ISSN: 1043-3546

502 E. Lincoln Way • Iowa • 50010

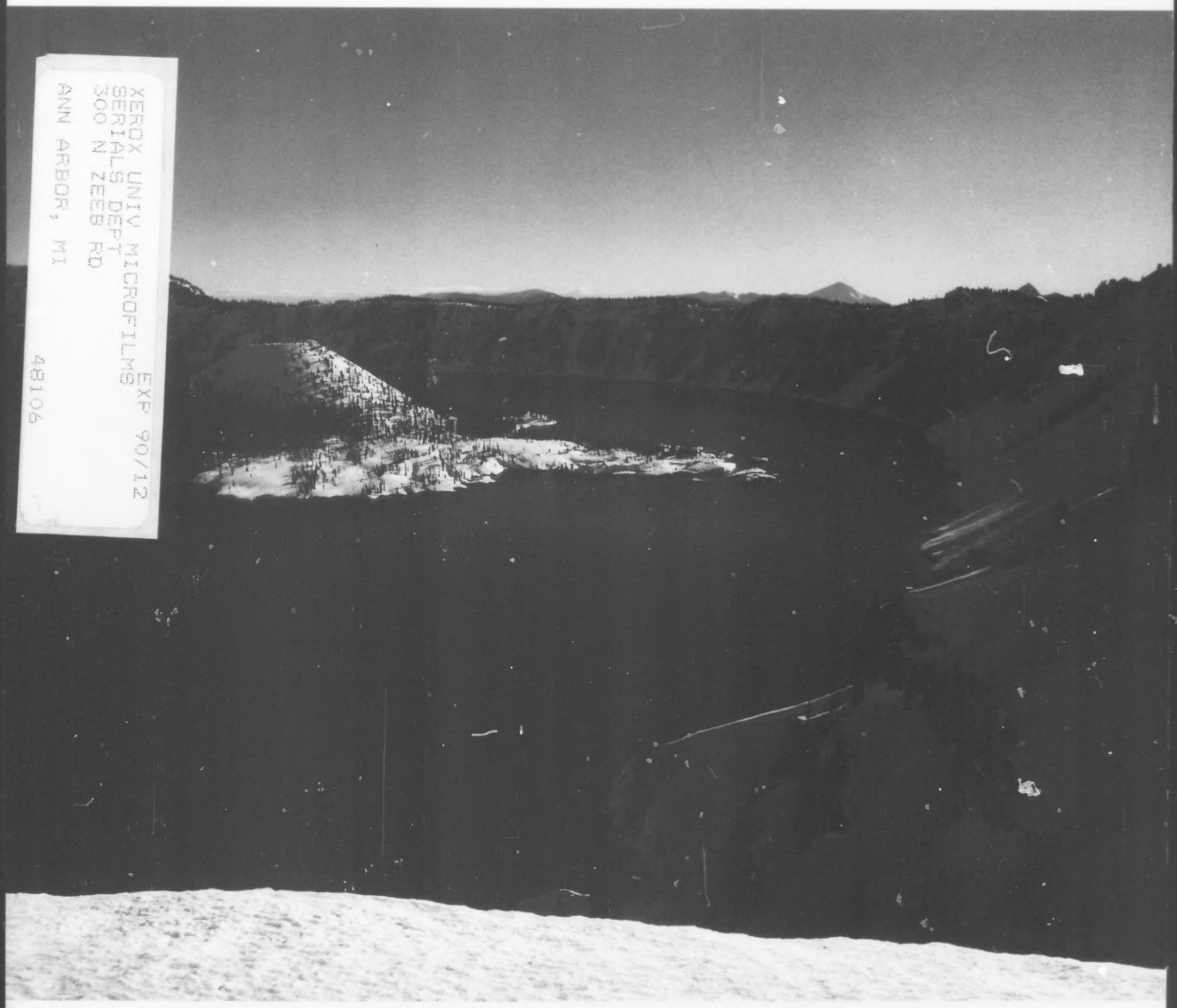
January • 1990

Vol • 10 • No. 1 • Pages 1-52

DAIRY, FOOD AND ENVIRONMENTAL

SANITATION

JANUARY 1990



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Announcement
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Purpose

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

Who Is Eligible

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.

Criteria

1. A short abstract of the paper must be submitted to the IAMFES office by January 1 of each year. (Use the blue abstract forms from the October issue, if possible.)
2. The author must indicate on the abstract form the desire to be considered for the competition.
3. The paper and the student must be recommended and approved for the competition by the major professor or department head.
4. The paper must represent original research done by the student and must be presented by the student.
5. An extended abstract form will be sent to all who enter the competition, and must be completed and returned by the deadline date on that form.
6. Each student may enter only one (1) paper in the competition.
7. Papers are to be presented as oral papers and should be approximately fifteen (15) minutes in length with an additional five (5) minutes allowed for questions, for a total of twenty (20) minutes.
8. The use of slides or other visual aids is encouraged.
9. The papers will be judged by an independent panel of judges.
10. Awards will be presented at the annual IAMFES Awards Banquet.

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Thoughts From the President . . .

By
Ron Case
IAMFES President

The Executive Board meets three times a year. These meetings are held at the Annual Meeting, in October and in March. This month's column will be a report on the October meeting which was held in Ames, IA. Due to the lead time for publication, this is as soon as I can report on that meeting.

Your Executive Manager, Steve Halstead, spent considerable time on developing a Personnel Policy Manual. The Board reviewed and approved the policies. This is the first time we have had complete written policies which detail the operation of the Ames office.

The Executive Board expressed a special thank you to the Ames staff which took on extra responsibilities during the time we were without a permanent Executive Manager. Margie Marble, Scott Wells, Sandy Engelman, Julie Heim, Dolores Taylor, Dee Buske - thank you again for the extra effort.

Financial matters were discussed with emphasis on what it is costing us to provide different services. Publications are one of our biggest costs. To help keep these costs in line with income, we are moving toward desk-top publishing for Dairy, Food and Environmental Sanitation and for part of the Journal of Food Protection. This should allow us more flexibility and shorter lead time, in addition to saving money. The Board approved some changes Dr. Lloyd Bullerman, Editor of JFP, requested to help maintain the quality of the Journal. Dr. Steve Taylor has been named as the Associate Editor of JFP to assist Dr. Bullerman. Congratulations Steve, and thank you for your willingness to take on this responsibility.

The new membership directory will be published in May instead of later in the year to take advantage of a slow time in the office. If your address or phone number or area code has changed, please notify the Ames office so the new directory will be correct. A calendar of events and deadlines is being established so members and affiliates know when things have to be done in order to meet time lines. For example, for something to appear in the April issue of DFES, it must be in the Ames office in final form before February 15. This calendar will help keep the association and journals moving smoothly.

We have had a number of responses to the resolutions which were passed at the Annual Meeting. These are published in this issue of DFES. Dr. Bob Gravani, your Past President, organized a symposia, "Coping With Food Safety Issues in the 90s", at the Food & Dairy Expo 89 in Chicago. This symposia was sponsored by IAMFES and JFP. Thank you Bob for the excellent job. The Long Range Planning Committee, chaired by Dr. Mike Wehr, recommended IAMFES become more involved with outreach cooperative efforts such as this. You will be seeing more of these in the future as we pool our efforts with other groups for the improvement of all.

The October Board Meeting is the time when the Annual Meeting is put together. Bob Sanders, your President-Elect, is the chairperson for the Annual Meeting. Gale Prince, chair of the Program Advisory Committee, met with the Board to plan the outline of this year's program. The meeting will begin Sunday, August 5, with the Ivan Parkin Lecture followed by a wine and cheese reception. There will be three concurrent sessions Monday through Wednesday, and an additional one day dairymen field conference on Wednesday, August 8. This year's meeting is being held at the Woodfield Hilton in Arlington Heights, Illinois, a suburb of Chicago. Terry Mitchell, co-chair with Charlie Price of the local arrangements, discussed plans for the meeting and activities that will take place that week. The Wisconsin affiliate is co-sponsoring the meeting with Illinois. This is the first time two affiliates have gone together to host an annual meeting, and we are looking forward to outstanding sessions and activities.

The Executive Board will meet again in March. The March meeting is the time we will make plans and budget for the coming year. If you have any items you would like the Board to discuss, please let me know. I will make sure they are on the agenda.

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Dairy, Food and Environmental Sanitation (ISSN-1043-3546) is published monthly by the International Association of Milk, Food and Environmental Sanitarians, Inc., executive offices at 502 E. Lincoln Way, Ames, IA 50010. Printed by Heuss Printing, Inc., 911 N. Second St., Ames, IA 50010. Second-class Postage paid at Ames, IA. **POSTMASTER:** Send address changes to IAMFES, 502 E. Lincoln Way, Ames, IA 50010-0701.

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Dairy, Food and Environmental Sanitation, Vol. 10, No. 1, Pages 8-9 (January 1990)

Changing Poor Handwashing Habits - A Continuing Challenge for Sanitarians

Homer C. Emery, R.S., Ph.D.
LTC MS US Army

Currently assigned Preventative and Military Medicine Consultants Division, Office of the Army Surgeon General, 5109 Leesburg Pike, Falls Church, VA 22041

The role of the hands in disease transmission is well established. In describing the transmission of infection in the hospital environment the Centers for Disease Control (CDC) has stated that handwashing is "the single most important means of preventing the spread of infection".

The importance of handwashing in preventing foodborne disease cannot be over emphasized. Numerous foodborne disease organisms can be transmitted on the unwashed hands of food service workers. The health of American's dining public is literally on and in the hands of food service workers.

A number of studies comparing the efficacy of using different soaps and handwashing agents have been reported in literature.[1,2,3,4] While one study may show a particular agent more useful in a specific setting (e.g. hospital surgical units) all agree that handwashing has a positive effect on reducing the level of contamination and reducing the risk of disease transmission.

The use of education and training to improve handwashing habits of the adult population is not well understood. Studies conducted among health care workers have shown that knowledge of communicable diseases does not correlate with positive handwashing practices. As knowledge of communicable diseases increase, a corresponding increase in handwashing is not observed. Supervision and the ease of using handwashing facilities have been shown to have more influence than education or training.[5,6,7,8]

While handwashing is a simple and easy task, studies have indicated that personnel in both the health care and food service industries have poor handwashing habits. 60% of food service personnel in one study were reported to not wash their hands after using the toilet.[9,10]

During the preparation of this paper a preliminary investigation of handwashing habits of the general public and food handlers was conducted. The first approach used was to simply observe handwashing practices in restrooms. This proved to be not only time consuming but also difficult to accomplish.

A written test instrument to provide information on handwashing habits and knowledge of food safety was developed. The instrument was designed as an error-choice questionnaire. Factual questions on food safety were combined with statements concerning handwashing habits of the general public and food handlers. The error-choice design allowed participants to respond to factual questions based on their knowledge of food safety while responding to statements concerning handwashing habits based on personal observations and practice.

The test instrument was administered to a group of thirty food service managers at the start of a training certification course in Frederick, Maryland. Average length of employment in the food service industry for this group was seven years. Responses to factual questions concerning food safety ranged from 100 to 37 percent correct. An item analysis is now being conducted to identify questions and statements that can be used to evaluate handwashing practices.

Results of initial field validation showed that knowledge of food safety did not correlate with handwashing habits. When asked about personal handwashing habits only 75% stated that they always washed their hands after visiting the toilet. Response to statements concerning handwashing habits in food service facilities confirmed reports in the literature that as many as 60% of food handlers fail to wash their hands after visiting the toilet.

Poor handwashing habits formed in earlier years are difficult to change. Handwashing habits need to be introduced in the elementary school years and reinforced in later years. A number of commercially developed training and educational programs for developing good handwashing habits are available for use in schools.

Several years ago the Single Service Institute developed "Health - A Total Concept" consisting of a teacher's manual and film strips. A video tape presentation titled "Food Safety is No Mystery" was recently produced by the U.S. Department of Agriculture. Both are excellent programs that introduce the middle and high school age student to important food safety concepts and information.

The Brevis Corporation of Salt Lake City, Utah has developed a number of handwashing motivational devices (posters, tee-shirts) for use with health care workers. In addition they have developed the Germbusters learning activity program for use in elementary schools. Last year I conducted a field evaluation of the Germbusters program in a third grade class in Frederick, Maryland.

Observations made during this field evaluation may be useful for local health departments. Visual screening of hands showed that most members of this class had already formed poor handwashing habits. Sources of potential contamination in the classroom ranged from coughing and sneezing to the class pet, Harvey the Hamster. It was also noted that an opportunity for handwashing was not provided before lunch.

Learning activities from the Germbusters program that were used included a puppet show, word puzzles, and coloring activities. Handwashing posters for bulletin boards and restrooms were also provided. All activities were well accepted and generated numerous questions.

During the 1988 Conference for Food Protection food safety education was identified as a major issue related to poor food safety habits. The Conference concluded that "gaps in food safety education have allowed the widespread development of poor food safety habits". Changing poor food safety habits such as handwashing practices will require a national education effort. The need for a national strategy for food safety education is clear. Such a strategy will require major planning and coordination efforts between consumers, educators, industry and regulatory agencies.

Historically, sanitarians in local health departments have been a major resource in planning and conducting community health education programs. At one time educational presentations for public schools, civic clubs, and consumer groups were an important part of many local health department programs. Programs such as Germbusters can be used to close the gaps in food safety education and truly help America to clean-up. As long as food service workers continue their current practices, changing poor handwashing habits will continue to be a challenge for Sanitarians.

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Dairy, Food and Environmental Sanitation, Vol. 10, No. 1, Pages 10-11 (January 1990)

The Scientists Tell Me . . .

Insect-Resistant Rice Could Save Food, Cut Storage Costs and Boost Profits

By Robert L. Haney
TAES Science Writer

An insect-resistant rice, being developed at the Texas A&M Research and Extension Center at Beaumont, has the potential of naturally resisting insects that attack rice in storage.

At present, losses of stored rice are estimated to be between 5 and 10 percent each year even though millions of dollars are spent to control insects.

In the U.S., rice production averages about 350 million bushels each year, so that a 5 to 10 percent savings could increase our rice supply by as much as 35 million bushels worth about $165 million, according to Jim Stansel, resident director of research at Beaumont.

Insect resistance, when bred into world varieties, could be of great significance since storage is primitive in many countries, chemical controls not readily available, and losses of stored rice are much greater than in the U.S.

Three insect species that can destroy whole-grain rice are especially troublesome in the southern United States where most of our rice is grown. These are the rice weevil, the lesser grain borer, and the Angoumois grain moth, according to Robert R. Cogburn, research entomologist at Beaumont.

Cogburn and C.N. Bollich, research agronomist, conducted the cooperative investigations of the Agricultural Research Service, Science and Education Administration, USDA; Texas A&M University Agricultural Research and Extension Center at Beaumont; and the Texas Rice Improvement Association.

Of the three rice insects, the rice weevil is the least important in the southern U.S. The female bores a hole in the grain of rice, lays an egg in it, and plugs the hole. The new insect develops to the adult stage inside the kernel, hollowing out the kernel as it grows.

The lesser grain borer also develops inside kernels from eggs deposited on the grain mass and, upon hatching, the larvae bore into a kernel. The adults are voracious feeders. This species is capable of inflicting extreme damage on rice, Cogburn said, and probably destroys more rice than any other species.

The Angoumois grain moth also deposits eggs outside the kernels, and the larvae bore into individual grains. This species is not as destructive as the lesser grain borer, Cogburn said, because it infests only the surface layer of stored rice (to a depth of 12 to 16 inches) and does not penetrate deeply into the grain mass. However, it is at least as significant economically because it is so wide-spread, prolific and visible.

Most of the research toward the development of resistant rice varieties has involved the Angoumois grain moth as a test insect because it is an important species, reliable techniques are available, and it is perhaps the most efficient seed penetrator of all the storage insects.

Six commercial varieties were tested for their relative susceptibility to damage by rice weevils, lesser grain borers and Angoumois grain moths.

The rice weevil inflicted less damage than the other two species. The lesser grain borer caused more loss in weight of rough rice but the Angoumois grain moth caused more loss in milling yield, therefore, the financial loss that accrued from infestation by the two species was equal.

'Vista' is uncommonly susceptible and lost about 20 percent of its value after three insect generations, Cogburn said. Insect damage to rice can vary from slight to probable total destruction, depending on variety, storage time and species of insect.

In earlier research, Cogburn and M.P. Russell tested about 800 varieties of rice from the USDA World Collection for resistance to the Angoumois grain moth. Insect survival ranged from about 1.6 percent to 83 percent, across the 800 varieties. Thirty to 40 percent survived in known susceptible commercial varieties.

One factor was undoubtedly the intact-hull character, Cogburn said, but another factor remains unknown. Whatever it may be, it seems to restrict kernel entry by the larvae because x-ray photographs revealed either undamaged, uninfested kernels or infested kernels where the larvae were developing normally.

The moths that developed in resistant varieties on the average, required longer to develop than did moths in intermediate or susceptible varieties.

After evaluation of the 800 varieties, Cogburn obtained freshly grown samples of 111 apparently resistant varieties and repeated the experiment with these and six

common commercial varieties. Later, the 36 most resistant varieties were tested.

In all three of these experiments, six varieties were in the "highly resistant" range each time. One of these was variety CI 12273, which originated in Taiwan, and has now shown resistance to four insect species in eight separate experiments.

Variety CI 12273 has been crossed both with the susceptible 'Vista' and the moderately resistant 'Dawn'. These crosses are under study but no conclusions have been reached.

"Varieties of rice are known to perform differently in different geographical areas," Bollich said.

"Thus, varieties that appear resistant to our testing might be susceptible under different circumstances of production. Therefore, three replications of 36 selected varieties were grown at Beaumont, Texas; Crowley, LA; and Stuttgart, AR.

"Highly susceptible varieties were quite variable in their level of susceptibility, but *resistant varieties were not.* Variety CI 12273 was the most resistant at each location and in the combined data, was significantly different from all other varieties but two."

By interbreeding resistant varieties with commercial varieties, these researchers expect to produce rice that has both excellent yield and resistance to insects while in storage. Such rice could increase our supply of available food, cut costs of storage and reduce the use of insecticides.

Editor's Note: Any question regarding this column should be addressed to Science Writer, Department of Agricultural Communications, Texas A&M University, College Station, Texas 77843.

Dairy, Food and Environmental Sanitation, Vol. 10, No. 1, Pages 12-14 (January 1990)

Fate of *Salmonella enteritidis* and *Salmonella typhimurium* Inoculated Into An Italian Salad Dressing With Added Eggs

Mary, L. Miller, Supervisor of Microbiology, Eric D. Martin, Microbiologist

General Mills Restaurants, Inc., P.O. Box 593330, Orlando, FL 32859

ABSTRACT

The addition of *Salmonella* to an oil and vinegar based Italian salad dressing was evaluated using *S. enteritidis* and *S. typhimurium*. Both a direct plating method and a lactose broth preenrichment method were used to determine survival times of the added inoculum. Results indicated that only the more sensitive lactose broth method yielded positive results. The initial inoculum of approximately 5 million *Salmonella* organisms per gallon of dressing dropped to an unrecoverable level following 5 minutes mixing and 5 minutes holding for the *S. enteritidis* and 10 minutes holding for the *S. typhimurium*.

INTRODUCTION

There have been many recent reports of food-borne illness outbreaks caused by *Salmonella enteritidis* isolated from whole fresh eggs (1,2,3,4,7,10,11). The Centers for Disease Control in Atlanta have already identified 6 outbreaks involving whole fresh eggs as of April 1 for the 1989 calendar year (4). Initially the *S. enteritidis* problem seemed to be primarily in the Northeast part of the United States, but there have been increasing reports from the Southeast, Midwest, and the West (3,12). In recent years, the first significant outbreak documented outside the Northeast occurred in Tennessee and involved eggs traced to an Indiana producer. Seventy-five people became ill after consumption of asparagus served with a contaminated Hollandaise sauce at a restaurant (4).

Although the Food and Drug Administration (FDA) does recommend that pasteurized eggs be used instead of whole fresh shell eggs when using pooled eggs (9,12), there has been some uncertainty about the use of eggs in a very low pH salad dressing. The effects of an acidic environment on the destruction of *Salmonella* have been well documented (5,6,8). In a study involving the addition of various amounts of acetic acid (vinegar) to mayonnaise, results indicated that acetic acid mayonnaise at a pH less than 4.2 will prevent survival of vegetative cells of food poisoning bacteria such as *Salmonella* and *Staphylococcus* (5). In another study, the addition of 1% acetic acid to poultry scald water, which lowered the pH to 3.38, resulted in instantaneous bacterial death. The addition of a 0.1% acetic acid, pH = 4.38, resulted in a tenfold increase in the death rate for *Salmonella* over the scald water alone (8).

To investigate the death times for *Salmonella* if a contaminated shell egg was added to an oil and vinegar based salad dressing, two different species of *Salmonella* prominent in recent reports of foodborne illness, *S. enteritidis* and *S. typhimurium* were evaluated in laboratory inoculation studies.

Materials and Methods

Separate tubes of Trypticase Soy Broth were inoculated with *S. enteritidis*, ATCC #13076, and *S. typhimurium*, ATCC #14028, and incubated for 24 hours at 35°C. Dilutions in sterile peptone buffer were made and the cultures were plated on Xylose Lysine Desoxycholate (XLD) agar to obtain an initial count of the *Salmonella* organisms added to the gallons of dressing.

Two separate gallons of a commercial Italian Dressing with added Romano Cheese, dried parsley, dried oregano and 2 fresh shell eggs were mixed using a sterile wire whip for 5 minutes. An uninoculated sample was then taken for pH determination and *Salmonella* analysis.

Each *Salmonella* species was inoculated into a separate gallon of the prepared dressing with a target inoculum of approximately 5.0×10^6 *Salmonella* organisms per gallon of dressing in order to simulate the addition of a contaminated egg. Each dressing was mixed for 5 minutes with the sterile wire whip. At the end of 5 minutes of mixing the culture into the dressing, an initial sample was taken for *Salmonella* analysis. Further samples were taken at 5, 10, 15, 20, 30, 60 minutes and at 24 hours. The sample size was 25 grams, and each sample was immediately diluted 1:10 with sterile lactose broth and neutralized to a pH of 6.8 ± 0.2 with 1N NaOH. Following the pH neutralization, the samples were inoculated onto XLD agar plates in duplicate using the

TABLE 1. *Fate of* Salmonella enteritidis *and* Salmonella typhimurium *inoculated into the prepared Italian Dressing.*

Samples	*S. enteritidis* direct count/g	*S. enteritidis* lactose broth	*S. typhimurium* direct count/g	*S. typhimurium* lactose broth
Dressing (before inoculum added)	<10	-	<10	-
Inoculum (per gram dressing)	1000	+	1100	+
Initial sample	<10	+	<10	+
5 min. holding	<10	-	<10	+
10 min. holding	<10	-	<10	-
15 min. holding	<10	-	<10	-
20 min. holding	<10	-	<10	-
30 min. holding	<10	-	<10	-
60 min. holding	<10	-	<10	-
24 hours holding	<10	-	<10	-

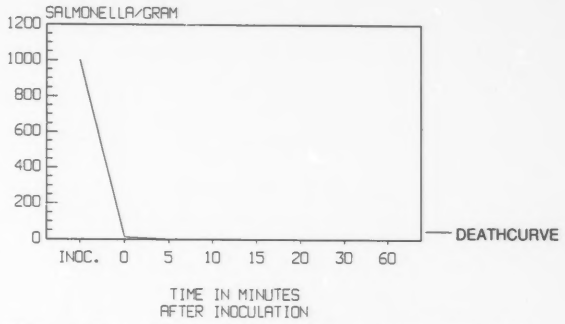

Figure 1. *Fate of* Salmonella enteritidis *in Italian salad dressing.*

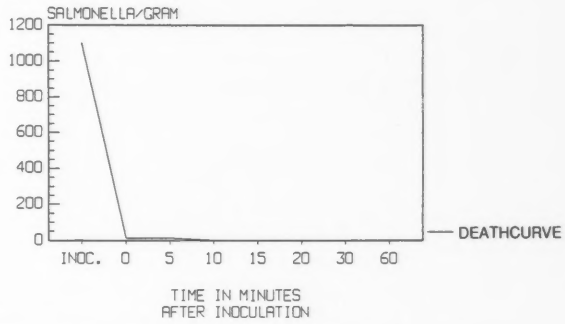

Figure 2. *Fate of* Salmonella typhimurium *in Italian salad dressing.*

spread plate method. Plates were incubated at 35°C, with observations being made at 24 to 48 hours. Typical *Salmonella* colonies were counted and confirmed using Micro I.D. (Organon Teknika) and polyvalent A-I, Vi (Difco) serology.

The samples in the neutralized lactose broth were incubated at 35°C for 24 hours. After incubation, samples were streaked on XLD, Hektoen Enteric and Bismuth Sulfite agars following the FDA Bacteriological Analytical Manual procedures (13) to give a presence or absence of *Salmonella* at each time interval. The remaining inoculated dressings were stored covered, overnight, in the 35°C incubator to give ideal conditions for allowing any surviving *Salmonella* to grow.

Results and Conclusions

In both gallons of prepared dressing, the uninoculated sample was negative for *Salmonella.* The pH was low, (3.49 and 3.67), which is low enough to prevent any growth of *Salmonella* and contribute to it's die off in the dressing.

The added inoculum was on target with the *S. enteritidis* at 4.3 x 10^6 organisms per gallon which is approximately 1.0 x 10^3 organisms per gram dressing, and *S. typhimurium* at 4.7 x 10^6 organisms per gallon which is approximately 1.1 x 10^3 organisms per gram.

In both cases <10 *Salmonella* organisms were found at every time interval using the direct plate method. For *S. enteritidis*, the more sensitive lactose broth method did yield a positive result at the initial sampling, but the organism could not be recovered thereafter. The *S. typhimurium* was a little hardier, and the lactose broth method yielded positive results in both the initial sampling and after 5 minutes holding. No *Salmonella* was recovered after 5 minutes. (See Table 1 and Figures 1 & 2)

It should be noted that although the FDA considers the risk of contracting salmonellosis from whole fresh eggs to be small, eggs are extremely perishable and must be handled and stored properly to prevent growth of potentially harmful bacteria (9,12). Eggs can be contaminated with *Salmonella* directly by a contaminated laying hen in utero resulting in a clean, unbroken egg that could still pose a health hazard if stored improperly.

It can be seen from the data that even the addition of *Salmonella* organisms to the Italian dressing with added whole fresh shell eggs will decrease to an unrecoverable level almost immediately. Because of the low pH of the dressing, mixing for 5 minutes followed by a 10 minute holding period should sufficiently eradicate *Salmonella enteritidis* and *S. typhimurium* if added to the dressing from a contaminated egg.

In conclusion, implications from this study suggest that restaurants and other foodservice operations can safely use fresh shell eggs in a Caesar salad, or other vinegar based salad dressing preparations containing shell eggs, as long as the pH is kept at a low level. Good food handling practices such as adequate refrigeration of the shell eggs, non-use of any cracked or broken eggs and clean and sanitary food preparation are also of ultimate importance in preventing egg associated *Salmonella* outbreaks. With these guidelines being followed, a foodservice operation should be able to add whole fresh eggs into a low pH salad dressing with a short holding period prior to

serving. Brief holding of the dressing would allow for die off of any *Salmonella* ensuring a safe and wholesome product.

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Dairy, Food and Environmental Sanitation, Vol. 10, No. 1, Pages 15-17 (January 1990)

Aflatoxins - The 1988 Outbreak

H.M. Stahr, R.L. Pfeiffer, P.J. Imerman, B. Bork (Veterinary Diagnostic Laboratory) and C. Hurburgh (Dept. of Ag Engineering) Iowa State University, Ames, IA 50011

ABSTRACT

The drought of 1988 produced conditions which caused the largest incidence of aflatoxin in survey samples in 20 years. The samples were obtained from university research plots and elevator samples, which were voluntarily submitted. The samples were analyzed by the official AOAC procedure.

Thirty percent of the samples were above 20 ppb. Illinois had similar levels in their survey samples. Other states surrounding Iowa analyzed fewer samples and found more positive samples.

The research farms with aflatoxin-containing samples were in the areas of the state which received less than 2 inches of rain in the months of June and July in 1988.

Traces of aflatoxin M_1 were found in milk samples in early fall 1988. The State Department of Agriculture continues to monitor milk samples. No samples above 0.5 ppb have been found in commercial milk. On-farm and process plant testing for aflatoxin has assured no milk for human consumption contained detectable aflatoxin M_1.

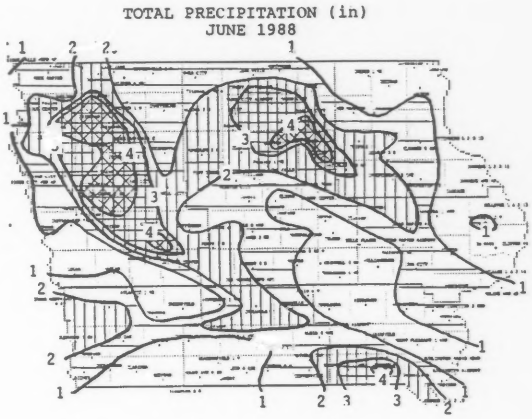
Three methods are currently receiving wide use to screen samples of milk for aflatoxin - the Spectrochrom Ltd. Quick Column and Quick Kit®, the Vicam affinity column and fluorescence detection and the Charm microbial assay.

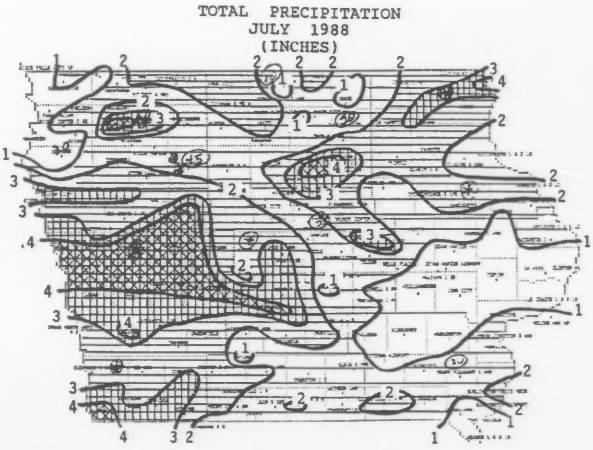
INTRODUCTION

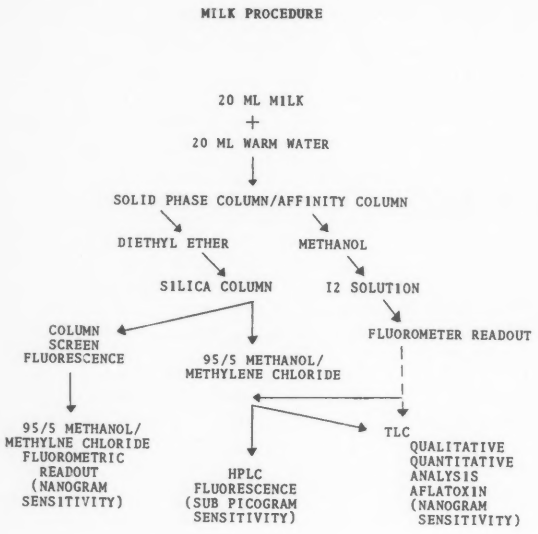
CSRS research by NC 129 (USDA Mycotoxin Research Project) participants has led to a wide use of hybrid "plots", whenever new variety of hybrids are tested for yields, to monitor for aflatoxin contamination. NC 151 project (a grain marketing project) has made elevator surveys possible by setting up communication with elevators to obtain samples. Both means were used in 1988 to obtain samples to analyze for aflatoxin levels after field surveys by plant pathologists indicated high levels of aflatoxin in field samples.[1]

Materials and Methods

C. Hurburgh arranged for the elevator samples to be obtained from Iowa grain and feed dealers' cooperating elevators. The samples were voluntarily submitted with the understanding that the result would be confidential with respect to their source. Ken Zeigler obtained combine samples from university farm plants and these were also coded so that the exact source couldn't be identified. The samples from the elevators (9 kg) were







coarse ground and mixed and a subsample (0.9 kg) was submitted for testing at the Veterinary Diagnostic Laboratory. The samples were checked for BGY fluorescence (black light). These samples were ground more finely, mixed and analyzed by the AOAC method (BF)[2] using a densitometer to quantitate positive samples. A Kontes 800 Scanner was used as the densitometer. All standards were checked by the AOAC recommended procedure by UV analysis, by TLC and by comparing results to check sample standards.

The research farm samples were received in 5 lb. cloth bags. They were ground and mixed and analyzed by the same technique. The samples were checked for BGY fluorescence.

The Veterinary Diagnostic Laboratory has been running the Ferguson and Foos[3] method as modified for the human milk work of Vary[4]. When the need for milk analysis became apparent this method was used until the Spectrochrom Ltd. (SC) method was developed. This method was a modification of the Quick Kit[5] procedure for milk samples. And finally the quick column was developed. About this time the Vicam method[6] also became available. The SC method uses the same solid phase retention of the aflatoxin M_1 as in the method of Ferguson and Foos[5] but uses a rapid concentration step with an aluminum cup and a readout on C_{18} reverse phase TLC to greatly accelerate the method. The quick column procedure produces fluorescence on a silica column and can be done in less than 10 minutes. A preferred material for the disks in the cartridge and cyclodextrin solid phase make the method user friendly and fast. The TLC readout allows separation of aflatoxins and confirmation by acid treatment (official AOAC). The Vicam affinity column retains the aflatoxin and requires some more mechanical equipment but is similar in principle to the solid phase SC column. The aflatoxin can be eluted from the column and analyzed by making I_2 derivative and a fluorometric readout. The "Charm" procedure depends on the effect of aflatoxin on bacteria. Susceptible bacteria are retarded by the toxin and its presence can be detected.

A food survey where foods containing corn were selected for aflatoxin analysis showed only generic dog food (5 ppb) and heavy cream (0.2 ppb) had aflatoxin in them. Other foods had no detectable toxin, (e.g. corn-kernel frozen on cob, popcorn, meats, corn flour, grits, corn cereal, corn meal, corn starch, four name brands of dog foods).

The two figures show Iowa's rainfall pattern for June and July 1988. The areas where rainfall was two inches or less each month are where the farms were located with

A Summary of State Aflatoxin Survey Results as of 10-26-88

State	Number of samples	Percentage with total aflatoxin[a] 20-99 ppb	100+ ppb	Total above 20 ppb
Illinois	327	24.2	11.6	35.8
Iowa	96	22.9	7.2	30.1
Indiana	277	6.7	1.1	7.8
Minnesota	718	5.2	0	5.2
Nebraska	141	5.0	0.7	5.7
South Dakota	60	5.0	0	5.0
Wisconsin	50	0	0	0

[a]by thin layer chromatography.

UNIVERSITY RESEARCH FARM SURVEY FOR AFLATOXIN

20 ppb or above	5	31.2%
Positive below 20 ppb	2	12.5%
No detectable aflatoxin	9	56.3%
Black light positive	0	0.0%

Aflatoxin Data for 1988 Iowa Corn Collected at Country Elevators

Aflatoxin (ppb)	TLC Positives Number	Percent of Total	Average Aflatoxin (ppb)	Black-Light Positives Number	Percent True Positives	Average Aflatoxin of BL Positives (ppb)
Above 100	7	7.2		7		
20-99	22	22.9		22		
Subtotal	29	30.1		29		
10-19	4	4.2		4		
None detected	63	65.7		34		
All samples	96	100	21	67	43	31

aflatoxin in the corn. High temperatures, greater than 100°F, were also experienced in 1988 making the year an unusually favorable one for aflatoxin production.

Discussion and Conclusion

In former surveys 20% of the samples usually contain 3 ppb or less of aflatoxin.[7] The levels found last year were very high compared to "normal" years. Every 4-5 years Iowa experiences significant aflatoxin levels as observed over the last 20 years. Positive samples this year were 20 ppb and greater relative to 2-3 ppb in normal harvest samples. It is important to remember that 70% or more of the corn had no detectable aflatoxin and, that this survey represented only samples that were voluntarily submitted for analysis. The use of plot samples for early warning and education of the public prevented any significant detectable levels of aflatoxin in human food. Vigilance and responsive action by producers prevented possible contamination and needless hysteria.

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Dairy, Food and Environmental Sanitation, Vol. 10, No. 1, Pages 18-19 (January 1990)

The Scientists Tell Me . . .

Urban Pest Control Problems Demand New, Safer Answers

By Robert L. Haney
TAES Science Writer

Urban Pest Management is an area of increasing concern to individuals, civic leaders, and professionals in the field, according to Dr. Fowden Maxwell, head of the Department of Entomology at Texas A&M University.

Maxwell, who also supervises the wide range of entomology research performed by the Texas Agricultural Experiment Station, said while control of pests in urban areas has always been a problem, the situation is critical today.

Most people are unwilling to live, work, or eat in buildings contaminated with pests such as fleas, roaches, disease-causing fungi and bacteria, birds and rodents. Control of these pests has been achieved with chemical pesticides, which are used in nine out of ten households, and in virtually all business establishments.

However, this widespread practice has given rise to a variety of health and environmental concerns and problems including human and animal poisonings and persistent, harmful exposures to chemical residues, Maxwell said.

Potential side effects, such as soil and water contamination resulting from the control of structural, yard, and garden pests around homes, has further increased public concern, erupting into right-to-know laws and litigation. The solutions to these costly nationwide pest related problems for home owners and business people lie in research to develop safer and more effective measures for managing urban pests.

The intensity of pesticide use, measured by the amount applied per unit area in the urban sector, is greater than in most agricultural situations, Maxwell said. Intensity of use, coupled with the use occurring in areas of population concentration, signals the potential for a variety of problems and concerns.

Comparatively little emphasis has been placed on urban pest management despite the vast number of people affected and the controversial issues surrounding current practices. One reason may be that the resources and scientific talent needed to solve problems are located at land grant institutions and USDA laboratories, which traditionally have focused primarily on problems related to agricultural production.

As a result, most research on urban pests is done by the pesticide industry, which, understandably, has little incentive for developing alternative means of control.

"Continuation of present practices will increase pest control problems," Maxwell said. "Increasing pest resistance to pesticides, and growing public concern about the health and environmental aspects of chemical use, dictate that other approaches be found. The solutions to these costly nationwide problems lie in accelerated research to develop safer and more effective measures for managing urban pests.

"Such research can improve the quality of life and enhance the quality of the workplace through the development of safe, effective, environmentally and economically viable solutions to urban pest problems. In my judgment, we must acquire additional fundamental biological information on the behavior and physiology of urban pests to facilitate the discovery of new control tactics.

"We must develop improved pest sampling and monitoring techniques to be used when making pest management decisions. We need to determine the environmental factors which regulate the distribution and abundance of urban pest species and define the proper approach, timing and selection of pest management strategies.

"Additionally, we need to develop tactics, strategies and delivery technology that is tailored for site specific pest management programs. We need, too, to develop non-chemical, biological, genetic and cultural management techniques, as well as unique chemicals that utilize the biotechnology developments. Many of these new chemicals don't pollute the environment.

"Pesticide resistance is a growing problem. We must identify the nature of resistance of pests to pesticides and develop means to overcome resistance. At the same time, we need to develop and access a strategy for managing the potential health and environmental hazards associated with pests in the management of pests in the urban environment.

"It has been in recognition of these needs that a major research and education effort is being undertaken in the Texas Agricultural Experiment Station, the Texas

Agricultural Extension Service and Texas A&M University.

"The focus of the increased urban research educational programs will be through a new $1.2 million endowed chair position in urban pest management (one-half contributed by the Pest Control Industry) and substantially increased funding by the College of Agriculture and Life Sciences, the Experiment Station and the Extension Service." Maxwell concluded.

Editor's Note: Any question regarding this column should be addressed to Science Writer, Department of Agricultural Communications, Texas A&M University, College Station, Texas 77843.

News

Lending Library Additions

The IAMFES Lending Library has added 8 new VHS tapes and one slide set for use by members. If you are interested in using any of them, please contact Sandy at the new telephone number, 1-800-369-6337 (MFES).

* Air Pollution: Indoor - (26 minute VHS). Indoor air pollution is in many ways a self-induced problem - which makes it no easier to solve. Painting and other home improvements have introduced pollutants, thermal insulation and other energy-saving and water-proofing devices have trapped the pollutants inside. The result is that air pollution inside a modern home can be worse than inside a chemical plant. (Films for the Humanities & Sciences, Inc.)

* Radon - (26 minute VHS). This program looks at the possible health implications of radon pollution, methods homeowners can use to detect radon gas in their homes, and what can be done to minimize hazards once they are found.

* Putting Aside Pesticides - (26 minute VHS). This program probes the long-term effects of pesticides and explores alternative pest-control efforts; biological pesticides, genetically-engineered microbes that kill objectionable insects, the use of natural insect predators, and the cross-breeding and genetic engineering of new plant strains that produce their own anti-pest toxins. (Films for the Humanities & Sciences, Inc.)

* Fit to Drink - (20 minute VHS). This program traces the water cycle, beginning with the collection of rain water in rivers and lakes, in great detail through a water treatment plant, to some of the places where water is used, and finally back into the atmosphere. Treatment of the water begins with the use of chlorine to destroy organisms; the water is then filtered through various sedimentation tanks to remove solid matter. Other treatments employ ozone, which oxidizes contaminants and makes them easier to remove; hydrated lime, which reduces the acidity of the water; sulfur dioxide, which removes any excess chlorine; and flocculation, a process in which aluminum sulfate causes small particles to clump together and precipitate out. Throughout various stages of purification, the water is continuously tested for smell, taste, titration, and by fish. The treatment plant also monitors less common contaminants with the use of up-to-date techniques like flame spectrometers and gas liquefaction. (Films for the Humanities & Sciences, Inc.)

* Acceptable Risks? - (16 minute VHS). Accidents, deliberate misinformation, and the rapid proliferation of nuclear power plants have created increased fears of improper nuclear waste disposal, accidents during the transportation of waste, and the release of radioactive effluents from plants. The program shows the occurrence of statistically anomalous leukemia clusters; governmental testing of marine organisms and how they absorb radiation; charts the kinds and amounts of natural and man-made radiation to which man is subject; and suggests there is no easy solution to balancing our fears to nuclear power and our need for it. (Films for the Humanities & Sciences, Inc.)

* Food Quality, Food Safety, and You! - (80 slides, script, and cassette tape). This is an educational program designed for consumers. The presentation deals with the role of the consumer in maintaining the freshness, quality and safety of food in the home. It is intended for use by home economists, dieticians, cooperative extension agents and others interested in food quality and safety. (Cornell University)

* Seafood Q & A - (20 minute VHS). Anyone who handles seafood, from processor to distributor to retail and foodservice, must be prepared to answer questions posed by customers. This tape features a renowned nutritionist and experts from the Food & Drug Administration, the National Marine Fisheries Service, and the National Fisheries Institute who answer a full range of questions about seafood safety. Excellent to educate and train employees about seafood safety & nutrition. (National Fisheries Institute)

* Waste Not: Reducing Hazardous Waste - (35 minute VHS). This tape looks at the progress and promise of efforts to reduce the generation of hazardous waste at the source. In a series of company profiles, it shows activities and programs within industry to minimize hazardous waste in the production process. Waste Not also looks at the obstacles to waste reduction, both within and outside of industry, and considers how society might further encourage the adoption of pollution prevention, rather than pollution control, as the primary approach to the problems posed by hazardous waste. (Umbrella films)

* Down in the Dumps - (26 minute VHS). Garbage is no laughing matter. The fact is that we are running out of space to dump the vast amounts of waste we create each day. Since many of the former methods of disposal are environmentally unacceptable, what are we to do? The program examines the technological approaches to the garbage dilemma, including composting, resource recovery, and high-tech incinerators, and public reaction to the creation of new waste treatment facilities. (Films for the Humanities & Sciences, Inc.)

Kraft Introduces New CROCKERY Spreadable Cheese Snacks

Spreadable cheese, one of the fastest growing segments in the cheese category, will experience a new burst of energy with Kraft's national introduction of CROCKERY Spreadable Cheese Snacks.

Flavor variety is the most important reason that consumers buy spreadable cheese products. CROCKERY Spreadable Cheese Snack is available in seven exciting flavors, three of which are cheddar based - medium cheddar, mild Mexican, and port wine; and four cream cheese based - classic ranch, french onion, garden vegetable, and garlic & herb.

The product's distinctive, contemporary package design leverages the Kraft name for quick recognition on the shelf, and designates flavors with impactful, color coded banners.

Kraft is also responding to consumers' desires for products with lower cholesterol and calories. CROCKERY Spreadable Cheese Snacks are made with natural cheese, are low cholesterol products and have 25% fewer calories than cold pack cheese food or cream cheese.

Going one step further, Kraft will be executing a national public relations effort to generate consumer awareness and promote ingredient usage in recipes for CROCKERY cheese products via various print and broadcast activities.

With the national introduction of CROCKERY Spreadable Cheese Snacks, Kraft continues to maintain it's leadership position in the cheese category. With such a high quality product, and strong promotion and advertising support, CROCKERY cheese products will not only further stimulate the traditionally under promoted, under stocked cold pack/spreadable cheese product category, but be an important on-going and year-round source of increased dairy case profitability.

For more information contact Jessie Vicha, 312-973-2484.

Needed: More Specifics On Nutritional Needs As We Age

Although the new National Research Council Recommended Dietary Allowances (RDAs) may include the first recommendations for the elderly (persons over 70), they probably won't reflect much new significant data on the aging.

"The studies on the nutritional needs of older people have been few and far between, and they have not found their way into the RDAs," says Dr. Irwin H. Rosenberg, the director of Human Research Center on Aging at Tufts University, which is operated under an agreement with the U.S. Department of Agriculture. Rather, the RDAs are based on extrapolation of data from studies on adults 50 and younger. This is true of the present recommendations and expected to be the case in revised ones, anticipated to be released this fall.

Dr. Rosenberg believes the differences between ages in the "older" segment are great. "The heterogeneity of the population is enormous, and there is a lot of work to be done to better define their dietary needs. Persons ages 50 to 60 are very different from those 60 to 70 or 70 to 80," he says. Still, the principles on which a prudent diet are based aren't very different from those that guide younger eaters, he believes. They're only more difficult to fulfill.

As we age, we need to continue to "eat in such a way to meet, but not exceed energy (calorie) requirements." But also as we age, the percent of body fat increases while the percent of lean muscle tends to decrease. This change in body composition results in a decrease in metabolic rate.

This decrease, along with the usual reduction in physical activity, results in lower calorie requirements for most of us. Food choices must continue to meet nutritional needs while totaling fewer calories. Although older Americans probably can't escape this Catch-22 completely, Dr. Rosenberg says, one antidote is to stay active along with following a wise diet. That diet should contain a variety of nutrient-dense foods and include choices from the Four Basic Food Groups, including the milk group.

For many mature eaters, the temptation to just take a pill may seem an easy answer to meeting nutritional needs and to keeping calorie intake down. But like most easy solutions, this one is probably not the best one. Many doctors and nutritionists caution that taking nutrients in isolation may impact the balance of the total diet.

Some researchers are studying the importance of calcium throughout the life cycle. Bess Dawson-Hughes, M.D., a colleague of Dr. Rosenberg's at the Center on Aging, has demonstrated that postmenopausal women with a calcium intake under 400 milligrams a day have substantially higher bone loss from the spine than those who consumed between 800 and 1400 milligrams of calcium a day. Bone loss eventually leads to osteoporosis, the disease of fragile bones most common in later years.

Although calcium supplements are widely available, Dr. Rosenberg favors food as a source of calcium.

"The point is that the effect of calcium intake has to be judged on what actually gets absorbed." he says. In general, calcium is better absorbed from milk as a vehicle because of the effect of lactose (a sugar found in milk). Sugar improves the absorption of the calcium, he believes.

An 8-ounce glass of milk - be it whole, lowfat, or skim - contains approximately 300 milligrams of calcium.

Because they are usually fortified, milk and milk foods contain another valuable partner in calcium and other mineral absorption: Vitamin D. It is important for aging Americans to continue sufficient intake of Vitamin D, he says, because there is a correlation in decline of Vitamin D and age. The decline probably has to do with more limited exposure to the sun, which along with food, provides Vitamin D.

Riboflavin (Vitamin B_2) takes on added importance as we age, some researchers believe, because it aids in the release of energy from carbohydrates, protein and fat. It, too, is found in milk and milk products as well as in dark green vegetables, pasta, bread, dried beans and peas, enriched and grain cereals and liver.

Other nutrients that have been pinpointed by Dr. Rosenberg and other researchers to be of particular importance to older persons are Vitamin B_{12}, folic acid and zinc. If these scientists' advice is heeded, new and more targeted research could help clarify just how these nutrients - and others - specifically relate to the aging process. Such data takes on real significance within a country where the over-55 age segment of the population is increasing in size faster than other segments. By next year there will be 53 million Americans over age 55.

For more information contact Lisa Coe (nutrition) or Mary Jane Laws (test kitchen), United Dairy Industry Association, Dairy Center, 6300 North River Road, Rosemont, Illinois 60018, 312-696-1860.

National Restaurant Association Publishes Guides For Students, Teachers On How To Prevent Drunk Driving

As part of its continuous effort to educate the public regarding the hazards of drinking and driving, the National Restaurant Association has published two brochures aimed at driver education students and teachers that promote classroom discussion of the drunk driving issue.

The brochures, "Help Prevent Drunk Driving: A Student's Guide" and "Help Prevent Drunk Driving: A Teacher's Guide," were published by the association as a public service for the American Driver and Traffic Safety Education Association for distribution to their membership of driver education teachers across the country.

The student's guide provides information on the effects of alcohol consumption on driving ability and the importance of saying no to drinking and driving, despite peer pressure. It outlines possible scenarios involving drinking and driving, and it encourages students to find the best resolutions to the scenarios through discussion with their classmates. The companion brochure for teachers outlines suggestions on how to foster classroom discussion of the issue.

"Drunk driving is a dire societal problem which demands a solution," said National Restaurant Association President Harris H. "Bud" Rusitzky. "Unfortunately, many proposed solutions, such as limiting the availability of alcohol for all consumers, including the majority who are responsible, moderate drinkers, are shortsighted and ineffective."

"The only way we can truly eradicate this problem from our society is through education," the industry leader said. "Education in the schools, in the home, and in the community. These brochures are one step in the National Restaurant Association's long range plan to do our part in increasing consumer awareness about the dangers of drinking and driving."

For more information contact Anne Papa, Manager, Media Relations (202) 331-5938, or Jeffrey Prince, Senior Director, (202) 331-5935.

Uniform Code Council Approves Seafood Universal Product Code

The Random Weight Seafood Universal Product Code (UPC) System developed by the National Fisheries Education and Research Foundation (NFERF) in cooperation with the National Marine Fisheries Service (NMFS), and the Ad Hoc Committee on Random Measure Product Numbering received official approval from the Dayton, OH-based Uniform Code Council on August 25, 1989.

The UPC symbol is a type of bar code used by food retailers to identify grocery items and is the standard for the grocery industry. Until now a standardized system was not available to assign UPC bar codes to fish products sold on a variable weight price-per-pound basis. However, the new seafood UPC codes offer retailers the opportunity to scan random weight seafoods and track items more efficiently at the retail level. It also means that seafood packers can place a bar code, universal to all retailers, on random weight products which will fit into their customers coding systems.

A manual entitled, "Random Weight UPC Numbering System," is available to retail and seafood representatives. It contains 1575 UPC's for seafood products sold by random weight and uses FDA accepted finfish market names for over 200 species of fish and shellfish. Arranged by three basic sections, finfish, shellfish, and other seafoods, the manual is alphabetical by species. "It is an indispensable reference for those who need comprehensive and consistent UPC numbers for bar code applications," said Robert Collette, Associate Director of Science and Technology for the National Fisheries Institute (NFI).

UPC's now appear on over 95 percent of the products in retail grocery stores. They streamline prod-

uct identification and offer the simplest and most accurate, approach for identifying products by use of optical scanners.

For a copy of "Seafood Random Weight UPC Numbering System," send a $10 check or money order to: NFERF, 2000 M Street, N.W., Suite 580, Washington, D.C. 20036. (Quantity discounts are available.)

For more information contact NFI Communications, 2000 M Street, N.W., Suite 580, Washington D.C. 20036, (202) 296-3428.

Software Integrates Data Collection, Analysis, Graphics; Reduces Lab Programming Time and Complexity

Scientific Software Tools, Inc. (SST) has introduced a new software package designed to improve the productivity of scientists and engineers working in laboratory data collection and analysis. Conceived as an integrated software workstation, the new PC-based package relies on object-oriented concepts and a convenient user interface to meet the needs of both novice and advanced lab personnel.

Called LabSTAR™, the new software easily adapts to user requirements, featuring a choice of menu-driven or command-line modes that provide access to powerful algorithms, data structures, device drivers, and other flexible interface tools. It supports a comprehensive list of sophisticated scientific, engineering, and mathematical functions, including analog or digital I/O, statistics calculations, curve fitting, and a wide range of graphics features.

LabSTAR's unique, intuitive programming language incorporates the latest object-oriented concepts. As a result, much of the tedious and complex programming and editing required in currently available programs can be eliminated, saving valuable lab time. Extensibility is built in, allowing programming routines to be modified easily to suit changing requirements.

For convenience and transportability, LabSTAR is not copy-protected. It supports RS-232 output and popular data acquisition boards and instrumentation. More information is available from Scientific Software Tools, Inc., Penn State Technology Development Center, 30 East Swedesford Road, Malvern, PA 19355; (215) 889-1354. FAX: (215) 889-1334.

Virginia Tech Food Science and Technology Graduate Students Capture Top ADSA National Awards

Graduate students in Virginia Tech's food science and technology department swept three of the top four awards in the graduate student research paper competition at the recent American Dairy Science Association national meeting.

Robert D. Byrne won the competition, edging out fellow Tech food science student Tracy M. Mosteller, who finished second. Addie M. Waxman, the third Tech student, was fourth in the national competition. All three are involved in research projects designed to improve the quality of dairy products in Virginia. The projects, under the direction of food science professor J.R. Bishop, are supported by funds from the Virginia Dairy Foods Research Program.

Earlier this year, the same three College of Agriculture and Life Sciences students, reporting on different aspects of their work, also earned three of the top four places in the graduate student paper competition at the ADSA's Southern Division meeting. In that competition Waxman was first, Byrne second and Mosteller fourth.

At ADSA's national meeting in August, Byrne, the son of Robert and Joyce Byrne of Richmond, presented findings from his research into "Potential Shelf-Life Estimation of Pasteurized Fluid Milk Utilizing A Selective Preliminary Incubation." Byrne's work could save Virginia dairy producers more than $1.1 million a year if the producers use the Virginia Tech Shelf-life Method and do the necessary corrections and follow-up in their plants, Bishop said. The shelf-life estimation method developed at Tech can be done in two to three days compared to nine days for the old method, and the Tech method is more accurate and reliable, Bishop added.

Mosteller's paper, "Bacterial attachment and sanitizer efficacy", focused on the effectiveness of certain sanitizers on bacteria that attach them selves to gasket surfaces in milk and other food processing systems. Her research indicated that clean-in-place sanitizing isn't sufficient to destroy attached-bacteria that could cause product contamination. Therefore gaskets to which the bacteria are attached should be taken out of the pipe-line and thoroughly cleaned and sanitized. Mosteller is the daughter of Charles and Carol Mosteller of Prince George, VA.

Waxman, the daughter of Harris and Mary Waxman of Harrisonburg, presented a paper on "Inhibition of *Pseudomonas* by hydrogen peroxide producing lactic acid starter cultures." Her research is aimed at extending the shelf-life of cottage cheese through the use of genetically-engineered bacteria.

Through genetic engineering, Tech food scientists have developed a starter culture for cottage cheese and other dairy products that inhibits the growth of a variety of microorganisms that cause the products to spoil.

The genetically engineered cultures produce more of the inhibiting compound than do their natural "parent", *Lactococcus lactis*. The "parent" produces minute amounts of hydrogen peroxide, which has proven to inhibit the growth of such spoilage microorganisms as *Pseudomonas*. The "daughter" strains produce significantly greater amounts of hydrogen peroxide, and inhibit growth of the spoilage organism to a far greater degree.

The research of the three students is funded in whole or in part by the Virginia Dairy Foods Research Program, a set-aside program established by the dairy processors and suppliers in Virginia, North Carolina and Maryland.

For further information contact Charlie Stott, (703) 231-5863.

New Tape Added To IAMFES Library

Members of the AV library committee have reviewed and approved for addition to the IAMFES library a new tape called, "Wide World of Food Service Brushes", an 18 minute video tape that discusses the importance of cleaning and sanitizing as a means to prevent and control food borne illness. Special emphasis is given to proper cleaning and sanitizing procedures and the importance of having properly designed and constructed equipment (brushes) for food preparation and equipment cleaning operations.

ENERGYMASTER Introduces A New Automatically Adjustable Summer/Winter Distribution Duct

FOREX/TECHMASTER CORP. introduces a unique method of changing the air flow direction from their ENERGYMASTER make up air ducts to accommodate both winter and summer operation requirements.

Previously, the entire ENERGYMASTER collapsible duct had to be disconnected from the support cable, turned 180 degrees and reconnected to the support cable.

Now, the switch between winter and summer operation can be made with a quick, simple adjustment that eliminates many man hours, thus enabling further reduced costs.

ENERGYMASTER is an unfired make-up air system that: During winter allows outside make up air to be comfortably brought into buildings through its unique distribution method without using the historic method of burning fuel to heat it, in other words NO HEATING FUEL IS REQUIRED; uses up to 100% of the otherwise wasted heat in your buildings; COOLS and VENTILATES that entire plant during the "hot weather season"; returns your investment within as little as one half heating season.

These benefits will allow you to save up to 100% of your present and future make up air fuel costs. Representatives inquiries invited.

For more information contact James F. Hall, FOREX/TECHMASTER INC., 105 Liberty Street, Walled Lake, Michigan 48088, (313) 624-6900.

New Series of Centrifugal Pumps Introduced by Ampco Metal, Inc.

A new series of centrifugal pumps have been introduced by Ampco Metal, Inc. for pumping cleaning and/or sanitizing solutions.

The pumps are in conformance with "Revised 3A Accepted Practices for Permanently Installed Product and Solution Pipelines and Cleaning Systems used in Milk and Milk Product Processing Plants" - Number 605-03 (Effective November 1, 1989).

Hydraulic characteristics include capacities to 375 gpm and pressures to 80 psi.

Among the noteworthy physical features are: a SIS #1 surface finish, optional mechanical seals and sanitary clamp-type connections.

Updates . . .

Last Minute Information

Starting with this issue Dairy, Food and Environmental Sanitation will be running an UPDATES page! If you have a last minute meeting, important message for the membership or just something to say, please submit it to "Attention Updates" c/o Margie Marble, 502 E. Lincoln Way, Ames, Iowa 50010, or call 1-800-369-6337.

Address Change Plus a New Wats Number

As of January 1, 1990, IAMFES no longer has P.O. Box 701. Our address will be 502 E. Lincoln Way, Ames, IA 50010. The phone In-Wats number has been changed to accommodate Canada and Iowa. The new number is 1-800-369-MFES (6337).

The New 1990 IAMFES Membership Directory

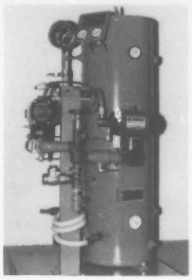
To enhance utility and further benefit IAMFES members, this year's Membership Directory will be published at the end of April, 1990, and contain much more than member listings. The 1990 IAMFES Membership Directory has been expanded to include listings of:

- IAMFES Members listed alphabetically and geographically.
- IAMFES Officers and Committee Chairpersons.
- Federal Regulatory Agencies.
- State Regulatory Agencies.
- Associations related to the Dairy, Food and Environmental Industries.
- Dairy, Food and Environmental Industries companies in the following categories:

Analytical Laboratory Equipment/Supply
Analytical Laboratory Services/Products
Dairy Processing Equipment/Products
Dairy Processors
Food Processing Equipment/Products
Food Processors
Pest Control Services/Products
Sanitation Services/Products
Waste Management Services/Products

For a nominal charge, a company will be listed under up to two categories. To assure your company's listing appears in the 1990 IAMFES Membership Directory, contact the IAMFES office at 800-369-6337 before March 1, 1990. Advertisers receive a complimentary listing in bold face type.

Industry Products



1500 Central Pumping System

Helios Research Corporation has introduced a new HelioJET™ Central Pumping System based on the company's efficient 1500 HelioPAC™. The new, quiet-running unit is designed to conserve water in applications requiring high pressure hot water delivered at the rate of .5 to 15 gallons per minute.

The new HelioJET Central Pumping System can service up to six hose drops or work stations simultaneously. The new system uses the same integral 40 gallon reserve tank as the 60 GPM Central Pumping System. Typical applications include food processing plants, pharmaceutical plants, paper mills and general industrial cleaning.

A HelioPAC pressure amplifier and condenser eliminates the need for mechanical pumps and heat exchangers. In-plant steam and cold water are mixed inside the HelioPAC. Passing through a series of orifices, some of the steam's random thermal energy is converted into directed kinetic energy to pressurize the water. The rest of the steam energy heats the water for nearly 100 percent efficiency. Output pressure for the 1500 Central Pumping System is four-to-six times input steam pressure.

Helios Research Corp. - Mumford, NY

Please circle No. 241
on your Reader Service Card

New Literature Available

Penberthy, Inc. has released a new Technical Bulletin, No. L1201, describing features and specifications of the Levelmark Model 620 Two-Wire Ultrasonic Liquid Level Switch.

The Levelmark Model 620 is an ultrasonic gap switch requiring only two wires for power supply and output. Since the wiring is low voltage DC the Model 620 may be separated by as much as 5000 feet from the detector, making it particularly well suited for hazardous environments. Installation is cost effective, since the unit requires only one safety barrier.

Penberthy, Inc. - Prophetstown, IL

Please circle No. 242
on your Reader Service Card

Comprehensive Water Analysis

National Testing Laboratories has introduced a new product, Watercheck + Pesticide Option, making it possible for homeowners to test their drinking water for lead and other EPA listed contaminants - quickly, conveniently and affordably.

Watercheck + Pesticide Option measures everything from metals, pesticides, PCB's and solvents to herbicides and bacteria. Within five days of receipt of sample the lab sends the customer a complete report of their findings plus a detailed explanation of the results and recommendations for corrective action.

The Company's laboratories are certified, and use United States Environmental Agency analytical and quality assurance procedures.

The 93 tests in the Watercheck + Pesticide Option include 20 pesticides, many recently added by the Environmental Protection Agency to the Safe Drinking Water Act's list of hazardous substances.

National Testing Laboratories - Cleveland, OH

Please circle No. 243
on your Reader Service Card

Cloud Tank Cleaning Machines

Prosser/Enpo Industries, the manufacturer of Sellers Cleaning System Products for internal and external cleaning applications, has signed an agreement with The Cloud Company of San Luis Obispo, CA to distribute Cloud spherical tank cleaning machines in the United States and Canada under the Sellers brand name. Cloud tank cleaning machines will be marketed along with the complete line of Sellers tank cleaners, steam injectors and accessories through Prosser/Enpo's exclusive network of Sellers Manufacturers Representatives.

The agreement adds an entirely new tank cleaning system, the Model 360 Rotary Tank Cleaner, to the Sellers line. Available in 2- and 3-nozzle styles, the Sellers Model 360 features: 360° non-striping cleaning pattern; Operating pressures to 350 PSI; Cleaning solution flows to 300 GPM; and self cleaning capability to eliminate deposit and bacterial build-up.

Prosser/Enpo Industies, Inc. - Piqua, OH

Please circle No. 244
on your Reader Service Card

New Probes for Spot Checking Humidity/ Temperature in Freezers and Process Areas

Vaisala announces the introduction of two new RH and T probes for use with their popular hand-held humidity indicator, the MHM 31. The battery operated HMI 31 is a portable digital humidity and temperature meter that provides fast and accurate measurements (±2% accuracy, 90% response time within a few seconds).

The new HMP 35 and HMP 36 probes utilize the HUMICAP-H sensor, the newest capacitive sensor developed by Vaisala's world renown humidity sensing R&D team. The H-sensor provides significant advantages over other products, including enhanced chemical resistance, excellent reliability, and superior performance.

Both probes can be detached from the handheld indicator, making it easy to monitor humidity in hard to reach locations. This makes the indicator ideal for use in plant maintenance and servicing, for installing EMCS/ HVAC systems as well as for spot checking humidity and temperature levels in freezers, storage areas, warehouses and process areas.

Vaisala, Inc. - Woburn, MA

Please circle No. 245
on your Reader Service Card

VIKAN Hygienic Brushes

VIKAN cleaning brushes are specially designed to meet the stringent hygienic requirements of the food industry. They are highly resistant to daily wear and tear, and are able to resist moist heat and aggressive detergents and disinfectants. Our new line of brushes can withstand very low temperatures making them well suited to use in refrigeration rooms. All VIKAN brushes are manufactured from inorganic materials ensuring a very smooth surface while reducing the possibilities of the spread of bacteria.

Remco Products Corp. - Zionsville, IN

Please circle No. 246
on your Reader Service Card

New LS-50 Package for Automated Analysis of Enzyme Kinetics

Perkin-Elmer is offering a new system for the LS-50 Luminescence Spectrometer that automatically analyzes enzyme kinetics. The complete package consists of the LS-50 Luminescence Spectrometer, the thermostatted stirred turntable accessory and Enzfitter* software.

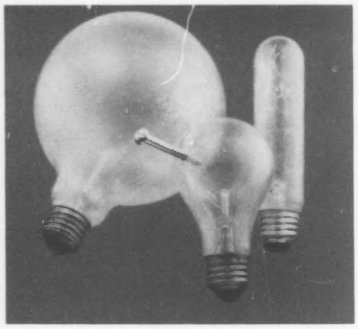
Samples can be measured automatically in each of the four cuvette positions at user-defined intervals and the data exported into the Enzfitter software package. The Enzfitter software can be used to analyze Michaelis-Menten kinetics data, Lineweaver-Burke and Eadie-Hofstee plots from enzyme kinetic data can be plotted. Statistical analysis on the raw data/fitted curve can also be presented if desired.

The Model LS-50 Luminescence Spectrometer combines a high energy optical system and pulsed xenon source with the power of a personal computer to produce an instrument tailored to the needs of the analyst.

*Enzfitter is a product of Elsevier-Biosoft.

The Perkin Elmer Corp., Norwalk, CT

Please circle No. 247
on your Reader Service Card



Saf-T-Cote[R] Lamps

Trojan's Saf-T-Cote[R] Lamps, coated with Teflon*, a super tough coating, suitable for high temperature (500°), is a shatter resistant incandescent lamp, safety application. This is the ideal Saf-T-Cote[R] for heat lamps or oven lights. Lamps with this coating should be installed wherever a clear, super-tough, shatter resistant lamp is needed - even in a decorative safety lamp.

The use of Saf-T-Cote[R] lighting products gives you the protection for which local inspectors look - protection against costly product contamination or shattered glass and bare wires - an accident or health hazard.

Saf-T-Cote[R] has an approved shatter resistant lighting product to satisfy your safety lamp requirement.

Trojan, Inc. - Mt. Sterling, KY

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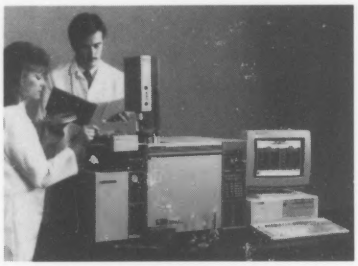
on your Reader Service Card



PC-Controlled GC/MS System

Hewlett-Packard Company has introduced a PC-controlled gas chromatography/mass spectrometer (GC/MS) system for less than $50,000 (U.S. list).

This lower system price results from combining a new low-priced PC-based HP MS ChemStation (DOS series) with HP's lowest priced mass-selective detector (MSD), the HP 5971A, and the recently introduced HP 5890 Series II GC.

The system includes new Microsoft[(R)] Windows-based HP MS ChemStation software with self-explanatory menu bars, pop-up menus, prompts, dialogue boxes, icons and on-line help to simplify operation and increase productivity.

Multitasking and fast operating speeds are provided by either of two new 386-based HP MS ChemStations, the HP Vectra QS/16S or the QS/20 PC.

Send responses to Inquiry Handling Service, 200 Parkside Drive, Account 102PR, Dept. 22, San Fernando, CA 91340.

Hewlett Packard Co. - Palo Alto, CA

Please circle No. 249
on your Reader Service Card

Seminar Covering Principles and Applications of Ultrasonic Mixing

Sonic Corp., a leading manufacturer of ultrasonic mixing systems, has begun offering a free seminar covering the principles and applications of ultrasonic mixing. The seminar is supported by visual aids, handouts and cutaway equipment. Examples used are varied according to audience needs. Seminars have been given at industry events, professional association meetings, and for individual companies with great success.

Sonic Corp. - Stratford, CT

Please circle No. 250
on your Reader Service Card

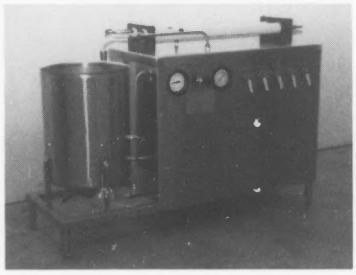
Conv-O-Crimp Hose Assembly System

Everflex introduces the new Conv-O-Crimp System which allows Everflex distributors and users to make factory-quality Teflon convoluted hose assemblies quickly, conveniently, and economically. The system is composed of Everflex hose, hose ends and a crimping machine. Everflex's crimp style hose end offers superior performance and sealing ability under all operating conditions, and the Teflon hose construction is designed especially for those applications where hostile operating conditions require resistance to chemicals or high ambient temperatures in fluids or the surrounding environment.

The series 8000 hose has a unique inner-core construction reinforced with 304 stainless steel wire. The design allows for a wider range of hoses to offer greater performance than traditional hose designs.

Dana/Everflex - Toledo, OH

Please circle No. 251
on your Reader Service Card



New Lab Unit Operates On All Four Membrane Processes

Filtration Engineering Company, Inc. announces the development of a new laboratory unit for the Dairy Processing Industry, which can operate all four membrane processes. The unit, called Model 92W, is capable of running Reverse Osmosis (RO) membrane for concentration, Ultrafiltration (UF) membrane for fractionation, Ultra-OsmosisR (UO) membrane for salt removal and demineralization, and Microfiltration (MF).

This compact unit can operate in batch, single pass, internal recirculation or larger feed an bleed applications. The Model 92W is now available for rent or purchase.

Filtration Engineering Co., Inc. - New Hope, MN

Please circle No. 252
on your Reader Service Card

New Tenney Vacuum Oven

Tenney Engineering, Inc., the largest and most experienced manufacturer of high technology environmental test equipment, is pleased to announce the introduction of a new larger size vacuum oven to their existing product line.

The new TVO-5 model vacuum oven has 4.6 cubic feet of stainless steel workspace, with a temperature range to 260°C and is capable of achieving vacuum to 10 microns or better.

The chamber is equipped with specially designed and placed heating elements on all five sides of the chamber guaranteeing even heat while eliminating hot spots.

The unit is provided with a full view 3/4" tempered glass door, with a tight vacuum seal provided by a high temperature silicone gasket.

Features include a digital microprocessor based control instrument and a separate over-temperature safety controller.

Tenney Engineering, Inc. - Union, NJ

Please circle No. 253
on your Reader Service Card

Rapid Aflatoxin Test For Milk Introduced

A new test is now available for fast and accurate detection of aflatoxin M_1 in milk. Developed by Neogen Corporation, it is the first rapid antibody test for screening and quantitating this harmful toxin in milk and milk products. The test joins Neogen's growing line of Agri-Screen® diagnostic tests for the detection of residues in dairy food products.

Because of its serious toxicological effects, the US Food and Drug Administration has set action levels at 0.5 parts per billion (ppb) for aflatoxin M_1 in dairy products.

Once present in milk, aflatoxin M_1 can not be destroyed by pasteurization, drying, canning, cheese-making, freezing, or other processing methods. Some processes, such a concentration of milk into dried milk products can increase aflatoxin M_1 concentration as much as seven-fold.

Agri-Screen determines the exact concentration of aflatoxin M_1 in raw or whole milk in just minutes - even at concentrations below the current federal regulatory level of 0.5 ppb.

Neogen Corp. - Lansing, MI

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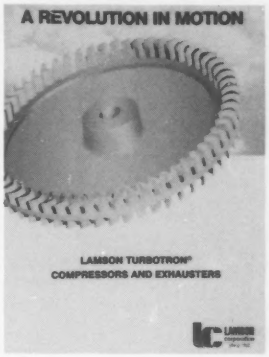
on your Reader Service Card



Literature Release

Since 1880 Lamson Corporation has engineered and built air handling equipment. A 4 page brochure introduces the new turbotron centrifugal blower/exhauster which provides pressures to 15 PSIG, vacuum to 16 inches Hg, and operational characteristics similar to positive displacement equipment. Some areas of application are, pneumatic conveying, gas handling and water/wastewater treatment industries.

Lamson Corp. - Syracuse, NY

Please circle No. 256
on your Reader Service Card

pH CHECKER/FAULT LOCATOR

pH CHECKER/FAULT LOCATOR from EXTECH Instruments simulates pH 4, 7 and 10 to evaluate if your pH meter is in calibration or needs an electrode replacement. This Troubleshooter is convenient and easy to use; simply connect its BNC connector to your pH meter and switch between pH values of pH 4, 7 and 10 at 25 Deg C. If your meter displays the same value that is being simulated, then it is in calibration. PH Checker is accurate to 0.1%, includes a 9V battery and is priced at $59.

EXTECH Instruments Corp.- Waltham, MA

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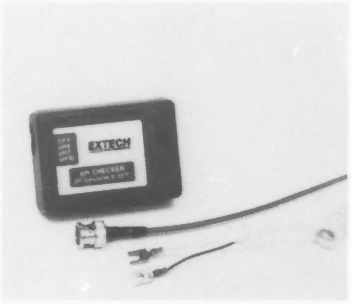
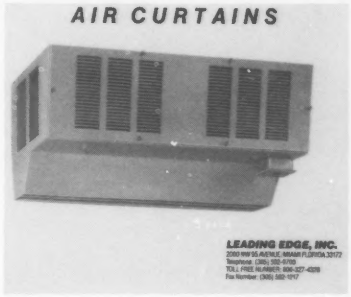
on your Reader Service Card





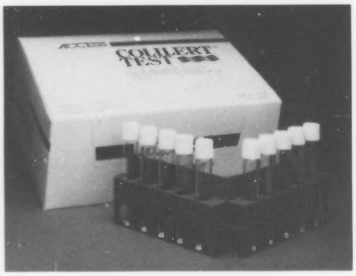
Complete Line of Commercial/Industrial Air Curtains

From Leading Edge, a complete line of commercial/industrial air curtains. For thermal barriers, fly, insect and dust control. All models feature exclusive corrosion-resistant galvanized construction, 2 speed energy efficient totally enclosed motors and rubbers sealed bearings. All units are U.L. listed.

Leading Edge - Miami, FL

Please circle No. 257
on your Reader Service Card

Colilert EPA Approved



Access Analytical Systems announced Environmental Protection Agency approval of its new Colilert coliform test for determination of coliform bacteria in drinking water under the current National Interim Primary Drinking Water Rule.

Colilert is the first new total coliform method approved in the last three decades and has been called the first real breakthrough in coliform testing since the 1950's.

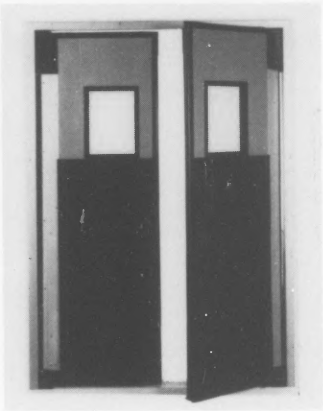
Colilert allows the user to simultaneously detect, identify, and confirm total coliforms and, importantly, *E. coli* - the major fecal coliform - in the same vessel, with less than 2 minutes "hands-on" time. Colilert is pre-dispensed, ready-to-use, and easy to read, providing a visible color result. Current approved technologies typically require 2 to 5 days for a result and many preparatory and subculturing steps that take significantly more time and labor.

Access previously announced the availability of Colilert in the now EPA approved multi-tube MPN (Most Probable Number) test format as well as the unit-dosed, single 100 sample P/A (Presence or Absence) format.

Access **Analytical Systems, Inc. - Branford, CT**

Please circle No. 258
on your Reader Service Card

Flex Shield™ Bumper



Effective immediately, all XHD (extra heavy duty) doors will be equipped with a low profile Flex Shield™ bumper, announced RubbAir Door, one of the nation's leading manufacturers of flexible, double-acting traffic doors.

This projectionless bumper affords all of the same protection as that provided by a conventional bumper, but the new design extends out only 1/4 inch on each leaf as compared with an extension of up to 7" per leaf with the conventional tear drop design. That means wide loads will not be impeded and the life of the door will be substantially prolonged.

The RubbAir XHD door is a significantly reinforced version of the flexible, full-thickness RubbAir Standard door. Constructed with rugged reinforcement in all major stress areas, the XHD Door is said to be specifically engineered to withstand daily punishing impact from lift trucks and other rolling stock.

RubbAir Door Div., Ayer, MA

Please circle No. 259
on your Reader Service Card

Field Fluorometer Measures Flow in Raw Sewage

The Turner Designs Model 10 Field Fluorometer accurately measures flow in raw sewage using Rhodamine dyes as tracers. Fluorometry used in sanitary sewers quantitates and localizes infiltration quickly and efficiently. The need for expensive T.V. inspection is limited to stretches proven to have breaks. This is the most accurate, fastest, and least expensive way to measure flow in a sewer. It is also ideal for calibrating meters and determining pump performance.

The instrument has been specifically designed for portability, stability, and ruggedness. This Field operating instrument runs on AC current or DC, enabling operation from a car or truck battery. Weight of the instrument is only 32 lbs. It is simple to operate and requires minimal training.

Special circuit design of the Turner Model 10 ensures normal operation under varied temperature and humidity conditions. All moving parts are double-shielded against the environment.

Turner Designs - Sunnyvale, CA

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Please circle No. 116 on your Reader Service Card

Food and Environmental Hazards To Health

Eastern Equine Encephalitis - United States, 1989

As of August 31, 11 states have reported to CDC one fatal human case and 65 equine cases of eastern equine encephalitis (EEE) in 1989. The human case, confirmed serologically, occurred in an 11-year-old boy in Mississippi who died of encephalitis on August 6. Equine cases have been confirmed serologically (40 cases) or by viral isolation from brain (25 cases).

Despite the routine application of larvicides and adulticides by state and local agencies, pest and vector mosquitoes, including those that transmit EEE, have been abundant this year in several eastern coastal locations. For example, on Maryland's eastern shore, *Aedes sollicitans* mosquito collections in light traps have exceeded 50,000 per trap per night. In late July, an EEE epornitic (i.e., an outbreak in a bird population) occurred in a pheasant flock on Maryland's eastern shore, leading to 20 deaths among approximately 1500 fowl. Four equine cases from the DelMarVa Peninsula and on Assateague and Chincoteague islands off the Maryland and Virginia coast have been confirmed, and other clinically suspected cases have been reported from this area. Emergency widespread aerial applications of adulticides over Assateague Island and adjacent mainland recreational areas were conducted in the last week of August.

Editorial Note: EEE occurs sporadically in the United States, principally in coastal locations in mid-Atlantic and southeastern states. In most years, fewer than five human cases have been reported; however, clinical disease is associated with a case-fatality rate of 30%-70%, and most surviving patients have serious neurologic sequelae. EEE in horses is usually fatal.

EEE is transmitted in an enzootic cycle among birds and *Culiseta melanura* mosquitoes, an ornithophilic species that seldom bites people. Various mosquito species with catholic feeding habits including *Ae. vexans, Ae. sollicitans,* and *Coquillittidia perturbans*, are chiefly responsible for transmitting infections to humans and horses. This year, following heavy spring and summer rains, several northeastern states that continuously monitor vector mosquito activity have reported the highest numbers of enzootic and epizootic vector mosquitoes ever recorded in their areas.

With onset of cooler weather the abundance of mosquitoes is declining in many areas of the eastern seaboard; EEE cases generally decline in late summer, although cases have occurred as late as mid-October.

No specific preventative or therapeutic measures against EEE are available. In areas with a potential risk for the disease, protective measures against mosquito exposure - including the use of repellents, appropriate dress, and avoiding outdoor activity in the evening (the peak period of biting activity) - are prudent.

MMWR 9/15/89

Mycobacterium tuberculosis Transmission in a Health Clinic - Florida, 1988

Between January 1 and July 1, 1988, 30 (42%) of 72 staff members tested at a western Palm Beach County, Florida, clinic were identified as having positive (≥10-mm induration) tuberculin skin test (Mantoux) reactions. Seventeen (57%) of these 30 employees had a documented skin test conversion (reaction from <10 mm to ≥10 mm with and increase of ≥6-mm induration) within the past 18 months. The other 13 had no previous documented tuberculin skin tests. These findings indicated probable transmission of tuberculous infection in the clinic and prompted an environmental and epidemiologic investigation.

The clinic, which provides primary care, is located in a two-storied building constructed in 1984. All patient-care activities occur on the first floor. The second floor contains the administrative offices and a conference room. Ventilation studies conducted as part of the epidemiologic investigation revealed that >90% of the air in the building was recirculated, and 0.48 fresh air exchanges occurred per hour. Only large-particle air filters were used in the air-handling units; these filters were changed once per month. In the examination rooms, air supply exceeded exhaust volumes, causing air to move from the rooms into the hallways and be recirculated throughout the building.

Based on preliminary findings, four possible sources of *Mycobacterium tuberculosis* infection were considered. 1.) In June 1987, a clinic nurse was diagnosed with noncavitary pulmonary tuberculosis (TB). Although her sputum cultures were positive for *M. tuberculosis*, sputum smears were negative for acid-fast bacilli (AFB) (smear-negative patients are much less infectious than smear-positive patients). 2.) From January to July 1988, 39 patients with pulmonary TB were treated at the clinic; 14 of these had at least one positive sputum smear during the interval. 3.) In late November 1987, the clinic began sputum inductions using an ultrasonic nebulizer to obtain diagnostic specimens from persons diagnosed with or suspected to have TB. On 14 different occasions between January 13 and May 18, 1988, 13 patients had induced sputum specimens that were culture-positive for *M. tuberculosis*. On nine of these 14 occasions, the patient was also smear-positive. 4.) Aerosolized pentamidine treatments were initiated on January 29, 1988, for acquired immunodeficiency syndrome (AIDS) patients to prevent *Pneumocystis carinii* pneumonia (PCP). Between January 29 and June 17, 1988, six AIDS patients received a total of 31 such treatments. Two of these patients had positive sputum cultures for *M. tuberculosis* between January 29 and March 18, during a period when they received a total of 10 treatments with aerosolized pentamidine. One of these two patients, who received eight treatments, coughed profusely both during and after the therapy. This patient was also repeatedly sputum-smear-positive, even though he was reportedly taking several anti-TB medications.

To determine which of these four possible sources was most likely associated with *M. tuberculosis* infection among the staff, the Florida Department of Health and Rehabilitative Services conducted a case-control study with 16 cases and 34 controls in July 1988. A case was defined as a clinic staffer who had worked at the clinic at least 6 months and who had had a documented skin test conversion within the previous 28 months. A control was a clinic staffer who had worked there at least 6 months and who had had a negative skin test in the month before the investigation.

Cases were significantly more likely than controls to have worked at least 40 hours per week in the clinic, been present in the room when aerosolized pentamidine treatments were given, worked on the first floor, and been nonwhite. Transmission caused by face-to-face exposure to TB patients not receiving aerosolized pentamidine could not be excluded. Many staff members were unaware which patients had TB.

Aerosolized pentamidine treatments and sputum inductions were stopped in June 1988 pending construction of appropriate exhaust systems for rooms in which these procedures are performed and changes in the building's ventilation system. All clinic staff with negative tuberculin reactions were retested in September; no new skin test conversions occurred. Isoniazid prophylaxis was provided to all converters.

MMWR 4/21/89

Common-Source Outbreak of Giardiasis - New Mexico

In April 1988, the Albuquerque Environmental Health Department and the New Mexico Health and Environment Department investigated reports of giardiasis among members of a church youth group in Albuquerque. The first two members to be affected had onset of diarrhea on March 3 and 4, respectively; stool specimens from both were positive for *Giardia lamblia* cysts. These two persons had only church youth group activities in common. Routine surveillance identified no other cases associated with the church youth group.

The youth group had dinner once a week at the church; food was prepared by parents of group members. The number of attendees at each meal varied, and no record of who attended was kept. A survey of all families attending the church sought to identify any family members who had eaten at any youth group dinners in March and any who had had diarrhea since February 1, 1988. One hundred forty-eight persons who attended at least one youth group dinner in March were interviewed about food they had eaten at the meal(s); the 42 persons reporting diarrheal illness were interviewed about details of their illness.

A case was defined as diarrhea and/or abdominal cramping with onset after February 1, 1988, lasting >7 days and/or a stool specimen positive for *Giardia* cysts. Twenty-two (15%) persons met the case definition. Onset of illness occurred from March 3 to March 30, and illness lasted 1-32 days (median: 20 days). Twenty-one (19%) of 108 persons who ate the youth group dinner on March 2 developed an illness meeting the case definition, compared with one (3%) of 40 who did not eat that meal.

For the 21 ill persons who had eaten the March 2 dinner, the most frequent symptoms reported were fatigue (95%), diarrhea (91%), abdominal cramps (57%), bloating (57%), and weight loss (67%). Patients ranged in age from 11 to 58 years (median: 39 years); 14 (67%) were female; 15 (71%) sought care from a physician. Fourteen (67%) patients submitted stool specimens for ova and parasite examination; 10 (71%) specimens were positive for *Giardia* cysts. Seven of the stool specimens were also tested for *Shigella, Salmonella, Campylobacter,* and *Yersinia,* and all were negative. One ill person attended a day-care center, one had household contact with a day-care center attendee, and none had consumed surface water.

The foods served at the dinner on March 2 included tacos (with meat, onions, tomatoes, lettuce, cheese, salsa, sour cream, and tortillas), corn, peaches, cupcakes, soft drinks, coffee, and tea. No food samples were available for microbiologic testing. Persons who became ill were more likely to have reported eating lettuce, salsa, onions, or tomatoes, or drinking tea/coffee. Water consumption was not associated with illness. Lettuce, onions, and tea/coffee were most strongly associated with illness by logistic regression analysis.

Except for the commercially prepared salsa, the implicated foods were prepared in the church kitchen. The lettuce and tomatoes were rinsed at the kitchen's main sink; the outer leaves of the lettuce were removed; the lettuce, tomatoes, and onions were chopped on the same cutting board, which was not washed between items. The dinner was prepared by eight women whose children were in the youth group; all ate the meal. Although the woman who prepared the lettuce and tomatoes taught preschool and had a child in preschool, neither she nor her child was ill when the meal was prepared. None of the eight food preparers reported symptoms at the time of meal preparation; however, five became ill with diarrhea after March 8. Three had stool specimens positive for *Giardia* cysts.

The church is on the municipal water system. A survey of possible connections between the church's potable water system and the sanitary sewer system identified five potential cross-connections. However, water samples taken at the time of the cross-connection survey had adequate chlorine levels and were negative for coliform bacteria. On April 4, after the investigation began, the church stopped using municipal water for consumption and began catering meals. After elimination of all cross-connections, every outlet was flushed simultaneously for 3 hours. No new cases occurred after the remediation measures were completed.

Editorial Note: In this apparent point-source outbreak of giardiasis, the most likely vehicle of transmission was taco ingredients. Although all the ill persons ate the commercially prepared salsa, salsa was unlikely to have transmitted *Giardia* cysts because the cysts would not remain viable after the pasteurization and canning processes.

Two explanations for the contamination are possible. First, if the potable water was contaminated, the lettuce and tomatoes could have been contaminated when washed. Because the lettuce, tomatoes, and onions were all cut on the same board, cross-contamination could have occurred. However, because plumbing changes were made before completion of the epidemiologic investigation, this hypothesis could not be tested. Second, if the woman who prepared the lettuce and tomatoes was infected and excreting *Giardia* cysts, she could have contaminated the vegetables during preparation. However, this mode is less likely because this woman had acute onset of diarrhea 10 days after the meal, suggesting a new infection at that time.

Only two reported outbreaks of giardiasis have been associated with food: canned salmon and noodle salad. In both outbreaks, contamination occurred when food was mixed with bare hands. Waterborne outbreaks of *Giardia* are well documented, and persons consuming untreated surface water are at increased risk for developing giardiasis. Person-to-person transmission is also well known in day-care and institutional settings. Public health officials should consider foodborne transmission when investigating outbreaks of giardiasis.

MMWR 6/16/89

The International Association of Milk, Food and Environmental Sanitarians, Inc., at the 76th Annual Meeting in Kansas City, Missouri on August 15, 1989, adopted the following four resolutions.

Resolution 1.

Disposables for Foodservice and Packaging
The Public Health Perspective

WHEREAS, a growing number of state and local governments in the U.S. propose to ease problems of landfill shortage by mandating the minimization of the use of disposables for foodservice and packaging (understood here to include paper and plastic cups, plates, and containers, but not bottles and cans); and

WHEREAS foodservice disposables are estimated to be only one-half of one percent of the total municipal solid waste burden; and

WHEREAS the single service industry is moving expeditiously to develop systems for recycling plasticware; and

WHEREAS paper single service articles are biodegradable and plasticware items are recyclable; and

WHEREAS the single service industry has abandoned the use of ozone depleting, fully halogenated chlorofluorocarbons (CFCs) in the manufacture of polystyrene foam cups and containers for foodservice; and

WHEREAS banning or restricting the use of paper or plastic plates, cups and containers will have a minimal effect upon the nation's solid waste problem; and

WHEREAS disposables for foodservice and packaging continue to be a desirable sanitary alternative to reusables under many conditions of modern food delivery; and

WHEREAS state and local environmental health officials in the U.S. are practically unanimous in their conviction that disposables contribute to proper sanitation levels in public food service operations; and

WHEREAS the majority of these officials in the U.S. consider that the health and sanitation advantages of single service outweigh their disadvantages in contributing to solid waste and litter; and

WHEREAS attempting to solve waste problems by minimizing the use of single service will have a deleterious impact upon the availability of safe and sanitary packaging for the retail sale and service of foods;

THEREFORE BE IT RESOLVED that the International Association of Milk, Food, and Environmental Sanitarians affirms that single service products contribute significantly to sanitation in foodservice and packaging and constitute an essential element of prevention from foodborne disease.

BE IT FURTHER RESOLVED that IAMFES views the strategy of minimizing the use of single service in order to alleviate the solid waste and litter problems as a regressive step in food protection and contrary to the interests of public health.

Resolution 2.

WHEREAS, the Kansas Association of Sanitarians and their Local Arrangements Committee labored long and diligently, with exceptional success, to host the Seventy-sixth Annual Meeting of the International Association of Milk, Food and Environmental Sanitarians in Kansas City, Missouri and,

WHEREAS, the facilities for both the technical sessions and entertainment were anticipated and provided with usual generosity and style by the Kansas Association of Sanitarians and their Local Arrangements Committee and,

WHEREAS, these same hosts exercised the highest standards of the International Association of Milk, Food and Environmental Sanitarians, Inc. in coordinating the efforts of their industry, educational and governmental members towards the success of this Annual Meeting and,

WHEREAS, the 1989 Meeting was in every respect "Par Excellence" that will long be remembered and cherished,

THEREFORE, BE IT RESOLVED, that the International Association of Milk, Food and Environmental Sanitarians, Inc. adopt this resolution of appreciation and gratitude toward the Kansas Association of Sanitarians, and further that a copy of this resolution be sent to the Kansas Association of Sanitarians and be published in the official organ of the Association - Dairy Food and Environmental Sanitation.

Resolution 3.

WHEREAS, the personnel of the Hyatt Regency Crown Center were most accommodating to the needs of the members, guests and their families of the International Association of Milk, Food and Environmental Sanitarians, Inc., and,

WHEREAS, the facilities for the program sessions and members, guests and their families' comfort were outstanding.

THEREFORE, BE IT RESOLVED, that an appropriate expression of our gratitude be sent to the management and staff of the Hyatt Regency Crown Center.

Resolution 4.

WHEREAS, the Commissioned Corps of the United States Public Health Service having been founded in 1889, is this year, 1989, celebrating its 100th Anniversary and,

WHEREAS, the Commissioned Corps Officers of the Public Health Service have contributed significantly to the improvement of sanitation in the fields of milk, food and environmental sanitation throughout the United States and,

WHEREAS, the model Ordinances and Codes developed and promoted by the Public Health Service have contributed greatly to the Health and Welfare of the citizens of the United States and,

WHEREAS, more than ten Commissioned Corps Officers of the Public Health Service have served IAMFES as officers and president,

THEREFORE, BE IT RESOLVED, that the International Association of Milk, Food and Environmental Sanitarians, Inc., at its Seventy-Sixth Annual Meeting in Kansas City, Missouri, adopts this resolution extending congratulations to the Commissioned Corps of the United States Public Health Service for its 100 years of dedicated service to the citizens of the United States.

BE IT FURTHER RESOLVED, that the Secretary of IAMFES direct a copy of this resolution to the Surgeon General of the Public Health Service and to the Secretary of the Department of Health and Human Services commending them and the dedicated Officers of the Commissioned Corps for their many contributions to betterment of sanitary conditions in the fields of milk, food and environmental sanitation.

Affiliate News

GAFES Annual Meeting

The Georgia Association of Food and Environmental Sanitarians will be holding its Fourth Annual Meeting on February 16th at the Airport Holiday Inn, I-85 South, Atlanta. The theme of the meeting will be "Food and Environmental Sanitation for the 90's". Speakers will include professional industrial sanitarians and scientists from the U.S. Department of Agriculture of national reputation. Topics to be covered include: "Developments in Dairy Sanitation", "New Approaches to Salmonella Control in Poultry", "Public Health Aspects of Cockroach Infestations" and others. For additional information contact Joe Frank, Department of Food Science and Technology, University of Georgia (phone: 404/542-0994) or Bob Brackett (phone: 404/228-7284).

#36-1

L-R. Charles Sanders, Vice President; Janet Murray, Secretary; John Norris, Treasurer; Gregg Fast, President; C. Bruce Mepes, President-Elect; Grace Steinke, Immeidate Past President.

M.M.F.E.H.A. Annual Educational Conference Report

The 11th annual educational conference of the Missouri Milk, Food, and Environmental Health Association was held April 5-7 at the Ramada Inn in Columbia, Missouri. Over 180 persons registered for the meeting, an all time high! A pre-conference seminar on "Pest Control" was held on Wednesday morning, April 5, which had been coordinated by William Kottkamp, Entomologist, from the St. Louis County Health Department. Topics and speakers included: "Licensing Procedures for Pest Control Operations", Paul Andre, Department of Agriculture; "Inspection/Control Techniques in Public Health", Whitmire Research Laboratory; and "PCO's and Public Health", Forest St. Aubin, R.P.E., Missouri Pest Control Association.

Upcoming IAMFES Affiliate Meetings

FEBRUARY

16, Georgia Association of Food & Environmental Sanitarians (GAFES) Annual Meeting, at the Airport Holiday Inn, I-85 South, Atlanta, GA. Topics: Sanitation for the 90's. For more information call Joseph Frank, 404-542-2453.

26-28, Kentucky Association of Milk, Food and Environmental Sanitarians' Annual Conference to be held at the Holiday Inn South on Fern Valley Road, Louisville, KY. For more information, contact Debbie Pierce, Secretary, KAMFES, PO Box 1464, Frankfort, KY 40602, (502) 564-3340.

MARCH

6-7, Virginia Association of Sanitarians & Dairy Fieldmen Annual Meeting, Donaldson Brown Continuing Education Center, Blacksburg, VA. For more information contact Haney Hodges, 1328 Biscayne Rd. N.W., Roanoke, VA 24019, 703-362-8877.

6-8, Idaho Environmental Health Association Annual Meeting in Boise, ID. Topics to be addressed will be various Environmental Health Concerns. For more information contact Tom Turco, 1455 N. Orchard, Boise, ID 83706, 208-375-5230.

28-30, Michigan Environmental Health Association's 1990 Annual Education Conference at Holiday Inn, Holland, Michigan. For more information contact K. Durwood Zank, R.S., P.O. Box 277, DeWitt, MI 48820-0277, 517-543-2430.

APRIL

4, Ohio Association of Milk Food & Environmental Sanitarians Spring Meeting. For more information write or call Donald Barrett, Health Dept., 181 S. Washington Blvd., Columbus, OH 43215, 614-645-6195.

4-6, Missouri Milk, Food & Environmental Health Association Annual Meeting, Breckenridge on the Lake, Osage Beach, MO. For more information contact John Norris, Division of Health, Box 570, Jefferson City, MO 65101, 314-751-6400.

11-12, Florida Association of Milk Food & Environmental Sanitarians Spring Educational Conference, Deland FL, Hilton Hotel. For more information contact W.R. Thornhill, 3023 Lake Alfred Rd., Winter Haven, FL 33881, 813-299-6555.

MAY

14-16, 1990 Pennsylvania Association of Dairy Sanitarians & Dairy Laboratory Analysts Annual Meeting at the Keller Conference Center, Penn State University, University Park, PA. For more information, contact Sid Barnard, 8 Borland Lab, University Park, PA 16802, 814-863-3915.

23-25, South Dakota Environmental Health & South Dakota Rural Health, Ramkota Inn, Pierre, SD. For information contact Dave Micklos, SD State Dept of Health, 523 E. Capital, Pierre, SD 57501, 605-773-3141.

JUNE

5-6, Texas Association of Milk, Food & Environmental Sanitarians Annual Meeting, held at the Howard Johnson-South Plaza, Austin, Texas. For more information contact Janie Park, Secretary, P.O. Box 2363, Cedar Park, TX 78613-2363, 512-458-7281.

SEPTEMBER

18-20, New York State Association of Milk and Food Sanitarians Annual Meeting, at the Sheraton Inn-Syracuse, Liverpool, NY. For more information contact Paul Dersam, 27 Sullivan Rd., Alden, NY 14004, 716-937-3432.

26-28, Kansas Association of Sanitarians Annual Meeting, Red Coach Inn, Salina, KS. For more information contact John Davis, 1900 East 19th, Wichita, KS 67214, 316-268-8351.

Dr. Robert Marshall, Professor, University of Missouri, Columbia, receiving honorary membership for twenty-five years of dedicated service in the interest of public health and the maintenance of continuous membership in MMFEHA. Presented by Grace Steinke, President.

The opening general session featured a Keynote Address by Hilda Chaski, Acting Director, Division of Environmental Health and Epidemiology on "The Role of the Sanitarian in Determining Environmental Health Issues". Dr. David McSwane, Assistant Professor, School of Public and Environmental Affairs, Indiana University, followed with "Focus: Putting Public Health Back into the Environmental Movement". Dr. Bailus Walker, Professor of Environmental Health & Toxicology, State U. of New York, addressed "The Future of Environmental Health". The session concluded with speakers on: "Radon in Missouri", Gary McNutt, Radiological Health Analyst, Missouri Southern State College 1989-1993", Dr. Franklin Adams, Program Coordinator, Environmental Health Technology Program, Missouri Southern. This was a dynamite opening session, which our members were very receptive to!

On Thursday morning three concurrent sessions were held, representing the Food, Milk, and Environmental/Institutional interests.

Dr. Bailus Walker, Speaker, Professor of Environmental Health and Toxicoloby, State University of New York, addressing MMFEHA annual educational conference at the opening session on "The Future of Environmental Health".

Next year, by popular demand, there will be four break-out sessions with the environmental and institutional interests being separated.

Friday's joint closing session featured speakers on "Infectious Waste and Isolation Techniques", Jim Gifford; "Inspector Liability", Attorney Robert Northcutt, and "Stress in the Personality", Alynn Schmitt McManus, Mid-County Physicians Inc.

The Banquet on Thursday evening featured a speaker on "UMC's Sesquicentennial Celebration" and the presentation of numerous awards to MMFEHA members for 10 and 25 years of service to MMFEHA and its predecessor organizations, Missouri Milk & Food and Missouri Honorary Membership for 25 continuous years of outstanding service.

MMFEHA also has a publications award and a Sanitarian Citation Award. This year's Sanitarian of the Year was awarded to F. Jerry Brown, Jefferson County, who has also received accolades from his county administrators for his untiring efforts and successful initiation of a solid waste enforcement program in Jefferson County.

1988-1989 MMFEHA Executive Board and committee chairpersons celebrating a successful year and educational conference at the banquet. L-R, back row, David Wilde, Constitution and By-Laws; Erwin Gadd, Historian & Necrology; Joe Edmondson and Ray Lange, AEC Hospitality/ Entertainment; Janet Murray, Public Relations; Douglas Dadson, Immediate Past President & Nominations; John Norris, Treasurer; Robert Marshall, Awards. L - R, front row, Gregg Fast, President-Elect & 1989 AEC Program; Grace Steinke, President; Bruce Myers, Vice President; Reid Stevens, Secretary. Absent: James Gifford, Legislation; William Kottkamp, Membership; and Oscar (Butch) Hartmann, Photographer.

Next year's MMFEHA Annual Educational Conference will be held on April 4-6, 1990, at the Breckenridge on the Lake at Osage Beach, Missouri. Sanitarians from other affiliates would be welcome. Tentative programs and registration information will be available by February, 1990. Contact person: John Norris, Missouri Department of Health, Bureau of Community Sanitation, P.O. Box 570, Jefferson City, MO 65102. (314) 751-6095.

PS Forum For Professional Sanitarians

Response to the National Temperature Check in September and October exceeded expectations. More than 90 refrigeration units were checked and results reported. In 95% of the units checked product temperatures were below 45 F. 80% of the units checked were maintaining ambient air temperatures ranging from 35 F to 40 F.

A significant finding of this survey was that participating field sanitarians didn't just check product temperature. When a food product was above 45 F, sanitarians determined if the product was potentially hazardous and why the product was above 45 F (frequent opening of the cold storage unit; food product was in the process being quick chilled from cooking; product was in a reach through unit on the serving line and was to be served within the next hour).

A quick check of local wholesale food distributors and retail grocery stores provided some interesting insight to the temperature question. Major food distributors are now recommending on the product label to maintain some foods below 40 F. Retail grocery markets were maintaining display cases from 33 F to 36 F for foods that may be on their shelves for several days.

Our survey also resulted in several responses from experts in food microbiology. Some experts oppose a change and want to keep 45 F. One expert recommends "if you want to keep it more than five days keep it below 32 F or do a microbiological safety HACCP on it". Canada's food code requires a product temperature of 4 C (39.5 F). It's easy to see why FDA had a difficult time in the draft Unicode.

Here is my recommendation for FDA: Keep 45 F for display and short term storage (less than 3 days) of potentially hazardous foods (PHF) prepared to be served to the customer in retail facilities. Establish 39 F requirement for delivery of PHF to retail facilities and require that temperatures be checked upon delivery. Require product temperature of 38 F for long term storage of PHF in wholesale distribution points and display for sale in retail grocery stores. Recommend 33 F for these special food products throughout the system: Fresh Fish; Chilled Poultry; Ready to Eat Foods.

These recommendations do not represent any endorsement by IAMFES, FDA or any other organization. If you have other options for FDA send them in or let the FDA Retail Food Branch know.

The bottom line on product temperatures is "there are no magic numbers". A single temperature standard for refrigerated foods will not correct all of the mistakes and mishandling that occurs in production, processing and final preparation. Sanitarians need to keep checking product temperature and to determine health risk based on the analysis of multiple factors related to the specific product and facility.

OFF THE CLIPBOARD: - Congratulations to the 598 sanitarians completing CDC's homestudy course in Foodborne Disease Control during FY 89. Another 295 completed the Microbial Ecology of Foods course.

- How many IAMFES members are Diplomates of the American Academy of Sanitarians (AAS)? The AAS, formed in 1966, recognizes sanitarians that have achieved excellence in academic and professional pursuits. A fact sheet on how sanitarians can qualify and apply for Diplomate status is available upon request.

- Sanitarians responsible for septic tank programs can obtain valuable information on small sewage disposal systems from the National Small Flows Clearinghouse (800) 624-8301. Call and request to receive their Small Flows newsletter.

- During November we had a chance to attend the Mid-Atlantic Foodservice and Lodging EXPO in Baltimore. The EXPO was sponsored by the Restaurant Association of Maryland and included over 600 exhibits of foodservice equipment and products. State and local events such as this provide sanitarians a unique opportunity to view new food technologies and directly communicate with members of the industry. When similar events are held in your area we recommend that you take an afternoon to visit exhibits.

- Check out the field inspection quiz (FIQ) for this month (see page 39). If you have field situations that would make good FIQ items, send them in. To receive more information on CDC homestudy courses or the American Academy of Sanitarians, send a self addressed, stamped envelope to: PS - Forum for Professional Sanitarians, P.O. Box 1832, Frederick, Maryland 21701.

Homer C. Emery, RS
Chair, FDA Interpretations Committee

January Field Inspection Quiz

1. Time required for heat inactivation of Salmonellae in a high water activity environment at a temperature of 130 F (assuming a population of 1,000 per gram is reduced to 1 per gram).

   A. 5.1 minutes
   B. 51 seconds
   C. 51 minutes

2. During an inspection you notice several foods that have been at room temperature for several hours. Which one is a problem?

   A. Baked potato left over from yesterday
   B. Cooked bacon
   C. Individual servings of ketchup

3. A local food manager has asked about FIFRA. You explain that FIFRA is concerned with:

   A. Federal Inspection of Fruits and Apples
   B. Fruit Inspection from Foreign Areas
   C. Federal Insecticide, Fungicide and Rodenticide Act

4. A consumer calls in to obtain information on RCRA. You refer the caller to:

   A. Solid and hazardous waste section
   B. Air pollution abatement section
   C. Community health nursing section

5. The minimum temperature that Salmonella have been reported to grow:

   A. 41.5 F
   B. 45.5 F
   C. 43.5 F

Answers to December FIQ: 1. (C) Centrifugal egg breaking machines can adulterate egg meats and should be prohibited in food service facilities; 2. (A); 3. (C); 4. (B); 5. (C).

Letter to the Editor

Editor:

In his call for a National Fourth Tuesday in September Food Temperature Check ("FDA Food Service Code Interpretations", Dairy, Food and Environmental Sanitation, Vol. 9, No. 9, Page 525, September, 1989), Homer C. Emery, RS exhibits the lack of scientific precision which has, in part, fueled the debate over refrigerated food temperature. Since that debate has centered around the persistent absence of scientific study to support the proposed temperature change, it is ironic that Mr. Emery offers to resolve the controversy with a survey which he recognizes ". . . won't be a highly scientific study . . .". The 40 F temperature debate did not newly arise at the IAMFES meeting in August, and it does not center exclusively on the economic impact of the proposal. Mr. Emery's opening comments imply that debate on this proposal is concerned only with cost, but he fails to note that we have questioned the epidemiologic justification for this proposed change since the Draft Unicode was released for comment over 16 months ago.

Since incubation during refrigerated storage is rarely cited as a major contributing factor in foodborne illness outbreaks the proposal to lower required temperature seems inexplicable in view of the general move to HACCP concepts and especially conflicts with Unicode's purported reliance on HACCP. The existence of psychrophilic pathogens is not new, nor are those organisms the central issue. The question remains, is there evidence to indicate that lowering refrigerated temperature requirements will materially improve public health and reduce the risks of foodborne illness? Our consulting microbiologists tell us there will be no reduction of risk; can the proponents of change support their claims with sound risk analysis?

Finally, presentation of this subject in a column titled "FDA Food Service Code Interpretations" is seriously misleading; those food protection professionals who have not been involved in the debate might reasonably conclude that the controversy has been resolved, and that 40 F is the formal interpretation. That conclusion would not only be incorrect, but would also add to the tendency to formulate regulation to satisfy perception of risk, rather than to support proposed change with sound scientific data. Presentation of a casual "Fourth Tuesday . . . " survey as resolution of a significant regulatory controversy is a disappointing step away from the objective stance we should expect IAMFES to take in informing members and other readers of Dairy, Food and Environmental Sanitation.

Sincerely,

Robert E. Harrington
Assistant Director, Technical Services,
Public Health and Safety
National Restaurant Association

Response to the NRA Robert E. Harrington Letter to the Editor from Homer C. Emery, R.S., Ph.D.

"We agree with Mr. Harrington on several points. First, 40 F would not lower the risk for all of the psychrophilic pathogens of current interest in ready to eat foods and cook chill system. For these foods, storage below 40 F would be required to lower the risk. Second, our National Temperature Check was certainly not designed nor intended to be scientific or to resolve the issue, but rather to provide some insight to current field practices. it was highly successful in meeting this objective (see Jan. 90 column).

Mr. Harrington and the NRA oppose the FDA recommendation to lower product temperature to 40 F. Our September column isn't the first time that holding temperatures below 45 F have been recommended. Other experts have described 41 F as the "ideal" product temperature (see Wyatt and Guy, Relationships of Microbial Quality of Retail Meat Samples and Sanitary Conditions, Journal of Food Protection). In a paper presented during the 1989 IAMFES Conference, Snyder recommends storage for some products below 35 F. IAMFES members in Canada inform us that their food code calls for a temperature requirement of 4 C (about 39.5 F).

The NRA even recommends to "refrigerate below 45 F" and to "chill food rapidly below 45 F" in their Make a SAFE Choice manual. How far below 45 F is the NRA recommending? NRA's letter to the editor may leave some readers with the perception that the current 45 poses no risk. For the restaurant operators with cook chill systems this perception could lead to problems.

Different foods require different refrigeration temperatures based on a total life cycle HACCP management approach. This will be a complex issue for the FDA to put into code format. Their task will be made easier as industry leaders such as the NRA and other experts discuss the issue and offer alternative solutions."

Homer C. Emery, R.S., Ph.D.
P.O. Box 1832
Frederick, Maryland 21701

Interpretation of the 3-A Accepted Practices for Permanently Installed Sanitary Product-Pipelines and Cleaning System

Number 605-03

I. THE PROBLEM

It has been brought to the attention of the 3-A Sanitary Standards Committees that confusion exists in the interpretation of fabrication criteria found in 3-A 605-03 for equipment used as components of the mechanical (C-I-P) solution unit, such as: solution tanks, solution heaters and solution valves and instrument fittings used to measure various solution parameters.

II. INTENT

It is the intent of the 3-A Sanitary Standards Committees to revise 3-A 605-03 to: (1) define the C-I-P solution unit, and (2) clarify the material and/or fabrication requirements for the components of the C-I-P solution unit. A task committee meeting is scheduled for this Autumn (1989). The process of preparing the definition and the clarifying revisions to 3-A 605-03 will proceed via the normal 3-A standard operating procedures. The revisions will be on the agenda for "User-Group" review during the May, 1990 meeting of the 3-A Sanitary Standards Committees.

III. IN THE INTERIM

The 3-A Sanitary Standards Steering Committee is recommending that 3-A 605-03 (effective November 1, 1989) be interpreted as 3-A 605-02 was interpreted with respect to the materials and fabrication criteria for components of the C-I-P solution unit. As an example the following is offered for finish on product contact and solution contact surfaces:

D.2 in 3-A 605-03 refers to product contact surfaces only and follows the standard wording used in all 3-A standards. It says that product contact surfaces shall have a finish at least as smooth as a No. 4 ground finish.

The paragraph is written this way recognizing that a 2B finish may be as smooth as a No. 4 ground finish and could qualify as a product contact surface. However, it also recognizes that being a rolled finish, a 2B finish could contain defects which might harbor bacteria and be difficult to clean. Therefore it goes on to say that as well as being at least as smooth as a No. 4 finish it shall be free of imperfections such as pits, folds and crevices in the final fabricated form. Therefore a 2B finish which is free of such imperfections would qualify for use as a product contact surface.

D.3 in 30-A 605-03, on the other hand, refers to solution contact surfaces. By definition these surfaces are not used for contact with product. D.3 in 3-A 605-03 says all solution contact surfaces must be at least as smooth as No. 4 ground finish. The statement that this does not preclude the use of a 2B finish for solution contact surfaces was added to point out this difference.

IV. CONCLUSION

Furthermore, the 3-A Sanitary Standards Steering Committee suggests that the more liberal interpretation of the previous 3-A practice (605-02) be used until revisions to these 3-A Accepted Practices (605-03) are complete.

The 3-A Sanitary Standards Steering Committee

International Association of Milk, Food and Environmental Sanitarians Committees

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Nomination forms need to be completed and back to the Ames office by April 3, 1990.

1. Previous award winners are not eligible for the same award. Check pages 44 and 45 in this issue for a complete listing of past award winners.

2. Present Executive Board members are not eligible for nomination.

3. Candidates must be current IAMFES members in order to be nominated.

Presentation of these awards will be during the IAMFES Annual Meeting August 5-9, 1990 at the Woodfield Hilton, Chicago, Illinois, during the Annual Awards Banquet Wednesday evening.

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1979-Joseph Edmondson
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1986-Robert T. Marshall
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1986-Hugh C. Munns
1987-J. H. Silliker
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1954-C. [illegible]. Johns
1955-R. G. Ross
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1957-Fred C. Baselt
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1982-None Given
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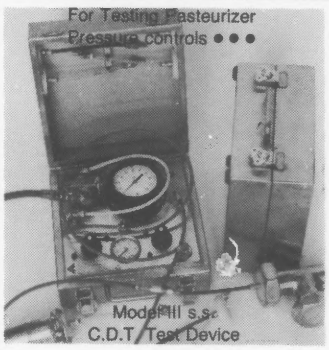

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1-3, FPM&SA Annual Meeting, at the Westin St. Francis Hotel, San Francisco, CA. Contact: Michael Donkis/Programming or Cheryl Clark/housing, (800) 331-8816.

5-June 15, Baking Science and Technology #136. American Institute of Baking, Manhattan, KS. Contact: Melinda Enns at (913) 537-4750.

5-9, Specialized Cookie Production. American Institute of Baking, Manhattan, KS. Contact: Melinda Enns at (913) 537-4750.

6-9, Freezing Technology Course for the Frozen Food Industry, at the University of California, Davis. For more information contact Robert C. Pearl or Sharon Munowitch, University Extension, University of California, Davis, CA 95616, (916) 757-8899.

12-14, National Mastitis Council Annual Meeting at the Hyatt Regency, Louisville, KY. For more information contact Anne Saeman, NMC at 703-243-8268.

12-16, Bakery Management. American Institute of Baking, Manhattan, KS. Contact: Melinda Enns at (913) 537-4750.

13-14, 79th Annual Oregon Dairy Industries Conference held at the Hilton Hotel, Eugene, OR. For more information call Floyd W. Bodyfelt, 503-737-3463.

14-15, Dairy and Food Industry Conference, The Ohio State University, Department of Food Science & Nutrition, 2121 Fyffe Road, Columbus, OH 43210-1097. For more information contact Dr. John Lindamood, (614) 292-7765.

16, Georgia Association of Food & Environmental Sanitarians (GAFES) Annual Meeting, at the Airport Holiday Inn, I-85 South, Atlanta, GA. For more information call Joseph Frank, 404-542-2453.

19-21, ABC Research 16th Annual Technical Seminar, University Centre Hotel, Gainesville, FL 32608. For additional information contact Sara Jo Atwell, 904-372-0436.

24-28, The Texas Public Health Association's 65th Annual Meeting in Austin, Texas at the Hyatt Regency Hotel on Town Lake. Contact either Ms. Terri Pali, TPHA Executive Secretary, (512) 451-1846, or Jim Allen, Chairman Exhibit Procurement Committee, (512) 458-7500.

26-28, Kentucky Association of Milk, Food and Environmental Sanitarians' Annual Conference to be held at the Holiday Inn South on Fern Valley Road, Louisville, KY. For more information, contact Debbie Pierce, Secretary, KAMFES, PO Box 1464, Frankfort, KY 40602, (502) 564-3340.

MARCH

6-7, Virginia Association of Sanitarians & Dairy Fieldmen Annual Meeting, Donaldson Brown Continuing EducationCenter, Blacksburg, VA. For more information contact Haney Hodges, 1328 Biscayne Rd. N.W., Roanoke, VA 24019, 703-362-8877.

6-8, Idaho Environmental Health Association Annual Meeting in Boise, ID. Topics to be addressed will be various Environmental Health Concerns. For more information contact Tom Turco, 1455 N. Orchard, Boise, ID 83706, 208-375-5230.

10-13, International Exposition for Food Processors (IEFP), at McCormick Place, Chicago, IL. Contact: Nancy Janssen or Cheryl Clark, (800) 331-8816.

11-12, 1990 Pittsburgh Restaurant Food & Equipment Show, sponsored by the Pennsylvania Restaurant Association. Held in Pittsburgh at the Expo Mart, Monroeville. Call 1-800-346-PROS or (717) 697-4199 for details, FAX (717) 790-9441.

14, Indiana Dairy Industry Conference, sponsored by the Food Science Department at Purdue University. For information contact James V. Chambers, Food Science Department, Smith Hall, Purdue University, West Lafayette, IN 47907, 317-494-8279.

18-20, Monterey Wine Festival, at the Monterey Conference Center, Monterey, CA. For more information contact The Monterey Wine Festival, c/o The National Restaurant Association, 150 N. Michigan Ave. Ste. 2000, Chicago, IL 60601, 312/853-2525, FAX 312/853-2548.

19-22, UCD/FDA Better Process Control School, at the University of California, Davis. To enroll or obtain further information, contact: Robert Price, Dept. of Food Science & Technology, Cruess Hall, UC Davis, Davis, CA 95616; (916) 752-2194.

19-23, Mid-West Workshop in Milk and Food Sanitation, The Ohio State University, Department of Food Science & Nutrition, 2121 Fyffe Road, Columbus, OH 43210-1097. For more information contact Dr. David Dzurec, (614) 292-7723.

28-30, Michigan Environmental Health Association's 1990 Annual Education Conference at Holiday Inn, Holland, Michigan. For more information contact K. Durwood Zank, R.S., P.O. Box 277, DeWitt, MI 48820-0277, 517-543-2430.

APRIL

4, 40th Annual University of Maryland Ice Cream Conference. Contact Dr. James T. Marshall, Department of Animal Sciences, University of Maryland, College Park, Maryland 20742 (or call 301/454-7843).

4, Ohio Association of Milk Food & Environmental Sanitarians Spring Meeting. For more information write or call Donald Barrett, Health Dept., 181 S. Washington Blvd., Columbus, OH 43215, 614-645-6195.

4, 5, 6, Missouri Milk, Food & Environmental Health Association Annual Meeting, Breckenridge on the Lake, Osage Beach, MO. For more information contact John Norris, Division of Health, Box 570, Jefferson City, MO 65101, 314-751-6400.

10-12, Florida Association Milk Food & Environmental Sanitarians Annual Meeting, at the Hilton Hotel, Deland,Florida. For more information contact Dr. Ron Schmidt, University of Florida Food Science and Human Nutrition, Gainesville, FL 32611, 904/392-8003.

11-12, Florida Association Milk Food & Environmental Sanitarians Spring Educational Conference, Deland FL, Hilton Hotel. For more information contact W.R. Thornhill, 3023 Lake Alfred Rd., Winter Haven, FL 33881, 813-299-6555.

22-24, 1990 Philadelphia Restaurant Food & Equipment Show, sponsored by the Pennsylvania Restaurant Association. Held in Philadelphia at the Valley Forge Convention Center, King of Prussia. Call 1-800-346-PROS or (717) 697-4199 for details, FAX (717) 790-9441.

25-26, Dairy Products Technical Conference at the O'Hare Marriott in Chicago, Illinois. Co-sponsored by The Center for Dairy Research (Madison, Wisconsin) and the American Dairy Products Institute (Chicago, Illinois). For more information contact Sarah Quinones (CDR) at 608/262-2217 or Dr. Warren S. Clark, Jr. (ADPI) at 312/782-4888.

MAY

1-2, Harrisburg Restaurant Food & Equipment Show, sponsored by the Pennsylvania Restaurant Association. Held in Harrisburg at the Farm Show Complex, Harrisburg. Call 1-800-346-PROS or (717) 697-4199 for details, FAX (717) 790-9441.

7-11, Electrical Troubleshooting. American Institute of Baking, Manhattan, KS. Contact: Melinda Enns at (913) 537-4750.

14-16, 1990 Pennsylvania Association of Dairy Sanitarians & Dairy Laboratory Analysts Annual Meeting at the Keller Conference Center, Penn State University, University Park, PA. For more information, contact Sid Barnard, 8 Borland Lab, University Park, PA 16802, 814-863-3915.

14-17, Purdue Aseptic Processing and Packaging Workshop, sponsored by the Food Science Department at Purdue University. For information contact James V. Chambers, Food Science Department, Smith Hall, Purdue University, West Lafayette, IN 47907, 317-494-8279.

14-18, Applications and Troubleshooting Microprocessor Control Circuits Seminar, presented by The American Institute of Baking. To register, write to American Institute of Baking, 1213 Bakers Way, Manhattan, KS 66502, call 913-537-4750 or 800-633-5137, or FAX 913-537-1493.

19-23, The 71st Annual National Restaurant Association Restaurant, Hotel-Motel Show, held at McCormick Place, Chicago, IL. For more information contact National Restaurant Association, 150 N. Michigan Ave., Ste. 2000, Chicago, IL 60601, 312/853-2525, FAX 312/853-2548.

23-25, South Dakota Environmental Health & South Dakota Rural Health, Ramkota Inn, Pierre, SD. For information contact Dave Micklos, SD State Dept of Health, 523 E. Capital, Pierre, SD 57501, 605-773-3141.

JUNE

5-6, Texas Association of Milk, Food & Environmental Protection Annual Meeting, held at the Howard Johnson-South Plaza, Austin, Texas. For more information contact Janie Park, Secretary, P.O. Box 2363, Cedar Park, TX 78613-2363, 512-458-7281.

JULY

6-7, International Symposium on Rapid Methods and Automation in Microbiology: Ten Years of Excellence. Contact Dr. Daniel Y.C. Fung, Director, 207 Call Hall, Kansas State University, Manhattan, Kansas 66506. Telephone (913) 532-5654, FAX (913) 532-7059.

6-13, International Workshop on Rapid Methods and Automation in Microbiology: Ten years of Excellence. Contact Dr. Daniel Y.C. Fung, Director, 207 Call Hall, Kansas State University, Manhattan, Kansas 66506. Telephone (913) 532-5654, FAX (913) 532-7059.

AUGUST

5-9, IAMFES 77th Annual Meeting, Woodfield Hilton Towers, Arlington Heights, IL. For more information, contact Steven K. Halstead, IAMFES, Inc., 502 E. Lincoln Way, Ames, IA 50010 (800) 369-6337.

15-18, FOOD PACIFIC, 1990 will be held at Vancouver's domed stadium, B.C. Place. Those wishing to attend may obtain further information by contacting: B.C. Food Exhibitions Ltd., 190-10651 Shellbridge Way, Richmond, B.C., Canada V6X 2W8 (604) 660-2288.

26-31 Eighth International Biodeterioration and Biodegradation Symposium, University of Windsor, Ontario, Canada. For more information contact Mary M. Hawkins, Corresponding Secretary, 10657 Galaxie, Ferndale, MI 48220-2133, 313-544-0042.

SEPTEMBER

10-13, 104th Annual AOAC International Meeting & Exposition, to be held at the Clarion Hotel, New Orleans, Louisiana. For more information, contact: Margaret Ridgell, AOAC, Suite 400, 2200 Wilson Blvd., Arlington, VA 22201-3301 (703) 522-3032.

18-20, New York State Association of Milk and Food

Sanitarians Annual Meeting, at the Sheraton Inn-Syracuse, Liverpool, NY. For more information contact Paul Dersam, 27 Sullivan Rd., Alden, NY 14004, 716-937-3432. **26-28, Kansas Association of Sanitarians Annual Meeting**, Red Coach Inn, Salina, KS. For more information contact John Davis, 1900 East 19th, Wichita, KS 67214, 316-268-8351.

OCTOBER

7-12, Twenty-Third International Dairy Congress, sponsored by the International Dairy Federation, and **Exposition 1990**, will be held at the Montreal Convention Centre, Montreal, Canada. For further information, contact: Richard Stern, Executive Director, International Dairy Congress, 1990, PO Box 2143, Station D, Ottawa, Ontario, Canada K1P 5W3 (613) 238-4116.

NOVEMBER

6-8, International Cheese Technology Exposition will beheld in Milwaukee, Wisconsin. For further information, contact: USCMA/WCMA, P.O. Box 2133, Madison, Wisconsin, 53701, (608)255-2027.

DECEMBER

12-18, American Society of Agricultural Engineers will be sponsoring the **International Symposium on Agricultural and Food Processing Wastes.** For more information contact: Jon Hiler, American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, MO 49085 616/429-0300.

1991

JANUARY

22-23, Third Annual Southern California Food Industry Conference will be held on the campus of Chapman College in Orange, California. For more information contact: Walt Clark, Chapman College, Food Science & Nutrition Department, Orange, CA 92666 PH: (714) 997-6869 FAX: (714) 532-6048 or Patrick Cochran, La Loma Foods, P.0. Box 8863, Riverside, CA 92515 PH: (714) 351-4300 FAX: (714) 351-3635.

To insure that your meeting time is published, send announcements at least 90 days in advance to: IAMFES, 502 E. Lincoln Way, Ames, IA 50010.eph, MO 49085 616/429

From the Ames Office . . .

By
Steven K. Halstead
IAMFES
Executive Manager

Association managers are constantly hit with the same question. "What have you done for me lately?" Usually it is prefaced in a conversation that goes something like this.

IAMFES "How's it going?"
Member "Pretty good. I wanted to thank you for that article in the last DFES on HACCP. It was really good."
IAMFES "So you got something out of it?"
Member "Yeah. It helped me identify a problem we were having down at the plant."
IAMFES "It helped you?"
Member "Yes. It tied right in with what I learned at the Annual Meeting in August. Between the two, I could see where our CIP program could come up short."
IAMFES "You had to modify your CIP program?"
Member "Not just the CIP, we also had to buy some equipment. Luckily I found just what I needed through talking to exhibitors in Kansas City and in the ads in the Journal."
IAMFES "Well, I'm glad we could help."
Member "Help! You probably saved my job!"
IAMFES "Then you will be sending in your membership renewal?"
Member "Gee, I don't know. What have you done for me lately?"

Granted, this is a bit exaggerated, although I have had very similar conversations in the past. The point is, what have we done for you lately? It's a valid question, and it's well taken.

Let me identify a couple of things we've done for you lately.

1. We have added "peel and stick" labels to your Journal. Use that with correspondence to us or suppliers. It sure is handy to use with the Reader Service cards.
2. We've changed our toll free number. It is now 800-369-6337. For those of you who are into vanity numbers, that's 800-369-MFES. Is that easy to remember, or what?
3. We've added more toll free lines. No more busy signals.
4. We've added Iowa and Canada to those able to use our toll free number.
5. Numbers 2, 3, and 4 were done at a cost which will be less than what we were paying. A better use of your dues money.

We have done some other things, also, but I'll save those for the next time you ask "What has IAMFES done for me lately?"

IAMFES

International Association of Milk, Food and Environmental Sanitarians Inc

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

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

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101	114	127	140	153	166	179	192	205	218	231	244	257	270	283	296	309	322	335	348
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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

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

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104	117	130	143	156	169	182	195	208	221	234	247	260	273	286	299	312	325	338	351
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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
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111	124	137	150	163	176	189	202	215	228	241	254	267	280	293	306	319	332	345	356
112	125	138	151	164	177	190	203	216	229	242	255	268	281	294	307	320	333	348	359
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