.

Doyle
Clingman
PASSED

President Gabis declared the meeting adjourned at 4:19 p.m.

Respectfully submitted,
C. Dee Clingman, RS
Secretary

Resolutions Adopted by IAMFES

RESOLUTION #1

WHEREAS: The Ontario Food Protection Association and the Local Arrangements Committee have labored long, hard and with joy to plan, coordinate and host the Seventy-Ninth Annual Meeting of the International Association of Milk, Food and Environmental Sanitarians in Toronto, Ontario, Canada, and,

WHEREAS: The entire Annual Meeting was conducted and planned with style, grace and excellence by the Affiliate and the Local Arrangements Committee, and,

WHEREAS: The gracious hosts coordinated the efforts of industry, educational and governmental members towards the great success of this Annual Meeting, and,

WHEREAS: The 1992 Meeting was truly an outstanding event and contributed to the goals of our Association.

THEREFORE, BE IT RESOLVED:

That the International Association of Milk, Food and Environmental Sanitarians, Inc. adopt this resolution of appreciation and gratitude to the Ontario Food Protection Association and the Local Arrangements Committee and further that a copy of this resolution be sent to the Ontario Food Protection Association and be published in *Dairy, Food and Environmental Sanitation*.

RESOLUTION #2

WHEREAS: The personnel of the Sheraton Centre in Toronto, Ontario, Canada were very accommodating to the needs and desires of the members and guests of the International Association of Milk, Food and Environmental Sanitarians, Inc., and,

WHEREAS: The facilities for the entire program including the technical sessions and social activities were outstanding.

THEREFORE, BE IT RESOLVED:

That an appropriate expression of our gratitude be sent to the management and staff of the Sheraton Centre.

79th IAMFES Annual Meeting

Exhibitor Review

Abell Pest Control/Gardex Chemicals Ltd.

ABELL PEST CONTROL was founded in 1924. We took the initiative and began a long-term and innovative program designed to continually improve standards in all our operations. Today, ABELL PEST CONTROL has offices in sixteen major centres that offer the total service of highly-trained technicians. GARDEX CHEMICALS LTD. for more than 30 years, has been Canada's leading supplier to the professional structural pest control industry. The reasons for our success is that GARDEX places a high priority on selecting and securing the latest and best technologies that exist, has extensive technical and field experience, and national coverage. With these attributes, GARDEX CHEMICALS LTD. always strives to do the best possible job for you. **Etobicoke, Ontario — (416)675-6060**

Advanced Instruments, Inc.

Quality Control tests for the dairy and food laboratory include cryoscopes for detecting added water, and the most sensitive approved test for complete pasteurization (alkaline phosphatase). **Needham Heights, MA — (617)449-3000**

AIRWASH of NORTH AMERICA

"AIRWASH® SYSTEM" will wash and sanitize milking machine inflators. Clean inflators are less likely to transfer bacteria and other infectious agents between cows. Cleaning is accomplished using only cold water and air. The operation is automatic and completed in 40 seconds using less than 1/10 gallon of water (300ml) per claw per cycle. Research indicates that reductions of organisms are 92% to 99% depending on conditions. The system can be fitted to all makes of machines. A working unit was used to demonstrate the system. **Norwich, CT — (203)889-5408**

Anderson Instrument Co., Inc.

Anderson Instrument Co., Inc. highlighted their trio of instruments to insure failsafe monitoring and controlling of pasteurization temperatures and pressures. These included the Model 700, Electronic Safety Thermal Limit Recorder; JD, Differential Pressure Switch; and "DART", Digital Reference Thermometer. **Fultonville, NY — (518)922-5315**

Aquionics, Inc.

Advanced ultraviolet disinfection equipment for use in the food and dairy industries. Applications include: disinfection of water, air and surfaces using a single high intensity UV lamp. Dairy applications include disinfection of cottage cheese curd wash, incoming plant water, carbon treated water for juice and beverage make-up and bottled water. Captive cooling loops such as brining systems for cheese production are also treated using the high intensity technology in combination with specially designed internal lamp cleaning mechanisms. System features include total monitorability with recordable output for QC verification, ground fault interrupt safety package, and powered contacts for process interlink and control.

Erlanger, KY — (606)341-0710

Atkins Technical, Inc.

Atkins Technical manufactures high accuracy digital thermometers, temperature probes and recorders for food safety, environmental and food applications. Trip recorders for transportation, and other unique temperature measurement products. More than 150 probe designs.

Gainesville, FL — (904)378-5555

See Ad on Page 745.

BDH, Inc.

BDH Inc. is a supplier committed to the laboratory needs of the food microbiology laboratory. We offer a comprehensive line of microbiology media and diagnostic kits for the isolation and identification of foodborne pathogens. As GeneTrak Systems exclusive Canadian distributor we can meet your needs from pre-enrichment to identification. BDH can meet your needs for today and for the future.

Toronto, Ontario — (800)268-0310

Becton Dickinson Microbiology Systems

Becton Dickinson Microbiology Systems exhibited products utilized for the cultivation and identification of foodborne pathogens, including Salmonella and Listeria. In addition, the company displayed autoclave controls and a complete line of bottled media utilized in sterility testing, environmental moni-

toring and recovery of foodborne pathogens. Cockeyville, MD — (410)771-0100

See Ad on Inside Back Cover

L.J. Bianco & Associates, Inc.

New GMP, GSP Booklet Series and Videos about "what employees should know about Good Manufacturing Practices (GMPs) and Good Sanitation Practices (GSPs)" are now available in both English and Spanish.

These new training materials help companies cope with the increasing bacteriological, sanitation and extraneous matter quality problems facing the food industry. Also, they provide practical and technical aids for both management and hourly employees. All materials were displayed. The management booklets cover GMPs and GSPs as well as HACCP, QUALITY CONTROL and Audit Inspection Programs, etc. Many other plant training materials -- booklets, slides and videos are available. One-day plant management and/or employee training seminars are offered.

Northbrook, IL — (708)272-4944

Biolog, Inc.

Bacteria identification systems are available that allow food microbiologists to easily and quickly identify nearly 800 species and sub-species. This includes such contaminants as Listeria, Lactococcus, Enterococcus, spore-forming Bacillus, Staphylococcus, Vibrio and Shigella. Systems range from manual data entry (less than \$1,000) for the small volume lab to the automated MicroStation™ (under \$20,000). An existing lab computer can normally be used to minimize the cost. A demonstration diskette is available.

Hayward, CA — (800)284-4949

Bioman Products Inc.

Bioman Products Inc. offers an innovative line of envirodiagnostic and agridiagnostic immunoassay kits designed to test for the presence of contaminants in soil, water, milk, food, plant tissue, sera and urine. These kits are available for on-site and in-lab analysis and particularly suited for emergency testing, quality control sampling and pre-procurement testing. A variety of diagnostic kits are available for a range of pesticides, herbicides, fungicides, insecticides and PCB's. Kits are also available for mycotoxins, antibiotics and bacteria.

Mississauga, Ontario — (416)890-6023

IAMFES

DFS
11/92

International Association of Milk, Food and Environmental Sanitarians Inc.

Reader requests for information are sent to the appropriate company. Follow-up on reader requests are the responsibility of the company advertising.

The Advertisements included herein are not necessarily endorsed by the International Association of Milk, Food and Environmental Sanitarians, Inc.

Name _____ Title _____
 Company _____
 Address _____
 City _____ State/Prov. _____
 Country _____ Zip _____
 Phone Number _____

To receive information on membership with IAMFES Circle 360 on this card

Please send information on items circled below: Deadline 60 days from issue date

101	114	127	140	153	166	179	192	205	218	231	244	257	270	283	296	309	322	335	348
102	115	128	141	154	167	180	193	206	219	232	245	258	271	284	297	310	323	336	349
103	116	129	142	155	168	181	194	207	220	233	246	259	272	285	298	311	324	337	350
104	117	130	143	156	169	182	195	208	221	234	247	260	273	286	299	312	325	338	351
105	118	131	144	157	170	183	196	209	222	235	248	261	274	287	300	313	326	339	352
106	119	132	145	158	171	184	197	210	223	236	249	262	275	288	301	314	327	340	353
107	120	133	146	159	172	185	198	211	224	237	250	263	276	289	302	315	328	341	354
108	121	134	147	160	173	186	199	212	225	238	251	264	277	290	303	316	329	342	355
109	122	135	148	161	174	187	200	213	226	239	252	265	278	291	304	317	330	343	356
110	123	136	149	162	175	188	201	214	227	240	253	266	279	292	305	318	331	344	357
111	124	137	150	163	176	189	202	215	228	241	254	267	280	293	306	319	332	345	358
112	125	138	151	164	177	190	203	216	229	242	255	268	281	294	307	320	333	346	359
113	126	139	152	165	178	191	204	217	230	243	256	269	282	295	308	321	334	347	360

IAMFES

DFS
11/92

International Association of Milk, Food and Environmental Sanitarians Inc.

Reader requests for information are sent to the appropriate company. Follow-up on reader requests are the responsibility of the company advertising.

The Advertisements included herein are not necessarily endorsed by the International Association of Milk, Food and Environmental Sanitarians, Inc.

Name _____ Title _____
 Company _____
 Address _____
 City _____ State/Prov. _____
 Country _____ Zip _____
 Phone Number _____

This second Reader Service Card is provided to allow co-workers to also respond to companies of interest.

Please send information on items circled below: Deadline 60 days from issue date

101	114	127	140	153	166	179	192	205	218	231	244	257	270	283	296	309	322	335	348
102	115	128	141	154	167	180	193	206	219	232	245	258	271	284	297	310	323	336	349
103	116	129	142	155	168	181	194	207	220	233	246	259	272	285	298	311	324	337	350
104	117	130	143	156	169	182	195	208	221	234	247	260	273	286	299	312	325	338	351
105	118	131	144	157	170	183	196	209	222	235	248	261	274	287	300	313	326	339	352
106	119	132	145	158	171	184	197	210	223	236	249	262	275	288	301	314	327	340	353
107	120	133	146	159	172	185	198	211	224	237	250	263	276	289	302	315	328	341	354
108	121	134	147	160	173	186	199	212	225	238	251	264	277	290	303	316	329	342	355
109	122	135	148	161	174	187	200	213	226	239	252	265	278	291	304	317	330	343	356
110	123	136	149	162	175	188	201	214	227	240	253	266	279	292	305	318	331	344	357
111	124	137	150	163	176	189	202	215	228	241	254	267	280	293	306	319	332	345	358
112	125	138	151	164	177	190	203	216	229	242	255	268	281	294	307	320	333	346	359
113	126	139	152	165	178	191	204	217	230	243	256	269	282	295	308	321	334	347	360

Place
Stamp
Here

IAMFES

200W Merle Hay Centre
6200 Aurora Ave.
Des Moines, Iowa 50322

Place
Stamp
Here

IAMFES

200W Merle Hay Centre
6200 Aurora Ave.
Des Moines, Iowa 50322

bioMérieux Vitek, Inc.,

bioMérieux Vitek, Inc. is committed to providing the dairy and food industry with fully automated QC/QA microbiology systems and manual test kits. The Bactometer is available for the detection and enumeration of microorganisms in hours instead of days. For the identification of microorganisms, we have the automated Vitek and ATB Identification Systems which provide rapid results typically within 4-24 hours.

New this year was the introduction of VIDAS (Vitek Immuno Diagnostic Assay System) for fully automated pathogen screening of *Listeria* and *Salmonella*.

Hazelwood, MO — (800)638-4835

Biotrace, Inc.

Based on breakthrough technology, the BIOTRACE M3 Hygiene Monitor is capable of detecting the presence of minute traces of product residue or microbial contamination on contact surfaces, or in rinse and process water samples. This system offers:

- Hygiene test results in minutes
- Implementation of effective HACCP programs
- "On line" or "Near line" testing with the ultra-lightweight (1 lb) M3 system.

The BIOTRACE M3 System was recently recognized as the "TECHNOLOGICAL DEVELOPMENT OF THE YEAR" by Food Processing, for their Diamond Jubilee.

San Diego, CA — (619)673-5050

Bunge Foods

Bunge Foods exhibited their new Vitex Microprocessor controlled vitamin pump. This pump digitally displays volume of vitamin being dispensed on a milliliter/minute basis. Unit features memory backup to retain both calibration data as well as the pre-selected dispensing volume; even during power outages. The most exclusive feature of the pump is its volume recall. Volume of milk processed can now be reconciled against volume of vitamin dispensed by the touch of a button.

Atlanta, GA — (800)241-9485

Capitol Vial, Inc.

In this day of rigorous laboratory testing and vigorous regulatory activity, even a single adulterated sample can have devastating economic effect. Only an absolutely leakproof, airtight and sterile sample container with an attached cap can guarantee sample integrity. Only one company can fully guarantee that its vials are: Leakproof, Airtight, Sterile.

Fultonville, NY — (800)836-5520

See Ad on Page 735.

Charm Sciences, Inc.

Charm Technology encompasses an array of tests that define quality assurance and control in the area of residue avoidance, product

keeping quality, sanitation monitoring, and pasteurization control. These rapid tests include portable and bench top systems for antibiotics, aflatoxins, alkaline phosphatase and bacteria.

Among the items displayed, were the Charm ABC tests (Active Bacteria Count) and the C2SOFT Data Acquisition software. C2SOFT monitors and enhances test performance, and formats Charm Data for customized reports.

Malden, MA — (800)343-2170

See Ad on Back Cover.

Custom Control Products, Inc.

Custom Control Products, Inc. is an electrical process engineering group that designs and builds process automation control systems for the food, dairy and beverage industries.

CCPI displayed their latest flow diversion valve controller (FDVC).

- The FDVC has 100% solid state functions using a PLC (Programmable Logic Controller)
- The FDVC will control any approved flow diversion valve for milk pasteurizing
- The FDVC can also interface/interlock other functions of your pasteurization process.

Racine, WI — (414)637-9225

DQCI Services, Inc.

DQCI Services provides control samples for infra-red and somatic cell analyzers. Chemical analysis is also performed for customers. In addition to standards in the 2.5% - 5.8% B. F. range, we now have raw and pasteurized/homogenized standards in the .07% - 3.5% range and cream standards in the 32% - 45% range. DQCI is planning to have component standards in the 8% - 20% B. F. range soon. Custom made calibration standards can also be made to your specific requirements.

St. Paul, MN — (612)785-0484

See Ad on Page 784.

Difco Laboratories

Difco Laboratories is a Worldwide manufacturer of quality Microbiology products.

The product lines include dehydrated media and ingredients, which have been developed for a variety of industries such as, Food and Beverage, Dairy, Pharmaceutical, Cosmetic, Water and Waste Water, Biotechnology, and Clinical Laboratories.

Difco also offers Immunology and Serological products for detection of microorganisms, prepared culture media, QC cultures, Stains, Reagents and Indicators.

Detroit, MI — (800)521-0851

Diversey Inc.

DIVERSEY INC. is a worldwide supplier of cleaning and sanitizing products and systems to dairy, beverage and food processing operations.

Diversey is committed to the concept of a partnership in our customer's quality management programs and can provide expert counselling in shelf life maximization, product selection, system design, staff training and cost control. Innovative monitoring systems like SHUR DATA and SHUR GRAPH PLUS assist customers in meeting the monitoring, verification and record keeping requirements of HACCP.

Mississauga, Ontario — (416)822-3511

Diversified Research Laboratories, Ltd.

A full service technical facility, Diversified Research is a leader in nutritional analysis, microbiological testing environmental and sanitation audits, chemical analysis, process monitoring and improvement, and the development of quality assurance programs. Our reputation for technical and consulting expertise has been built through successful collaboration with companies, large and small, and continued contact with appropriate government agencies. With over 40 years of experience, we are ready to assist you with your technical challenges.

Toronto, Ontario — (416)922-5100

ENVIRONETICS, Inc.

ENVIRONETICS features Colilert®, the EPA approved breakthrough in coliform testing. Colilert simultaneously detects, identifies, and confirms total coliforms and *E. coli* in the same container, in 24 hours or less. AOAC approved for water used with foods.

Branford, CT — (800)321-0207

Charles Felix Associates

Charles Felix Associates is a consulting firm specializing in public health promotion, particularly in the area of food safety. The CFA exhibit offered samples of CFA publications: Food Protection Report and Food Talk; also materials from CFA clients relating to single service (the Food-service & Packaging Institute) and ice sanitation (the Packaged Ice Association).

Leesburg, VA — (703)777-7448

Foss Food Technology

Foss Food Technology featured the Biotrace sanitation monitoring system, at this year's annual meeting. Foss also offers infrared composition analyzers, near-infrared analyzers, automatic samplers, somatic cell counters, and analyzers for total bacteria count. Foss has an extensive sales and service organization throughout North America.

Eden Prairie, MN — (612)941-8870

H. B. Fuller Company - Monarch Division

The Monarch Division of the H. B. Fuller Company develops, manufactures and markets qual-

ity cleaners and sanitizers for the food industries. Monarch supports the application of these products in processing facilities through service programs that assist our customers in providing a clean and sanitary process environment. An active equipment development program provides the latest in monitoring and dispensing equipment to ensure the proper results of the sanitation program.

Minneapolis, MN — (800)328-4594

Gist-brocades Food Ingredients, Inc.

Gist-brocades Food Ingredients, Inc. displayed Delvotest® P/SP, standard diffusion tests for determining the presence of antibiotic residues in milk.

King of Prussia, PA — (800)662-4478

Glengarry Biotech

1. Veterinary Drug Residue Tests — LacTek, BR Test
2. Colostrum Test — Coltest
3. Pectin Gel Agar Replacement — Redigel
4. Milk Analysis Instrument shelf-stable calibration standards — CAL-EZE SOMATICAL
5. Freshness Test — FTP III

Also miscellaneous test kits for food safety.

Cornwall, Ontario — (613)936-2722

IDETEK, Inc.

Idetek provides innovative, rapid and highly reliable Food Safety and Quality Assurance testing systems to food producers, processors, researchers, regulators and veterinary laboratories worldwide. The LacTek™ family of test kits offered by Idetek allows for rapid detection of animal drug residues and other contaminants in milk. The simple procedure enables users to test for the presence of residues in only 7 minutes. The inexpensive LacStation II™ reduces the hands on testing time, takes the guess work out of reading the LacTek assay and provides a printed record of the test results.

Sunnyvale, CA — (408)745-0544

IDEXX Laboratories, Inc.

IDEXX Laboratories, Inc. develops and commercializes advanced biotechnology-based detection systems for health and quality applications. IDEXX currently markets more than 75 biotechnology products to customers in over 50 countries for applications in food quality assurance, animal health and life science research.

Westbrook, ME — (800)548-6733

Integrated BioSolutions, Inc.

Imagine being able to determine the effectiveness of line cleaning procedures prior to production; screen raw materials and finished product in a fraction of the time; perform an easy two step Salmonella test; save 50-70% of your time when

preparing sample dilutions; and prepare particulate free samples from your Stomacher blending system. All of this becomes reality with Integrated BioSolutions. Featured was the new portable ATP Luminometer from LUMAC billed as the lightest and most sensitive luminometer available.

Monmouth Junction, NJ — (908)274-1778

Klenzade, A Service of Ecolab, Inc.

Klenzade provides sanitation products, systems and services to the dairy and food industries. Klenzade's innovative technology will now be extended to the dairy plant lab with an exciting new program.

St. Paul, MN — (612)293-2233

Meritech, Inc.

Standardize your hand washing with CleanTech™ Automated Handcleaning Systems. CleanTech systems have proven to:

- Increase handwashing compliance
- Minimize variation found with traditional methods
- Be more effective in removing/killing microorganisms than typical manual methods.

Englewood, CO — (800)932-7707

Meyer Service & Supply Ltd.

MEYER SERVICE & SUPPLY LTD. exhibited a wide range of laboratory instruments for microbiological enumeration, microwave sterilization of media and data computer software packages.

As well, instruments to test pasteurization of milk, somatic cell counters and infrared milk analyzers will be displayed.

Companies represented were ARO CORPORATION, ADVANCED INSTRUMENTS, INC., BENTLEY INSTRUMENTS, INC., CEM CORPORATION, SPENTRUP MASK INFABRIK A/S & SPIRAL BIOTECH.

Long Sault, Ontario — (613)938-2185

Nasco

The Nasco exhibit was centered around Whirl-Pak sampling bags, the most versatile sampling container available in the world. Whirl-Paks are sterile, single service sampling bags that can be used in nearly all sampling operations with all types of products. These include: water and food, dairy, chemical, medical, tissue storage, and quality control program. Our new sponge bag is specially designed for listeria and salmonella testing and provides a quick, economical alternative for environmental sampling.

Fort Atkinson, WI — (414)563-2446

Nelson-Jameson, Inc.

Going well beyond the traditional lab products distributor, Nelson-Jameson helps food & dairy processors integrate QA/QC with plant operations. Typical of unique products offered are: the RCS air sampler; sanitary re-

attachable hose couplings; pasteurizer leak detection spray; and High-Wall™ Disinfectant Mat™. Over 7500 products are featured in their 416-page *Buyers Guide*. It's free to qualified buyers. They also offer expert technical support, competitive prices, same-day shipping policy, and toll free fax or phone ordering.

Marshfield, WI — (800)826-8302

See Ad on Page 735.

NEOGEN Corporation

Neogen Corporation is exhibited its Veratox® test for aflatoxin M1, and its Agri-Screen® test for sulfamethazine residues in milk. Both are rapid immunoassays visual screening of volatile levels with Agri-Screen® or fully quantitative results in parts per billion with Veratox®. Other tests are available through Neogen for testing aflatoxin, vomitoxin, T-2 toxin and zearalenone in foods and feeds.

Lansing, MI — (800)234-5333

Organon Teknika Corp.

Organon Teknika gets your products to market faster with two rapid testing systems for *Salmonella* and *Listeria* screening. The display showed how Salmonella-Tek and Listeria-Tek can provide conclusive screening results in less than 48 hours. Also, on display was Micro-ID and Micro-ID Listeria confirmatory tests.

Durham, NC — (919)620-2000

PRISM Integrated Sanitation Management, Inc.

PRISM offers a wide range of sanitation products and services which are Pest Elimination; PRISM Fly Machine; Soaking cleaning system; Hood & Duet cleaning; Hood filter service; Warewash machines, chemicals and services; a full line of cleaning, sanitizing and degreasing chemicals; Quality Assurance inspection program including regulatory issues support; a national company backed by S. C. Johnson Wax.

Miami, FL — (305)592-6312

Promega Corporation

Promega is featured it's two latest food microbiological assays at IAMFES: a 10-minute Milk Total Viable Organisms assay which detects 10,000 cells/ml or less viable bacteria, yeasts and molds in raw and pasteurized milks; and, a 48-hour Yeasts & Molds assay for many cheeses, juices, spices and other foodstuffs which has a 99+% correlation (yes/no) with 5-day Standard Y&M plate count. Coming soon — a rapid Total Environmental Swab assay.

Madison, WI — (608)274-4330

R-TECH (Results Technology)

R-TECH is contract research fast and economical with over 150 scientists, technical engineers supporting your needs. R-TECH offers contract research in the areas of: product development, analytical services, and pilot plant facilities.

Minneapolis, MN — (612)481-2363

Radiometer America Inc./Bach Simpson Ltd.

Featuring the Malthus product line including:

- Malthus 2000 Systems - For routine quality assurance and/or research and development, capable of utilizing both reusable and disposable cells
- Malthus 1000 Systems - For rapid *Salmonella* detection, utilizing disposable cells
- Malthus Disposable Cells - Available pre-filled with sterilized media for *Salmonella* analysis, total microbial activity, and coliforms.

Westlake, OH — (216)871-8900; (519)452-3200 (Bach Simpson, Ltd.)

Raven Biological Laboratories, Inc.

Biological Indicators for testing the efficacy of Steam, ETO and Dry Heat sterilization procedures. Sterilization Monitoring Service.
Omaha, NE — (402)556-6690

Rio Linda Chemical Co., Inc.

Rio Linda Chemical Co., Inc. is a manufacturer of cleaning and sanitizing products for the food processing industry. Rio Linda's patented chlorine dioxide chemistry provides the industry with a uniquely broad spectrum biocide in a variety of delivering systems applicable to general cleaning, lubes, cooling towers, flume waters, and more.

Representatives at the Rio Linda booth had equipment and literature on hand to answer questions.

Sacramento, CA — (800)877-5022

Silliker Laboratories Group

Silliker Laboratories Group, Inc., an internationally respected network of 12 laboratories, offers an extensive scope of services to ensure the safety, quality, and nutritional value of your food product. Silliker's food testing capabilities include comprehensive microbiological analyses and analytical chemistry analyses including nutrition labeling. Silliker also offers custom-designed research programs, technical consulting services, short courses and custom video training programs. New at Silliker: the development of four regional nutrition labeling; Fresno, CA facility. Chicago Heights, IL — (708)756-3210
See Ad on Page 755.

SmithKline Beecham Animal Health

SmithKline Beecham Animal Health offers technology to enable food and milk processors to test products for aflatoxin and antibiotic residues. The Signal AccuCup Aflatoxin Test screens to 20ppb aflatoxin contamination in corn, feed, raw and roasted peanuts. The Penzyme Farm Test and Penzyme III Antibiotic Residue Test detects beta-lactam antibiotics in milk. The Signal Forsite Sulfamethazine and Gentamicin Tests can be run on milk, tissue, serum or feed to detect these residues in four minutes.

Exton, PA — (800)877-6250

See Ad on Inside Front Cover.

Systems Plus

Systems Plus is a full service Sampling Equipment Supplier. We handle a large inventory of sample containers, vials, bags and testing equipment. Ethidium Bromide is available in tablet form for DNA staining.

New Hamburg, Ontario — (519)743-6665

3-A Sanitary Standards Symbol Administrative Council

Information relating to 3-A Sanitary Standards for processing equipment and authorization to use the 3-A Symbol was available at the Symbol Council booth.

Cedar Rapids, IA — (319)395-9151

3M Microbiology Products

Petrifilm™ plates have been proven to increase lab testing efficiency an average of 82% and offer quality control made easy. Petrifilm plates save time because they're easy to use and deliver consistent, easy-to-read results. They reduce microbial testing to three simple steps. The Petrifilm plate family includes: Petrifilm aerobic count plates, Petrifilm coliform count plates, Petrifilm E. coli count plates, and Petrifilm yeast and mold count plates. Also available is the Petrifilm test kit-HEC for hemorrhagic E. coli 1057:H7 testing in meat and poultry ... and Petrifilm test kit-C for fast, efficient on-site testing for coliforms in food and dairy products. 3M can increase testing efficiency in your lab.

St. Paul, MN — (800)228-3957

Unipath Co., Oxoid Division

Unipath Co., Oxoid Division supplies Dehydrated Microbiological Culture Media to industrial, pharmaceutical and government institutions. We also supply other diagnostic reagents for Microbiology.

Ogdensburg, NY — (613)226-1318

VICAM Science Technology

A rapid qualitative test for the detection of aflatoxin, ochratoxin, fumonisin, zealarone and listeria.

Somerville, MA — (617)623-0030

Walker Stainless Equipment Co.

Walker Stainless Equipment Company is a High Quality Custom Fabricator of Sanitary Stainless Steel Processing, Storage and Transportation Tanks and Equipment for the food, dairy, beverage, pharmaceutical and related industries.

New Lisbon, WI — (608)562-3151

Weber Scientific

Visitors to Weber Scientific's booth reviewed a free copy of the NEW 1992/1993 80-page catalog dedicated to water, wastewater, dairy and food analysis. Also featured was a comprehensive selection of sampling supplies, thermometers, pH meters and products for the plant sanitarian. At the most competitive prices — everyday. Visitors also found out how to get their own fabulous "COW LABORATORY COAT."

East Windsor, NJ — (800)328-8378

ZEP Manufacturing Company of Canada

ZEP has a complete system of products and equipment to help you stay in compliance with the maintenance standards set by local Provincial and Federal regulatory agencies. ZEP offers a complete line of industrial sanitation products and equipment; soaps, handsoaps, aerosols, disinfectants, deodorizers, floor sealers and finishes. — WITH ZEP IT'S GUARANTEED.

Dorval, Quebec — (514)631-9041

Business Exchange "Classifieds"

Services / Products



ECI
THIS IS YOUR
GOOD MILKING
Guarantee

... and we back this claim with a money back offer unlike any in the industry!

ECI soft design
INFLATIONS

ECI will eliminate the problems you may be having with

- FALLING OFF
- LEAKING AIR
- DETERIORATION
- INKING OFF

Start using ECI scientifically tested inflations now for faster, cleaner milking.

ECI INDUSTRIES, INC.
VERNON, N. Y. 13476

CIRCLE READER SERVICE NO. 318

COMPLETE LABORATORY SERVICES

Ingman Labs, Inc.
2945-34th Avenue South
Minneapolis, MN 55406
612-724-0121

CIRCLE READER SERVICE NO. 315

1992 IAMFES Exhibitor

For Food Plant Operations Employee Training Materials



- GMP & GSP booklets, slides and video tapes in English & Spanish

L. J. BIANCO & ASSOCIATES
(Associated with L. J. B. Inc.)
FOOD PRODUCT QUALITY CONTROL AND ASSURANCE CONSULTANTS
850 Huckleberry Lane
Northbrook, IL 60062
708-272-4944 / FAX 708-272-1202
Over 40 years Food Operation Experience

CIRCLE READER SERVICE NO. 297



Michelson Laboratories, Inc.

6280 Chalet Drive, Los Angeles, CA 90040
Telephone: (310) 928-0553 / (714) 971-0673 / FAX (310) 927-6625

COMPLETE DAIRY ANALYSIS SPECIALIZING IN:

- Chemical
- Microbiological
- Sugar Profile
- Fatty Acid Profile
- Vitamin A & D
- Quality Assurance
- Consulting
- IMS-USPHS-FDA Approved 06143



TECHNIQUES AVAILABLE:

- Infrared Milk Analyzer
- Mass Spectrometry
- Gas Chromatography
- Atomic Absorption
- Spectrophotometry
- Spectrofluorometry
- Spiral Plater
- Laser Counter
- Microscopy
- Vitek & Bacterometer
- Inductively Coupled Plasma

Also Offering: Milk Calibration Samples for Infra-red Milk Analyzer and Electronic Somatic Cell Counter

CIRCLE READER SERVICE NO. 340

Equipment For Sale

GOSSELIN & BLANCHET Butter-Making Equipment

New and used.

Sales. Service. Parts.

B & J REPAIR SERVICE

- 4818 N. Bailey Rd. •
Coral, MI 49322
(616) 354-6629

CIRCLE READER SERVICE NO. 329

- 1 - 30,000 Gal. Cold Wall Vertical Silo Ready for Service
- 2 - 20,000 Gal. Cold Wall Silos w/Agit. Set Up for Grade A
- 1 - 7,500 Gal. S.S. Front Cold Wall w/Top Agitation
- 1 - 6,000 Gal. S.S. Front Cold Wall Storage Tank w/Top Agits.
- 2 - 6,000 Gal. Insulated Storage Tanks w/Agit.
- 1 - 3 Compartment Storage Tank S.S. Front Cold Wall Top Agit.
- 1 - 2 Compartment Storage Tank S.S. Front Cold Wall Top Agit.
- 1 - 4,000 Gal. Rect. Storage Tank Cold Wall w/Top Agit. (Ex. Cond.)
- 2 - 3,000 Gal. S.S. Front Cold Wall Storage Tanks w/Cold Wall
- 1 - 4,000 Gal. Dome Top Pressure Wall Processor 316 S.S. Interior
- 3 - 1,500 Gal. Dome Top Mix Tanks Bottom Cold Wall Built '89
- 1 - 800 Gal. Dome Top Pressure Wall Processor w/Agit.
- 3 - 300 Gal. Dome Top Pressure Wall Processor w/Agit. (Set)

W.M. Sprinkman Corp.

Midwest Food Supply Division

Waterloo, Iowa

1-800-553-2762

CIRCLE READER SERVICE NO. 292

Services / Products

1992 IAMFES Exhibitor

IAMFES

Audio Visual Lending Library

Provides Over

**100 Educational/Training
Videotape, Audiotape
and Slide Presentations**

Dealing with

**Food Safety
Dairy Quality
Sanitation
Environmental Health**

*These practical educational aids
are available as a free benefit to
IAMFES members.*



**DQCI
Services, Inc.**

Bacteriological & Chemical Testing

- Component Samples for Infrared Equipment
- ESCC Control Samples
- Chemical & Bacteriological Testing of Milk & Milk Products

Moundsvew Business Park 5205 Quincy Street St. Paul, MN 55112-1400

(612) 785-0484

FAX (612) 785-0584

CIRCLE READER SERVICE NO. 356



ENVIRONMENTAL SYSTEMS SERVICE, LTD.

- Testing for Listeria and other Pathogens
- Drug Residue Analysis by H.P.L.C. and GC/MS
- Dairy, Poultry and Food Product Testing
- Water and Wastewater Analysis
- Vitamin Analysis of Dairy Products and Concentrates.

218 N. Main Street
703-825-6660

Culpeper, VA 22701
800-541-2116

CIRCLE READER SERVICE NO. 349

CIRCLE READER SERVICE NO.222

USDA National Needs Graduate Fellowships in Food Microbiology

Department of Food Science and Technology University of Nebraska-Lincoln

Three USDA National Needs Graduate Fellowships have been awarded to the Department of Food Science and Technology at the University of Nebraska. Ph.D. Fellows will work in one of two areas related to food microbiology: Food Safety and Toxicology or Food Biotechnology and Bioprocessing.

The Department of Food Science and Technology at the University of Nebraska is located in the new 110,000 square foot Food Industry Complex, which was completed Spring, 1990. The food microbiology laboratories are all new and fully equipped with state-of-the-art instruments and equipment. The Food Industry Complex also contains a bioprocessing pilot plant, analytical support laboratory, and network computer facilities, making this facility among the best in the U.S. for food science training.

Fellowships for outstanding Ph. D. students are available starting Fall, 1993. Applicants must be U.S. citizens and must possess a Master's degree in food science, microbiology, or related discipline. The stipend for Fellows is \$17,000 per year.

For an application package or more information, contact:

Dr. Robert Hutkins
University of Nebraska
Department of Food Science and Technology
338 Food Industry Complex
Lincoln, NE 68583-0919
402/472-2820



University of
Nebraska
Lincoln

The University of Nebraska-Lincoln is an Affirmative Action/Equal Opportunity Institution

Coming Events

1992

December

•**1-2, ISO-9000 — The Impact on the Food Industry Seminar**, sponsored by the American Institute of Baking, will be held at the Embassy Suites, Airport O'Hare, Chicago, IL. Tuition fees are \$575 per participant. For further information write to the Registrar, American Institute of Baking, 1213 Bakers Way, Manhattan, Kansas 66502 or call (913)537-4750 or (800)633-5137.

•**1-2, Establishing Hazard Analysis Critical Control Point (HACCP) Programs**, UC Davis, CA. For more information contact Sharon Munowitch, University Extension, University of California-Davis, Davis, CA 95616-8727; (916)757-8899.

•**7-9, Introduction to Food Processing Systems** to be held at the University of California-Davis, Davis, CA. For more information or to enroll, call (800)752-0881. From outside California, call (916)757-8777.

•**7-10, Better Process Control School** to be held at the University of California-Davis, Davis, CA. For more information or to enroll, call (800)752-0881. From outside California, call (916)757-8777.

•**8-9, Consumer Focus for the '90s**, Parc Fifty-Five, Park Lane Hotels International, San Francisco, CA. For more information contact Rita Fullem, FPI, 1401 New York Avenue, NW, Suite 400, Washington, DC 20005; (202)393-0890.

•**8-9, Glass Packaging Integrity Workshop**, presented by The Food Processors Institute, will be held at the Hyatt Regency Sacramento at Capitol Park, Sacramento, CA. For more information contact Rita Fullem, FPI, 1401 New York Avenue, NW, Suite 400, Washington, DC 20005; (202)639-5944.

1993

January

•**4-8, 44th Annual Ice Cream Manufacturing Short Course** will be offered by the Department of Food Science, Cook College, Rutgers University. For more information contact the Offices of Short Courses and Conferences, Cook College, Rutgers University, P. O. Box 231, New Brunswick, NJ 08903, Telephone (908)932-9271.

•**13-15, FoodPack of the Americas '93 Exposition and Conference** to be held at the Coconut Grove Convention Center, Miami, FL. For more information contact FoodPack of the Americas, Inc., 200 N. Glebe Road, Suite 900, Arlington, VA 22203-3787; Telephone (703)527-3663; FAX (703)527-7750.

•**19, Alberta Association of Milk, Food and Environmental Sanitarians Annual Meeting** will be held at the University of Alberta Faculty Club (downstairs), Edmonton, Alberta. For more information, contact James Steele at (403)427-2643.

•**21, Surfactants in Foods (previously Emulsifiers in Foods)**,

offered by the American Association of Cereal Chemists, will be held in Kansas City, MO. For more information, contact Marie McHenry, AACC Short Course Coordinator, 3340 Pilot Knob Road, St. Paul, MN 55121-2097, USA. Telephone (612)454-7250; FAX (612)454-0766.

February

•**3-4, Food Processors Sanitation Workshop**, presented by the University of California Cooperative Extension, to be held at the Holiday Inn - Mission de Oro, Santa Nella, CA. For more information contact Heidi Fisher, Food Science and Technology, University of California, Davis, CA 95616, (916)752-1478.

•**15-18, Freezing Technology Short Course** to be held at the University of California-Davis, Davis, CA. For more information or to enroll, call (800)752-0881. From outside California, call (916)757-8777.

•**22-23, Dairy and Food Industry Conference; Focus on Food Ingredients** to be held at Ohio State University, Columbus, OH. For more information contact Dr. Ken Lee, Department of Food Science and Technology, 2121 Fyffe Road, Ohio State University, Columbus, OH 43210-1097 or call (614)292-6281; FAX (614)292-0218.

•**26, BISSC Annual Membership Meeting** will be held at the Chicago Marriott Hotel, Chicago, IL. For more information, contact the BISSC headquarters at 401 North Michigan Avenue, Chicago, IL 60611; (312)644-6610.

March

•**5-9, Statistical Quality Control** to be held at the University of California-Davis, Davis, CA. For more information or to enroll, call (800)752-0881. From outside California, call (916)757-8777.

•**15-17, Food Product Development/Ingredient Technology** to be held at the University of California-Davis, Davis, CA. For more information or to enroll, call (800)752-0881. From outside California, call (916)757-8777.

•**15-17, Microbiology and Engineering of Sterilization Processes** to be held at the St. Paul Campus of the University of Minnesota. For further information, contact Dr. William Schafter, course coordinator, Department of Food Science and Nutrition, 1334 Eckles Avenue, St. Paul, MN 55108, (612)624-4793.

•**15-18, Better Process Control School** to be held at the University of California-Davis, Davis, CA. For more information or to enroll, call (800)752-0881. From outside California, call (916)757-8777.

•**18-19, Florida Association of Milk, Food and Environmental Sanitarians Annual Meeting** in conjunction with Suppliers Night at the Marriott on International Drive. For more information, please contact Bill Thornhill, 3023 Lake Alfred Road, Winter Haven, FL 33881, (813)299-6555.

•**22-24, Introduction to Statistical Methods for Sensory**

Evaluation of Foods to be held at the University of California-Davis, Davis, CA. For more information or to enroll, call (800)752-0881. From outside California, call (916)757-8777.

•22-26, Midwest Workshop on Milk, Food and Environmental Sanitation to be held at Ohio State University, Columbus, OH. For more information contact Dr. Matrid Ndiye, Department of Food Science and Technology, 2121 Fyffe Road, Ohio State University, Columbus, OH 43210-1097 or call (614)292-3069; FAX (614)292-0218.

•26-28, Sensory Evaluation: Overview and Update to be held at the University of California-Davis, Davis, CA. For more information or to enroll, call (800)752-0881. From outside California, call (916)757-8777.

August

• **1-4, 80th Annual Meeting of the International Association of Milk, Food and Environmental Sanitarians, Inc.** to be held at the Waverly Stouffer Hotel, Atlanta, GA. For more information please contact Julie Heim at (800)369-6337 (US) or (800)284-6336 (Canada).

To insure that your meeting time is published, send announcements at least 90 days in advance to: IAMFES, 200W Merle Hay Centre, 6200 Aurora Avenue, Des Moines, IA 50322.

ADVERTISING INDEX

Atkins Technical, Inc.	745
Becton-Dickinson Microbiology Systems	Inside Back Cover
Capitol Vial, Inc.	735
Charm Sciences, Inc.	Back Cover
Columbus Instruments	735
Educational Foundation of the National Restaurant Assn.	788
Essex Inn	787
Marcor Development Corp.	734
McGlaughlin Oil Co.	734
Minnesota Valley Testing Labs, Inc. ..	761
Nelson-Jameson, Inc.	735
Silliker Laboratories Group, Inc.	755
SmithKline-Beecham Animal Health	Inside Front Cover
T&S Brass and Bronze Works	755

BUSINESS EXCHANGE "CLASSIFIEDS"

B. & J. Repair Service	784
L. J. Bianco & Associates	784
DQCI Services, Inc.	785
Environmental Systems Service, Ltd.	785
E. C. Industries, Inc.	784
Ingman Labs, Inc.	784
Michelson Laboratories, Inc.	784
W. M. Sprinkman Corp., Midwest Food Supply Division	784
University of Nebraska-Lincoln	785



If you're coming to Chicago for the
International Exposition of Food Processors
 February 21-24, 1993
\$93.00 Single/Double

stay at...
Downtown Chicago's

ESSEX INN
on Grant Park



Modern and economically priced . . .

Chicago's Essex Inn is right on the city's lakefront at Grant Park and Michigan Avenue. Within easy walking distance of everything in Chicago — Bears football at Soldier Field and Loop business offices. Free courtesy car service to other attractions.

The Essex Inn has 325 attractively appointed modern rooms and suites, colorful, comfortable lobby, meeting and banquet rooms, free cable TV, large outdoor swimming pool and deck.

And, the 8th Street Deli, a tasty new New York style eatery and lounge. On-site parking. Airport Limo Service available.

One toll free phone call for reservations: 1-800-621-6909.
 Fax: 312-939-1605



ESSEX INN

Minutes to
 McCormick Place

Michigan Avenue at 8th Street
 Chicago, Illinois 60605
 312-939-2800
 Across from Chicago
 Hilton and Towers

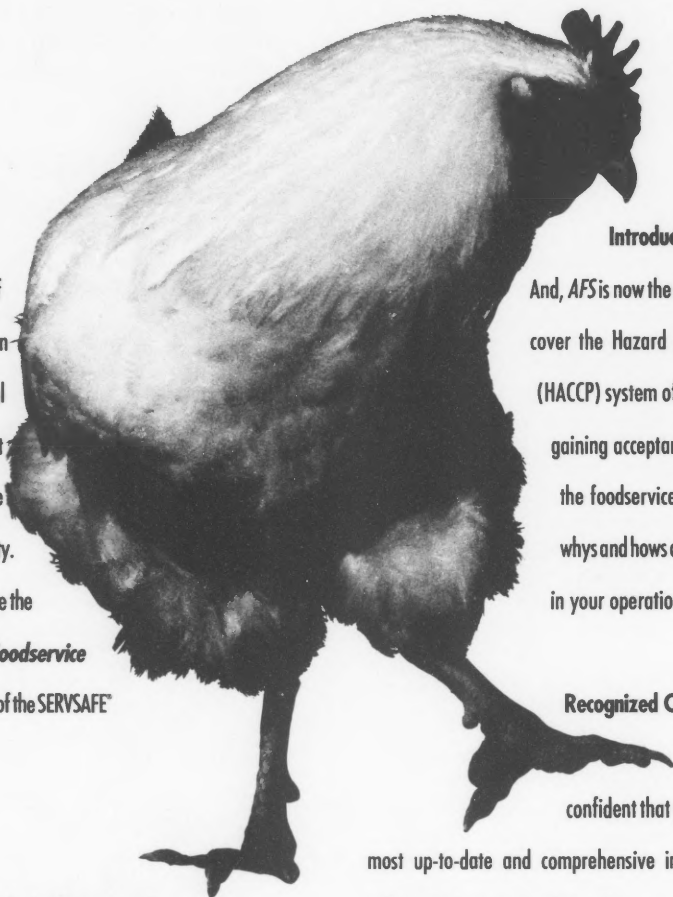


Q: How long can a chicken stand at room temperature?

This may seem like a silly question. But in the world of food safety it's really an important issue. The Educational Foundation of the National Restaurant Association knows how critical time and temperature are to food safety. That's why time and temperature are the focus of our newly revised *Applied Foodservice Sanitation (AFS)* course, the core of the SERVSAFE® Serving Safe Food Program.

The New AFS

For over 15 years, *AFS* has been the leading source for sanitation training. In the new fourth edition of *AFS*, you'll find everything you need to strengthen and update your food safety efforts. The latest developments and procedures, current governmental standards and emerging issues are all covered. The best features have been updated, expanded and revised. Added appendices, an extended glossary and revamped illustrations make the new *AFS* even better!



Introducing...HACCP

And, *AFS* is now the only foodservice coursebook to cover the Hazard Analysis Critical Control Point (HACCP) system of food safety. HACCP is rapidly gaining acceptance as the system of choice for the foodservice industry. *AFS* shows you the whys and hows of implementing a HACCP system in your operation.

Recognized Certification

With the new *AFS*, you'll be confident that your key staff are receiving the most up-to-date and comprehensive information available on food safety. And, upon completing the course, they'll receive the SERVSAFE certificate recognized by 95 percent of state and local jurisdictions.

So, how long can a chicken stand at room temperature? To learn the answers to this and many other valuable questions order your *Applied Foodservice Sanitation* course today! Call The Educational Foundation at 1-800-765-2122.

National Restaurant Association

THE EDUCATIONAL FOUNDATION

250 South Wacker Drive, Suite 1400, Chicago, Illinois 60606



**BECTON DICKINSON
MICROBIOLOGY SYSTEMS**



BBL[®] Media. The Right Fit.

Choosing media for your laboratory can be a challenge. That's why more and more labs rely on **BBL** dehydrated, prepared plated, bottled and tubed media. Providing a comprehensive selection of value-added products and services that includes:

- A complete offering of *over 200* standard referenced formulations
- Unique specialty media and proprietary formulations
- Dedicated lot reservation and custom packaging
- Consistent local daily delivery

So for superior value, proven cost-effectiveness and enhanced lab efficiency, use **BBL[®] Media**—the right fit. To find out how **BBL[®] Media** fits your lab, call us toll-free at 1-800-638-8663 and ask for the Industrial Media Specialist.

**BECTON
DICKINSON**

BBL is a trademark of Becton Dickinson and Company.
©1992 Becton Dickinson and Company

Becton Dickinson Microbiology Systems
Cockeysville, MD 21030
800-638-8663



Please circle No. 135 on your Reader Service Card
1992 IAMFES Exhibitor

One for All.



Charm II — the only one that does it all!

- Only rapid test (besides Charm I/Cowside II) that can detect all beta-lactams
- Assays for eight *families* of antibiotics (beta-lactams, sulfonamides, tetracyclines, macrolides, aminoglycosides, novobiocin, spectinomycin, chloramphenicol)
- Alkaline phosphatase (CAP Test) — 4 minutes
- Charm Aflatoxin Test (CAT) — 10 minutes
- Accepted by F.D.A. for sulfonamides and chloramphenicol
- Charm ABC — total bacteria count (7 minutes), shelf life prediction (18 - 24 hour incubation, 7 minute assay), total sanitation test (2 minutes), swab microbiological test (7 minutes)
- Charm Transit Test — run by the hauler, results in 3 minutes at the plant
- C2Soft — computer program for automatic input, analysis & storage of Charm II results

CHARM SCIENCES INC.

36 FRANKLIN STREET, MALDEN, MA 02148-4120 U.S.A. TEL: (617) 322-1523 FAX: (617) 322-3141

Please circle No. 185 on your Reader Service Card
1992 IAMFES Exhibitor

Nothing works like a Charm.

