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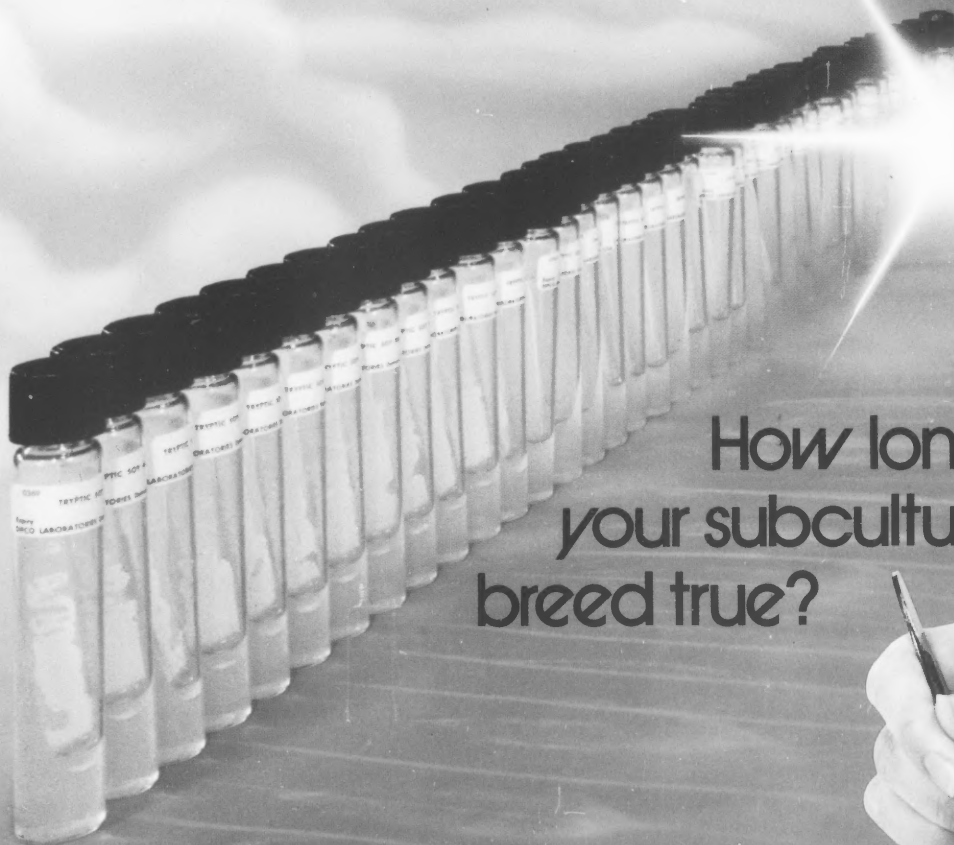
Dairy and Food Sanitation

A Publication for Sanitarians and Fieldmen

- *Yersinia enterocolitica*: A New Problem in Foodborne Illness
- Challenge for the 80's: Controlling Animal Drugs
- Setting Forth the Right Way to Sell Salvaged Food
- Causes of Rancid Flavor in Retail Milk Samples



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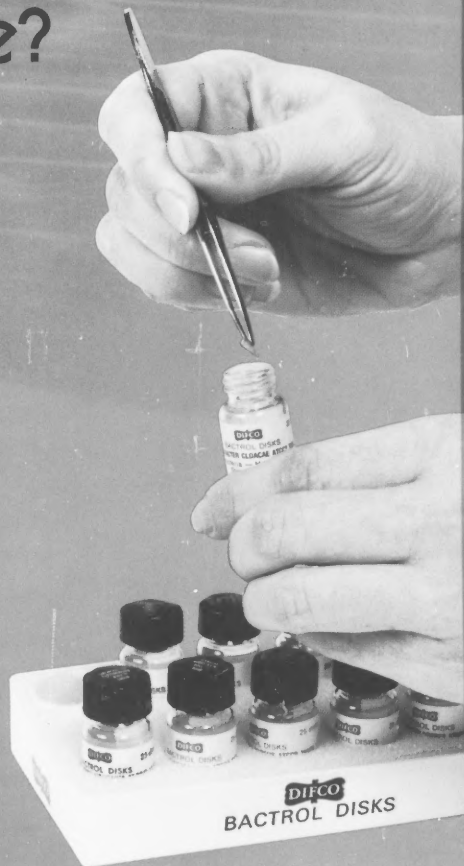
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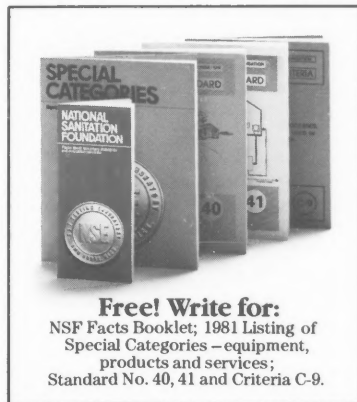
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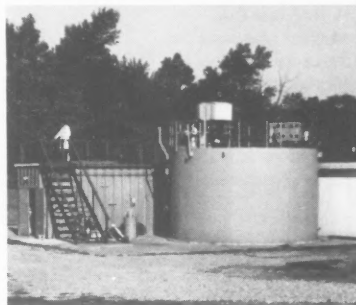
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Wastewater testing facility, Chelsea, Michigan.

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Dairy and Food Sanitation

September, 1981

- ***Yersinia enterocolitica*: A New Problem in Foodborne Illness** 364
A. B. Childers and Carl Vanderzant

 - **Setting Forth the Right Way to Sell Salvaged Food** 367
Roger W. Miller

 - **Challenge for the 80's: Controlling Animal Drugs** 369
Lester M. Crawford

 - **Causes of Rancid Flavor in Retail Milk Samples** 372
Sid Barnard

 - **Opening Address, 18th National Conference on Interstate Milk Shipments** 375
Jay Boosinger
-
- 3-A Symbol Holders List** 379
 - News and Events** 385
 - Book Reviews** 392
 - Food Service Sanitation Notes** 395
 - New Product News** 396
 - Calendar** 399
 - JFP Abstract** 402

Yersinia enterocolitica:

A New Problem in Foodborne Illness

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Yersinia enterocolitica presents a new problem in food hygiene since the organism has been documented in several outbreaks of foodborne illness in humans, and the number is increasing. The organism has been isolated from various food sources including water, milk, meat, and seafood. Previous failures to recognize Y. enterocolitica as a causal factor in foodborne illness are probably more related to lack of familiarity with the organism than to its absence. Since the organism is cold tolerant and heat sensitive, good hygienic techniques relative to food and water sanitation are necessary for controlling it.

Yersinia enterocolitica is a member of the genus named for the French bacteriologist A. J. E. Yersin after his isolation of the plague agent in 1894 (9). The genus includes two other pathogens - *Y. pseudotuberculosis* and *Y. pestis*. *Yersinia enterocolitica* only recently has been recognized as a foodborne pathogen, due perhaps to a lack of familiarity with, rather than an absence of, the organism. It has the unique characteristic of being the first recognized psychrotrophic food and waterborne enteropathogenic organism (16). The increased frequency of its isolation from man, animals, water and food has caused concern among food microbiologists and public health officials. At the present time little is known about methods for controlling this organism, but sanitation and

environmental hygiene of food and water supplies are definitely necessary for preventing illness (12). *Yersinia en. enterocolitica* is widely distributed, with infections being very frequent in some countries and possibly common, but unrecognized, in others.

Characterization

Yersinia enterocolitica is a gram-negative, facultative anaerobic rod that is urease-positive, phenylalanine deaminase-negative, lysine decarboxylase-negative, ornithine decarboxylase-positive, mannitol and sorbitol-positive, and usually lactose-negative although lactose-positive colonies should be further characterized. The optimum incubation temperature is 25°C and it is motile at this temperature but not at 37°C. The pH range is from pH 6-9, with most rapid growth occurring at pH 7-8. Recommended plating media include bismuth sulfite (BS), MacConkey, and Salmonella-Shigella (SS) agars although SS agar has been found to inhibit some strains of *Y. enterocolitica*. The triple sugar iron (TSI) reaction is an acid slant and butt with no hydrogen sulfide or gas. Test procedures and reactions have been described by Morris and Feeley (12).

Of the various serotypes which have been identified, serotypes 0:3 and 0:5 are most commonly isolated from pork products (6) and serotype 0:8 has been isolated from chocolate milk (20). Enterotoxin production by *Y. enterocolitica* varies considerably depending upon serotypes and incubation temperatures (15). *In vivo* and

in vitro enterotoxin production is not well correlated (13). The pathogenicity and ability of the enterotoxin to produce foodborne illness have not been fully determined. The heat-stable toxin produced by *Y. enterocolitica* is similar to that produced by other enteropathogenic organisms such as *Escherichia coli*.

Isolation and Growth Potential in Foods

Yersinia enterocolitica has been isolated from a number of food and water sources. Nonchlorinated well and stream water have been incriminated in several outbreaks of waterborne illness. Keet (11) has reported a case of illness from drinking mountain stream water. Highsmith *et al* (8) reported a large waterborne outbreak of gastrointestinal illness. *Yersinia enterocolitica* was isolated from two wells whose water was consumed without chlorination. The prevalence of *Y. enterocolitica* in surface water is lowest in the spring and highest in the fall, and is probably due to the lower water levels and stagnation which occur during drier months.

Hughes has reported the isolation of *Y. enterocolitica* from both raw and pasteurized milk in Australia (10). The isolation of *Y. enterocolitica* from raw milk is not unexpected since it is often isolated from the feces of healthy dairy cows. However, its presence in pasteurized milk is of concern because of the public health hazard it presents. It is likely that *Y. enterocolitica* in pasteurized milk results from post-pasteurization contamination since Hanna *et al* report-

ed that the organism is killed at 60°C in 1-3 minutes (2,3). A particular concern is that *Y. enterocolitica* has the ability to grow at refrigeration temperatures (4,17), and small numbers of the microorganisms, if present in pasteurized milk stored at 4-7°C, could develop into large numbers of viable cells. One outbreak of *Y. enterocolitica* illness was caused by consumption of pasteurized milk (20).

Extensive reduction of *Y. enterocolitica* occurs during freezer storage of meats (2). Thus, while the psychrotroph, *Y. enterocolitica*, multiplies to high levels at refrigeration temperatures, there is a reduction in numbers at freezing temperatures. Vacuum packaging suppresses the growth of *Y. enterocolitica*, but its development is enhanced in oxygen-permeable (polyvinyl chloride) film (5).

Yersinia enterocolitica has been isolated from shrimp, oysters, and crab (14). Its survival pattern in these seafood products is similar to that previously described for milk and meat. Swine apparently are a major source of *Y. enterocolitica*. The organism has been isolated from pork tonsils, pork tongues and raw and processed pork products (6,15). Schiemann (4) reported a greater number of isolations from raw than from processed pork products. Stern (18) isolated *Y. enterocolitica* from pork throat swabs but not from pork or beef variety meats. The presence of *Y. enterocolitica* in pork tonsils increases the danger of contamination of pork head meat during boning and handling. Thus, the inadvertent use of contaminated

pork head meat for the manufacture of either raw or processed pork products supports the contention of some European researchers that swine may contribute significantly to *Y. enterocolitica* infection in humans.

Clinical Aspects

Although the incubation period of *Y. enterocolitica* illness is short, the exact times have not been accurately determined. The duration of the illness is generally 1-2 days (16). *Yersinia enterocolitica* infection produces a gastroenteritis with clinical symptoms including diarrhea, fever, vomiting, abdominal pain, nausea and headaches. The disease is often more severe in younger and older patients. Onset of symptoms usually requires the ingestion of large doses of up to 10⁹ organisms (19).

Epidemiology

The first reported outbreak of *Y. enterocolitica* illness occurred in Japanese school children in 1972 (1). The source of the infection was not determined. Another outbreak of gastroenteritis that was attributed to *Y. enterocolitica* also occurred in Japan in 1972 (2). Although the source of infection was not determined in this case, it was assumed to be a point source since all of the children became ill within 3 days of each other.

In 1975 an outbreak of febrile gastroenteritis occurred in two Canadian schools (7). Although *Y. enterocolitica* was found in the raw milk consumed, it could not be incriminated epidemiologically since

different serotypes were isolated from the milk and children. However, the evidence strongly pointed toward a *Y. enterocolitica* infection since it was the only pathogenic agent identified. An outbreak of *Y. enterocolitica* gastroenteritis occurred in 1976 among New York school children who had consumed pasteurized chocolate milk (20). An investigation revealed that chocolate syrup was added to pasteurized milk and the blend was not re-pasteurized. A number of these children were suspected of having appendicitis and 13 underwent appendectomies before the true nature of the disease was discovered.

As previously discussed, *Y. enterocolitica* has been implicated as the cause of waterborne illness involving mountain stream water and well water (8,11). These cases raise serious questions about the safety of cold, non-chlorinated water from streams and wells.

A Final Word

Yersinia enterocolitica is a gram negative, toxigenic bacillus of enteric origin that is becoming more frequently incriminated in outbreaks of foodborne and waterborne illness on a worldwide basis. The organism grows at refrigeration temperatures (4-7°C) but is sensitive to freezing temperatures (0°C) and heat (60°C). It has been isolated from nonchlorinated water, raw and pasteurized milk, meat and variety meats, and seafoods. It is a facultative anaerobe whose growth is suppressed in a vacuum - packaged environment.

Some of its characteristics create potential public health hazards unless good hygienic and sanitary practices are maintained in water and food quality control.

REFERENCES

- Asakawa, J., S. Akahane, N. Kagata, M. Noguchi, R. Sakazaki, and K. Tamura. 1973. Two community outbreaks of human infection with *Yersinia enterocolitica*. *J. Hyg. (Camb.)* 7:715-725.
- Hanna, M. O., J. C. Stewart, Z. L. Carpenter, and C. Vanderzant. 1977. Effect of heating, freezing and pH on *Yersinia enterocolitica* - like organisms from meat. *J. Food Prot.* 40:689-692.
- Hanna, M. O., J. C. Stewart, Z. L. Carpenter, and C. Vanderzant. 1977. Heat resistance of *Yersinia enterocolitica* in skim milk. *J. Food Sci.* 42:1134-1136.
- Hanna, M. O., J. C. Stewart, D. L. Zink, Z. L. Carpenter, and C. Vanderzant. 1977. Development of *Yersinia enterocolitica* on raw and cooked beef and pork at different temperatures. *J. Food Sci.* 42:1180-1184.
- Hanna, M. O., J. C. Stewart, Z. L. Carpenter, and C. Vanderzant. 1978. Effect of packaging methods on the development of *Yersinia enterocolitica* on beef steaks. *J. Food Safety.* 1:29-37.
- Hanna, M. O., G. C. Smith, L. C. Hall, C. Vanderzant, and A. B. Childers. 1980. Isolation of *Yersinia enterocolitica* from pig tonsils. *J. Food Prot.* 43:23-25.
- Health and Welfare Canada. 1976. *Yersinia enterocolitica* gastroenteritis outbreak - Montreal. *Can. Dis. Wkly. Rep.* 2:41.
- Highsmith, A. K., J. C. Feeley, P. Skali, J. G. Wells, and B. T. Wood. 1977. Isolation of *Yersinia enterocolitica* from well water and growth in distilled water. *Appl. Environ. Microbiol.* 34:745-750.
- Highsmith, A. K., J. C. Feeley, and G. K. Morris. 1978. Isolation of *Yersinia enterocolitica* from water. *Amer. Soc. Testing Materials, Tech. Pub. No. 635*, Philadelphia, PA. pp. 265-274.
- Hughes, D. 1979. Isolation of *Yersinia enterocolitica* from milk and a dairy farm in Australia. *J. Appl. Bacteriol.* 46:125-130.
- Keet, E. E. 1974. *Yersinia enterocolitica* septicemia. *NY State J. Med.* 74:2226-2230.
- Morris, G. K. and J. C. Feeley. 1976. *Yersinia enterocolitica*: A review of its role in food hygiene. *Bull. WHO* 44:79-85.
- Pai, C. H., V. Mors, and S. Toma. 1978. Prevalence of enterotoxigenicity in human and nonhuman isolates of *Yersinia enterocolitica*. *Infect. Immun.* 22:334-338.
- Peixotto, S. S., G. Finne, M. O. Hanna, and C. Vanderzant. 1979. Presence, growth and survival of *Yersinia enterocolitica* in oysters, shrimp and crab. *J. Food Prot.* 42:974-981.
- Schiemann, D. A. 1980. Isolation of toxigenic *Yersinia enterocolitica* from retail pork products. *J. Food Prot.* 43:360-365.
- Stern, N. J. and M. D. Pierson. 1979. *Yersinia enterocolitica*: A review of the psychrotrophic water and foodborne pathogen. *J. Food Sci.* 44:1736-1742.
- Stern, N. J., M. D. Pierson, and A. W. Kotula. 1980. Growth and competitive nature of *Yersinia enterocolitica* in whole milk. *J. Food Sci.* 45:972-974.
- Stern, N. J. 1981. Isolation of potentially virulent *Yersinia enterocolitica* from variety meats. *J. Food Sci.* 46:41-43.
- Szita, J., M. Kali, and B. Redez. 1973. Incidence of *Yersinia enterocolitica* infection in Hungary. *Contrib. Microbiol. Immunol.* 2:196.
- U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control. 1977. *Yersinia enterocolitica* outbreak - New York. *Morbidity Mortality Wkly. Rep.* 26:53-54.
- Zen-Yoji, H., and T. Maruyama. 1972. The first successful isolations and identification of *Yersinia enterocolitica* from human cases in Japan. *Jpn. J. Microbiol.* 16:493-500.

ROGER W. MILLER

There are some 1,000 food salvage operations in the country selling food that other wholesalers and retailers won't. Investigations have revealed that these businesses have been operating in between the laws. Now, however, a Model Food Salvage Ordinance has been proposed for use by local jurisdictions.

For the inflation-battered food shopper, the sign looms impressive:

"This way to even bigger savings!
Save up to 40% on DENTS!"

The sign was in a Maryland food salvage outlet. Being offered at the supposed 40 percent discount were dented cans of merchandise that conventional food retailers wouldn't-or couldn't sell.

But under a proposal being offered through the joint efforts of the Association of Food and Drug Officials (AFDO)-an organization of Federal, State, and local regulating authorities-and the Food and Drug Administration to States and localities for adoption, many of these dented cans would be legally classified as "unfit for sale or distribution." Likewise, cans known in the trade as "leakers, springers, flippers, and swells"* would be deemed unfit.

What should and shouldn't be sold in food salvage outlets and how those outlets are operated are being spelled out for the first time in the Model Food Salvage Ordinance, drafted by the AFDO with the aid of FDA, and published earlier this year in the *FEDERAL REGISTER*. The ordinance is designed for use by State and local health authorities. FDA has contracts with 21 States to inspect food salvage operations as part of the overall inspection of the Nation's more than 75,000 food manufacturers and warehouses.

There are an estimated 1,000 food salvage operations in the country, selling at both the wholesale and retail

* *Leakers are cans that leak; springers are ones that have a bulge at one end which moves to the other end when pressure is applied; flippers have a slight bulge in one end that can be pressed back flat and will remain so; swells have both ends bulged and neither end can be forced back to remain flat.*

Reprinted from April, 1980 FDA Consumer.

levels. Many sell wholesale to children's homes, hospitals, camps, and homes for the elderly, while the retail outlets are often found in low-income neighborhoods. Seventy-five percent of the salvage operations are found in cities; 50 percent in the poorer urban areas.

The firms operate in several ways, but their big appeal is that they sell cheap because they buy even cheaper. Some are nonce, or one-time, operations-that is, they're set up to sell food salvaged from disasters, such as fires, floods, or hurricanes. More stable salvage firms may station a trailer van alongside a major supermarket firm's warehouse and collect damaged and other less-than-perfect-merchandise.

Some salvage operations do relabeling and repackaging of their goods. The trouble is that the less-than-perfect-merchandise is sometimes reprocessed under less-than-ideal-conditions. Relabeled items may be mislabeled or even unlabeled. (Some firms offer "surprise packages," cans of food that are nude or that carry labels which may advise that the inside contains peaches when there are really green beans tucked away in there. Buyers don't know what they've bought until the can opener has done the work. But if the price is low enough to persuade the buyer, he or she may be content with the resultant unplanned meals.)

Annual sales of the estimated 1,000 salvage operations range from \$5,000 to \$1.5 million per outlet-in 1974 dollars. Those figures are-you'll excuse the expression-small potatoes compared to the sales average of the 76,100 establishments that process, store, repack, and otherwise serve as links between farm and kitchen. But small potatoes can be as unfit for human consumption as large potatoes; thus, the interest in the food salvage outlets.

The General Accounting Office (GAO), which is the investigative arm of the U.S. Congress, has been interested enough in the food salvage business to send investigators out along with FDA and local health officials on two occasions-in 1974 and again in 1978. The long, hard looks by the GAO investigators-at both sellers and buyers-resulted in some recommendations to Congress, including a proposal to establish a "national uniform code of practice for food salvaging." The Model Food Salvage Ordinance is the result.

Setting Forth the Right Way to Sell Salvaged Food

The GAO investigators scrutinized 30 operations in 1974 and 59 in 1978. They also had looks at 25 children's homes, rest homes, schools, and other institutions in 1974 and 30 such food salvage customers in 1978.

In general, the GAO reports on their investigations told of potentially unfit food being sold by the outlets, mislabeling and improper labeling, ineffective reconditioning methods, and insanitary storage conditions. Just how widespread the problems were can be told with a few statistics:

- The 1978 survey found 63 percent of the salvage operations had cans with swells, springers, or flippers; 75 percent had cans with severe rim or seam dents; 75 percent had rusted cans; and 47 percent had leaky containers.

- In one operation, the investigators found 200 jars of baby food encrusted by filth, many with maggots underneath the jar lids.

- Of 16 firms repackaging food items, 13 of them were operating under conditions that subjected the food to contamination, including the presence of rodents, insects, garbage, and toxic chemicals.

- Thirty-four operations were found selling food items in containers with incomplete labels. Unlabeled food products were offered by 30 of the 59 operators.

- Unlabeled foods had been purchased by four of the rest homes and convalescent centers visited.

While some food salvage operations may be trying to prevent waste and serve a public need, others seem to want to change the old credo from "let the buyer beware" to "the buyer had better beware." Shortweighted items were found by the investigators, as well as mislabeling errors that could result in danger to health. An example of the latter, was the purchase by one nursing home of "salt free" spinach to which, a laboratory analysis showed, salt had been added.

Lest it be thought that some of the operators weren't civic minded, it should be pointed out that in some locations it was found that "food in containers that were too badly dented and/or rusted to stock on the retail shelves . . . was donated to a halfway house for drug abusers."

So much for the Bad Guys. Now what are the Good

Guys going to do about the situation? Here are some highlights of the model Food Salvage Ordinance:

- All salvaged food must be properly labeled *and* marked to inform the purchaser that the merchandise has been salvaged.

- Replacement labels must show the name and address of the salvaging plant as well as the date of the reconditioning.

- Metal cans must be "essentially free" from rust (pitting) and dents-especially at the rim, end double seams, or side seams. Leakers, springers, flippers, and swells are all outlawed.

- Cans of food salvaged from floods, sewer backups, etc., must be sanitized in a concentration of 100 parts per million chlorine for a minimum period of one minute, or by any other approved method.

- Perishable foods are to be protected against spoilage and potentially hazardous foods (the kind on which harmful bacteria can grow) must be kept at the accepted safe temperatures of below 45 degrees or above 140 degrees Fahrenheit.

- Standards are established for equipment, buildings, plumbing, garbage and refuse, insect and rodent control, employee cleanliness, housekeeping, lighting, and ventilation.

- Food salvage operations are to be licensed by local or State authorities, and the operations must notify the jurisdictional authorities of salvage purchases.

Early comments on the proposed ordinance have been few. Some questions have been raised about the broad scope of the proposal. But that's what comment periods are for.

In these days when regulation is a naughty word and the mere mention of over-regulation elicits knowing nods, proposal of such an ordinance may seem to run counter to public opinion. Officialdom is wearing black hats these days for writing too many regulations. But then along comes a problem like food salvage operations, and officials are supposed to be writing regulations and wearing white hats. Sometimes an official has to look in the mirror to see what kind of hat he has on.

Roger W. Miller is editor of FDA CONSUMER.



The issues facing FDA's Bureau of Veterinary Medicine (BVM) involve fundamental concepts in public health protection and must often be confronted on the frontiers of scientific understanding: the benefit vs. the risk of cancer-causing drugs given to livestock to make them grow faster and cheaper; and the potentially disastrous consequences to human health of bacteria grown resistant to antibiotics because of the regular use of these drugs in animal feed. These were among the issues Dr. Lester Crawford grappled with while director of BVM from 1978 to 1980. Now back at the College of Veterinary Medicine of the University of Georgia, Dr. Crawford here reflects on these and other issues facing BVM in the 1980's.

During its 14 years, FDA's Bureau of Veterinary Medicine (BVM) has forged a comprehensive program designed to protect the public health with minimal burden on industry. In its attempts to steer clear of technology-forcing issues, however, the bureau has sometimes been criticized. And in sharing authority over animal drugs with another part of FDA (the Bureau of Foods), as well as with the U.S. Department of Agriculture and the Environmental Protection Agency, management problems have understandably arisen. But, all in all, BVM has exerted notable leadership in livestock agriculture regulation and has emerged as a world leader in that area.

The burden of that recently recognized leadership is twofold: (1) the bureau must intensify efforts to reduce to

CHALLENGE FOR THE 80's: CONTROLLING ANIMAL DRUGS

LESTER M. CRAWFORD

simplest terms the priority issues in the animal drug and animal feed arena; and (2) the bureau must insist on continued efficiency in all its operations, especially lines of management responsibility. Implicit in these undertakings must be the equanimity to identify and accept those areas best left unregulated.

Most of the cares that infested the 1960's and 1970's for BVM devolved from the stipulation—stated in the Delaney Clause of the Federal Food, Drug, and Cosmetic Act—that no cancer-causing substances may be added to food. As it applies to animal drugs and medicated feed, the clause is modified to state that no cancer-causing agents may be administered to livestock if residues of those substances can be detected in human food derived from the animals.

Recent developments in cancer research, as well as the ability to detect ever smaller amounts of potentially

Reprinted from June, 1981 FDA Consumer.

carcinogenic compounds through improvements in analytical methodology, tend to render obsolete the absolutism of Delaney. Fine tuning, if not repeal, is in order. Congress is the proper forum for these considerations.

FDA's attempt to realistically address the issue of residues of cancer-causing additives in livestock products—the so-called Sensitivity-of-Method (SOM) proposed regulation—from the beginning has been beset with difficulties. The proposal has become a focus for debate among the affected parties—animal drug manufacturers, livestock producers, and Government regulators. FDA's intent in the proposal is to assure that any residues escaping detection by an approved analytical method would pose “no significant risk” of cancer to humans. But the untempered furor over this attempt to deal with the absolutism of Delaney—and the ensuing litigation—is proof that FDA needs Congressional direction.

It is my personal opinion that Congress should codify the level of risk or move towards repeal or substitution of the Delaney Clause. And, I believe the administration should proffer a recommended course of action, *vis-a-vis* Delaney, at the earliest instance. Appropriate action on Delaney will perhaps ameliorate such issues as SOM, cyclic review of animal drugs to see that they meet current definitions of safety, and a plethora of New Animal Drug applications that are either in jeopardy or have been pending approval for too long.

But not all of BVM's dilemmas derive from Delaney. The low-level penicillin-tetracycline issue has gone on too long. The bureau's concern is that continuous, low-level use of these antibiotics in animal feed may contribute to antibiotic resistance among bacteria infecting humans, possibly rendering ineffective the invaluable therapeutic agents traditionally used to combat human diseases. The legal maneuvering over this issue over the past several years has sapped governmental resources and confused the public. The National Academy of Sciences found these low-level uses in animals could not be shown to be safe (or unsafe); therefore, the law requires restrictions. The Congress, however, has forebade the proposed restrictions. Congress must be encouraged to allow BVM to proceed or to specifically exempt these uses of penicillin and tetracycline from the purview of FDA.

Perhaps the most formidable prospective problem is the definition of authority in animal drug regulation. All too often, BVM has been held hostage by other government units with overlapping responsibility. The only justification for this kind of duplication is the concept of checks and balances. That concept, however, is not applicable to units operating within the same branch of government, i.e., the executive.

As the leadership of BVM braces for the future and surveys those problems that have persisted, there should be an urgency for a housecleaning of issues and an urgency to look at those areas that need not be regulated. In that regard, in thinking of my 2-year tenure at BVM, I wished I had remembered Eric Severeid's law more often (“There are no problems, only solutions”).

Although there clearly are problems that need resolution, the real challenge for the 1980's resides in separating those regulatory issues that can best be resolved by the Government from those that might be better resolved by a deregulated industry. The Second Generation of Medicated Feeds regulation provides a case in point. Practice had shown the enormous volume of paperwork involved in BVM's regulation of medicated feeds was largely counter-productive. The revised regulations are intended to concentrate FDA's efforts on those areas of serious public health concern, while lessening regulatory controls where risk to humans is minimal.

There are other areas within BVM's purview that should likewise be considered for refocusing, such as animal nutrition regulation, surveillance of nonfood animal drug usage, surveillance of animal vaccine production, and cooperative programs with USDA for development of essential drugs of limited commercial importance.

The major issues for the next decade will include approval and regulation of alternatives to animal drugs as we presently know them; the establishment of risk levels for multiple carcinogen exposure; the safety of genetic manipulation in animal husbandry; and the role of BVM in societal debates such as the ethics of animal testing, the humaneness of intensive rearing of livestock, and the use of antibiotics in animal feed.

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Causes Of Rancid Flavor In Retail Milk Samples

SIDNEY E. BARNARD

*Extension Food Scientist
The Pennsylvania State University
University Park, PA.*

The incidence of rancid flavor of milk increased sharply during the late 1970's. The situation was not unique to Pennsylvania, as a similar picture was found in other states where store samples were checked. It did not occur all of a sudden. After 1975, the incidence rose sharply, peaked in 1978, and then declined. Note the pattern in the table. The decline in rancidity was the result of an educational program and dairy industry cooperation and effort.

Rancidity varies from a soapy - bitter taste to one that is almost sour. Sometimes it was confused with a strong silage taste. This seemed to be the case in the early 1970's. Acid Degree Values finally confirmed that many of the feed-unclean flavors were actually rancid with ADV's above 1.0.

During the years 1967-71, a total of 1,885 retail milk samples were checked with 6.7% of all samples classified as strongly rancid. The summary of the years from 1972 until 1980, permits a more detailed analysis. It shows an almost steady increase in the percentage of poor

samples and all samples with rancid flavor.

Note the percentage of feed-unclean which reached a peak in 1975-76. They have declined during the past four years as we were able to positively identify more of the samples as rancid.

It must be remembered that the flavor evaluation of milk is not an exact science. There is considerable variation in sensitivity among trained dairy experts, especially for rancidity. However, there is no doubt among consumers that most prefer good tasting milk, when they are given a choice. Off-flavor milk has been one of the reasons for the decline in per capita consumption.

There seems to be a number of possible reasons for the increasing rancid flavors and the continuing problem. When a problem occurs, it usually involves more than one cause. The factors which we have identified are outlined briefly.

1. The continuing increase in the price which farmers receive for milk tempts them to put all milk into the bulk tank,

- even from late lactation cows.
2. There is more emphasis on production records, especially 365 day lactations, which causes farmers to milk cows longer.
3. In recent years there has been a sharp increase in the number of pipeline milkers, especially high lines around conventional barns.
4. Dairy farmers have fed increased quantities of corn to dairy cows in the form of silage and grain, as corn was plentiful and less expensive than better sources of protein such as soybeans and cottonseed.
5. Some dairy herds have not been fed adequate protein in relation to the increased levels of milk production.
6. Increased fuel costs have resulted, in less frequent collection of milk from farms, including partial pickups and every third or fourth day collection of milk from some farms. Throughout the U.S.

"The summary of the years from 1972 until 1980 . . . shows an almost steady increase in the percentage of poor samples and all samples with rancid flavor."

there is a trend to collection every third day.

7. Larger capacity raw milk storage tanks in plants provide less flexibility and make it more difficult to empty them. It is still important, however, to empty every processing day.
8. Raw milk, in some cases, is held longer prior to pasteurizing because of four days a week processing schedules.

9. Dairy farmers frequently operate too many milker units per person and for the diameter and slope of the line. This causes excessive air incorporation and flooding of pipelines and the receiver jar.
10. Some pipeline milkers have been installed for more than 10 years and have leaky fittings and low spots. These systems need to be brought up to current standards.

The dairy industry in Pennsylvania

has demonstrated that rancidity can be corrected. It requires a commitment and much time and effort visiting as many as 20% of all farms. Reduction in rancidity results in better consumer acceptance of fluid milk. An awareness of the 10 factors can help you correct rancid flavor problems. Additional information may be found in the Northeast Dairy Practices Council, "Guidelines for Preventive Rancid Flavors in Milk." Write: NDPC, 118 Stocking Hall, Ithaca, NY 14853.

Objectionable Off-flavors

Year	Total Samples	# Poor Flavor	# Rancid	% of Poor	% of All	Feed-Unclean % of All
1972	532	117	12	10.3	2.2	31.4
1973	461	132	14	10.6	3.0	30.4
1974	517	172	26	15.1	5.0	40.0
1975	701	242	33	13.2	4.7	48.3
1976	925	442	112	25.4	12.1	48.9
1977	1,184	745	215	28.9	18.2	19.4
1978	1,228	715	416	58.2	33.9	17.2
1979	1,092	545	295	54.1	27.0	24.8
1980	475	155	85	54.8	17.9	8.2

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JAY BOOSINGER

*Chairman,
Conference on
Interstate Milk
Shipments,
Tallahassee, FL*

Thank you, Mr. Ellsworth, for coming to welcome the National Conference on Interstate Milk Shipments to Hot Springs. Although a very busy program is planned and this is a working Conference, I am sure that the Hot Springs area will be enjoyed by all those in attendance.

It has been my privilege and honor, and pleasure most of the time, to serve as Chairman of the National Conference for the past two years. When I was elected by the Executive Board to serve as your Chairman, I was awed at the responsibility given me, and the passage of two years has not lessened that awe.

I thought that this opening address would be easy to put together - how wrong I was. Somebody once told me that to make a good speech you had to tell them what you're gonna tell them, tell them, and then tell them what you told them. Believe me, this one "weren't" that easy.

There are so many important areas which I could cover, however I will try and keep in mind the old adage, that one can absorb only as much as his rear can endure.

Since the first meeting of this Conference in St. Louis, Missouri in 1950, the Conference objective has been - "To promote the best possible milk supply for all the people".

This was to be achieved by adopting sound uniform procedures which will be accepted by participating milk control agencies -

Promoting mutual respect and trust between control agencies of producing and receiving states -

Utilizing PHS/FDA personnel for training programs and using that agency as a channel for dissemination of information among state agencies -

Acquainting producers, processors and consumers with the purpose of the Conference through the media of meetings, conferences, workshops, press releases, publications and by utilization of facilities and personnel of educational institutions, trade associations, state rating and enforcement agencies and other groups which are willing to assist in the dissemination of such information.

To quote from a popular folk song - "The Times, They Are A Changing".

I view this 18th Conference as the third most important Conference ever held, the first being the initial Conference in 1950, and the second the Conference at which the Food and Drug Administration announced their intention to federalize the Grade A Milk Program.

The reasons that I feel this Conference is so important, is because of change. Change in political attitudes, change in the economic climate and change in the dynamics of our industry. This change is reflected in what has and is happening to the Conference.

The issues which your Executive Board, Councils and Committees have dealt with during the last two years have been complicated and in some cases very sticky.

The Executive Board, Council I and the Laboratory Committee, have

wrestled with the Food and Drug Administration, and the problem of a test for antibiotic residues in milk, and as you know, it is now back in the lap of the Conference.

The inclusion of sterile milk in the Pasteurized Milk Ordinance and all the ramifications which this entails has been in the forefront of Executive Board deliberations.

The operations of the Conference, particularly between seatings of the delegate body and selection of an Executive Secretary-Treasurer have received considerable discussion and some Constitutional Amendments address these problems. The Constitutional Revision Committee have done a yeoman's job on Constitutional Revision.

The Liquid Manure Study Committee and the One Farm Inspection Per Year Committee have worked diligently to comply with the instructions from the meeting of the 17th National Conference.

I am pleased to report to you that two states, New York and Nevada, were found to be reciprocal by Council III, and at the direction of the Executive Board the stars which identified them as being non-reciprocal have been removed in the Quarterly Publication.

The changes in the Conference are further reflected in the scope of the 79 problems which have been submitted to this Conference for deliberation. Many of the problems deal with economic issues and only touch on the periphery of primary

Conference objectives as originally stated.

Some of the problems under consideration reflect the trend of falling per capita consumption of dairy products and the influence of competition from outside the dairy industry.

Some problems are very complex and involve dynamic new technology; such as, sterile milk.

Some deal with trying to get a handle on FDA's activities within certain areas of the Conference; such as, the problems submitted on uniformity of check ratings, enforcement procedures and issuance of Interpretive Memoranda.

New areas of concern have been submitted as problems; such as, animal waste feeding, inclusion of frozen desserts, imitation milk, raw milk and milk derived ingredients in Conference agreements.

Some of the problems reflect the tight economic times we face; such as, the one inspection per year recommendations. A minimum of the problems involve procedural changes and original concerns of the Conference.

Another area that appears to be changing, is that of the role that the Food and Drug Administration plays in the Conference.

During the past two years there have been many grave concerns voiced by various Conference participants about FDA activities.

You will recall that the 1979 Conference passed a Resolution detailing concerns about FDA in-

volvement and performance in the Conference. The concerns raised were echoed by many individuals in correspondence and in discussions with me.

I would like to quote from one letter whose writer will remain anonymous:

"We are concerned with the present status of the IMS Program. Like other states, we have experienced differences in official interpretations among FDA personnel and a lack of practical experience by those assigned to the enforcement program.

The original concepts of the program have been lost. FDA, rather than having a primary role as a consultant and guiding hand, has slowly, but surely, assumed an almost dominant role in formulating Conference rules and policies.

Thusly, they have lost contact with reality, the reality being an industry that is now having to play a subservient role to the whims and fancies of those charged with the administration of the IMS Program. Sadly, the cooperative practical approach to industry problems has significantly eroded".

Others have been concerned about FDA's comparing states when making state program evaluations.

The use of untrained district personnel as milk specialists, informal interpretations issued at a district, or regional level, poor response to questions on labeling and other compliance matters and issuance without recourse of inter-

pretations through Identical Memoranda.

There have been concerns expressed that FDA was setting adverse action quotas for the regions.

The FDA milk specialists were wearing enforcement hats when making check ratings, and that the number of check ratings assigned to various states were being arrived at arbitrarily, rather than as spelled out in Conference documents.

There has been a feeling that FDA has put its own wishes and desires ahead of the concerns of the Conference. A case in point being the issuance of the *B. stearothermophilus* procedures in the laboratory evaluation sheets without NCIMS Laboratory Committee approval, or acceptance by the Executive Board.

During the past two years, National Milk Producers Federation and Milk Industry Foundation found it necessary to meet with FDA and express some of the same concerns just mentioned.

On the other side of the coin, it appears that FDA is making some change to eliminate some of the concerns just mentioned.

As a result of the industry meeting with FDA, FDA has started publishing coded memoranda in the Quarterly Publication to facilitate communications.

Food and Drug has reorganized and has taken the Milk Safety Branch activities from the Dairy and Lipid Technology Branch and put them into a Milk Safety Branch

reporting directly to the Associate Director for Compliance.

Incidentally, this move resulted initially in the extreme nervousness of many Conference participants.

At an Executive Board meeting of the Dairy Divisions of NASDA, the Chief of the Milk Safety Branch, assured the Executive Board that he will do everything in his power to assure that only the closest harmony exists between FDA and participating members of NCIMS.

In answer to concerns about FDA enforcement activities during check ratings, I have been asked by the Associate Commissioner for Regulatory Affairs, to share the following letter with you:

Mr. Jay Boosinger, Chairman
National Conference on
Interstate Milk Shippers
Florida State Department of
Agriculture and Consumer
Services
Tallahassee, Florida 32304

Dear Mr. Boosinger:

We are occasionally asked by our field personnel and some states as to the agency's position when, during the course of an interstate milk shipper "check-rating," serious violations of the Federal Food, Drug, and Cosmetic Act are encountered, or when violative conditions affecting an inter-

state milk shipper are brought to our attention.

These serious violations might include defiled food products or milk and milk products that are suspected of gross, chemical, or microbiological contamination. These violations are circumstances not covered by the memorandum of understanding between FDA and the National Conference on Interstate Milk Shippers, and the 1979 "Procedures Governing the Cooperative State/Public Health Service-Food and Drug Administration Program for Certification of Interstate Milk Shippers" (procedures manual).

We believe that the current procedures for handling complaints and challenges of validity of ratings, section VII of the procedures manual, are adequate for maintaining the integrity of the interstate milk shippers program and that the consumer is best served by our continued participation with the National Conference on Interstate Milk Shippers to support a voluntary compliance program as an efficient way of protecting the public health. FDA has long recognized that the states have maintained high levels of regulatory supervision of the milk and milk products industry and has relied upon the state control

officials for primary regulation and surveillance of the industry.

Therefore, the agency will propose, as a practical enforcement policy, that when contaminated food products are encountered either during the course of a check-rating procedure or on the basis of a referral from another information source, the information will be presented to the state agency for initiating corrective or regulatory action. If for any reason the state is unable to take appropriate action, an FDA regional food and drug director, following consultation with the state agency, may initiate action to correct the violations under the Federal Food, Drug, and Cosmetic Act.

I believe this procedure will give the state regulatory agency the first opportunity for corrective action before federal intervention. This is indeed consistent with our past practice in state/federal cooperation.

We will appreciate your cooperation in relaying this policy to the members of the conference.

Sincerely yours,
Joseph P. Hile
Associate Commissioner
for Regulatory Affairs

From the Associate Commissioner's letter, it would appear that at

least some of our concerns are being taken seriously.

The last change that I feel needs to be mentioned is evidenced by the Constitutional Revision Committee's recommendations.

The Conference must fine tune the Constitution and By-Laws, and must be able to react quickly to change.

In spite of all this Conference has accomplished, the Conference has been thought by many to be cumbersome, unresponsive, ponderous and unwieldy.

The Constitution Revision package attempts to streamline operations and eliminate some of the red tape.

I have a personal concern that in one area the Constitution Revision package does not go far enough to allow the Conference to function when new problems come up between sessions.

Believe me when I say, it is an awesome responsibility to even consider calling a special session of this august body.

The impact of the decisions which you make are far reaching and effect many people.

As of April 1, 1981 there were:

126,358	Grade A Dairy Farms
772	Pasteurization Plants
122	State Rating Officers
705	State Regulatory Personnel
322	Local Regulatory Personnel

523	Certified Industry Personnel
770	Laboratories involved in program
63	Laboratory Evaluation Officers
35	FDA Personnel involved

I hope I haven't lost anybody with statistics.

All this leads up to my charge to you - the Conference participants.

Make sure you are well informed on the issues -

Examine the issues thoroughly and make clean decisions -

Use your time wisely.

Keep in mind that NCIMS has been successful because state programs have developed credibility under the Conference and weigh the benefits of sanitation -vs- the economic climate very carefully.

Keep in mind the limitations imposed on the Executive Board, Councils and Committees by the Constitution and By-Laws when you consider problem solutions which direct them to do something.

Make sure your directions are broad enough so that they can function and get the job done.

Finally, strive to recapture the spirit and trust on which this Conference was formed.

Your decisions and actions at this Conference will determine the future success or failure on NCIMS.

Let's not forget what we stand for---"THE BEST POSSIBLE MILK SUPPLY FOR ALL THE PEOPLE".

Holders of 3-A Symbol Council Authorizations on August 20, 1981

Questions or statements concerning any of the holders of authorizations listed below, or the equipment fabricated, should be addressed to Earl O. Wright, Sec'y.-Treas., P.O. Box 701, Ames, Iowa 50010-0701.

01-06 Storage Tanks for Milk and Milk Products			
28	Cherry-Burrell Corporation (unit AMCA Int'l) 575 E. Mill St. Little Falls, New York 13365	(10/ 3/56)	
102	Chester-Jensen Company, Inc. 5th & Tilgham Streets Chester, Pennsylvania 19013	(6/ 6/58)	
2	CREPACO, Inc. 100 C.P. Avenue Lake Mills, Wisconsin 53551	(5/ 1/56)	
117	DCI, Inc. St. Cloud Industrial Park St. Cloud, Minnesota 56301	(10/28/59)	
76	Damrow Company 196 Western Avenue Fond du Lac, Wisconsin 54935	(10/31/57)	
115	DeLaval Company, Ltd. 113 Park Street South Peterborough, Ontario, Canada (not available in USA)	(9/28/59)	
109	Girton Manufacturing Company State Street Millville, Pennsylvania 17846	(9/30/58)	
127	Paul Mueller Company P.O. Box 828 Springfield, Missouri 65801	(6/29/60)	
31	Walker Stainless Equipment Co. Elroy, Wisconsin 53929	(10/ 4/56)	
02-08 Pumps for Milk and Milk Products			
325	Albin Motor Aktiebolag Box 139, S-681 01 Kristinehamn Sweden (not available in USA)	(12/19/79)	
214R	Ben H. Anderson Manufacturers Morrisonville, Wisconsin 53571	(5/20/70)	
212R	Babson Bros. Co. 2100 S. York Rd. Oak Brook, Illinois 60621	(2/20/70)	
29R	Cherry-Burrell Corporation (unit AMCA Int'l) 2400 Sixth St., Southwest Cedar Rapids, Iowa 52406	(10/ 3/56)	
63R	CREPACO, Inc. 100 CP Avenue Lake Mills, Wisconsin 53551	(4/29/57)	
205R	Dairy Equipment Company 1919 South Stoughton Road Madison, Wisconsin 53716	(5/22/69)	
65R	G & H Products, Inc. 5718 52nd Street Kenosha, Wisconsin 53140	(5/22/57)	
145R	ITT Jabsco Incorporated 145 Dale Way Costa Mesa, California 92626	(11/20/63)	
314	Len E. Ivarson, Inc. 3100 W. Green Tree Road Milwaukee, Wisconsin 53223	(12/22/78)	
26R	Ladish Co., Tri-Clover Division 9201 Wilmot Road Kenosha, Wisconsin 53140	(9/29/56)	
319	Mono Group, Inc. (Mfg. by SSP Pumps Ltd.) 847 Industrial Drive Bensonville, IL 60106	(3/21/79)	
241	Puriti S. A. Alfredo Noble #39, Industrial Pte. de Vigas Tlalnepantla, Mexico (not available in USA)	(9/12/72)	
148	Robbins & Myers, Inc. 1895 W. Jefferson St. Springfield, OH 45506	(4/22/64)	
306	Stamp Corp. 2410 Parview Road Middleton, WI 53562	(5/ 2/78)	
332	Superior Stainless, Inc. 211 Sugar Creek Rd. Delavan, WI 53115	(12/10/80)	
72R	L. C. Thomsen & Sons, Inc. 1303 43rd Street Kenosha, Wisconsin 53140	(8/15/57)	
219	Tri-Canada Ltd. P.O. Box 4589 Buffalo, NY 14240	(2/15/71)	
175R	Universal Milking Machine Div. Universal Cooperatives, Inc. 408 South First Ave. Albert Lea, MN 56007	(10/26/56)	
329	Valex Products Corp. 20447 Nordhoff St. Chatsworth, Calif. 91311	(6/10/80)	
52R	Viking Pump Div. Houdaille Industries, Inc. 406 State Street Cedar Falls, Iowa 50613	(12/31/56)	
5R	Waukesha Foundry Company 1300 Lincoln Ave. Waukesha, Wisconsin 53186	(7/ 6/56)	
04-03 Homogenizers and High Pressure Pumps of the Plunger Type			
247	Bran and Lubbe, Inc. 1241 Rand Rd. Des Plaines, IL 60016	(4/14/73)	
87	Cherry-Burrell Company (unit AMCA Int'l) 2400 Sixth Street, Southwest Cedar Rapids, Iowa 52404	(12/20/57)	

37	CREPACO, Inc. 100 CP Avenue Lake Mills, Wisconsin 53538	(10/19/56)	08-17 Fittings Used on Milk and Milk Products Equipment and Used on Sanitary Lines Conducting Milk and Milk Products	
75	Gaulin, Inc. 44 Garden Street Everett, Massachusetts 02149	(9/26/57)		291 Accurate Metering Systems, Inc. (6/22/77) 1731 Carmen Drive Elk Grove Village, IL 60007
237	Graco Inc. P.O. Box 1441 Minneapolis, Minnesota 55440	(6/ 3/72)		79R Alloy Products Corporation (11/23/57) 1045 Perkins Avenue Waukesha, Wisconsin 53186
309	General Dairy Equipment (Mfg. by Rannie A/S, Denmark) 434 Stinson Boulevard Minneapolis, Minnesota 55413	(7/19/78)		245 Babson Brothers Company (2/12/73) 2100 South York Road Oak Brook, Illinois 60521
256	Liquipak International, Inc. 2285 University Avenue St. Paul, Minnesota 55114	(1/23/74)		284 Bristol Engineering Company (11/18/76) 210 Beaver Street Yorkville, Illinois 60560
05-13 Stainless Steel Automotive Milk Transportation Tanks for Bulk Delivery and/or Farm Pick-up Service				
131R	Almont Welding Works, Inc. 4091 Van Dyke Road Almont, Michigan 48003	(9/ 3/60)		301 Brown Equip. Co., Inc. (12/ 6/77) 9955-9 ¹ / ₄ Ave. Hanford, California 93230
70R	Brenner Tank, Inc. 450 Arlington Fond du Lac, Wisconsin 54935	(8/ 5/57)		82R Cherry-Burrell Company (12/11/57) (unit AMCA Int'l) 2400 Sixth Street, Southwest Cedar Rapids, Iowa 52406
40	Transportation Equipment Corporation 900 Sixth Ave., Southeast Minneapolis, Minnesota 55114	(10/20/56)		260 CREPACO, Inc. (5/22/74) 100 CP Avenue Lake Mills, Wisconsin 53551
66	Dairy Equipment Company 1919 South Stoughton Road Madison, Wisconsin 53716	(5/29/57)		322 ALFA-LAVAL LIMITED (7/16/79) (not available in USA) 113 Park St. So. Peterborough, Ontario Canada K9J 3R8
45	The Heil Company 3000 W. Montana Street Milwaukee, Wisconsin 53235	(10/26/56)		304 VNE Corp. (3/16/78) (Mfg. by Egmo Ltd.-Israel) 1415 Johnson St., P.O. Box 187 Janesville, WI 53545
297	Indiana Tank Co., Inc. P.O. Box 366 Summitville, Indiana 46070	(8/29/77)		271 The Foxboro Company (3/ 8/76) Neponset Street Foxboro, Massachusetts 02035
305	Light Industrial Design Co. 8631-A Depot Road Lynden, WA 98295	(3/23/78)		67R G & H Products, Inc. (6/10/57) (Some Models Mfg. by Alfa-Laval AB-Sweden) 5718 52nd Street Kenosha, Wisconsin 53140
338	Murphy's Inc. P.O. Box 18 Avon, MN 56310	(4/20/81)		203R ITT-Grinnell Company, Inc. (11/ 7/68) DIA-FLO Div 33 Centerville Rd. Lancaster, Pennsylvania 17603
201	Paul Krohnert Mfg., Ltd. 811 Steeles Avenue Milton, Ontario, Canada L9T 2Y3 (not available in USA)	(4/ 1/68)		34R Ladish Co., Tri-Clover Division (10/15/56) 9201 Wilmot Road Kenosha, Wisconsin 53140
85	Polar Tank Trailer, Inc. Holdingford, Minnesota 56340	(12/20/57)		287 Sanitary Processing Equipt. Corp. (1/14/77) (Mfg. by Koltek OY-Finland) P.O. Box 26 Dewitt, New York 13214
47	Pullman Trailmobile 701 East 16th Avenue North Kansas City, Missouri 64116	(11/ 2/56)		239 LUMACO (6/30/72) Box 688, Teaneck, New Jersey 07666
121	Technova Inc. Gosselin Division 1450 Hebert c.p. 758 Drummondville, Quebec, Canada J2C 2A1 (not available in USA)	(12/ 9/59)		200R Paul Mueller Co. (3/ 5/68) P.O. Box 828 Springfield, Missouri 65801
189	A. & L. Tougas, Ltee 1 Tougas St. Iberville, Quebec, Canada (not available in USA)	(10/ 3/66)		295 Precision Stainless Products (8/11/77) (Mfg. by Toyo Stainless Co. Ltd.) 5636 Shull St. Bell Gardens, CA 90201
25	Walker Stainless Equipment Co. New Lisbon, Wisconsin 53950	(9/28/56)		

242	Puriti, S.A. Alfredo Nobel #39 Industrial Pte de Vigas Tlalnepantla, Mexico (not available in USA)	(9/12/72)	1522 Main Street Niagra Falls, N.Y. 14301	
149R	Q Controls Occidental, California 95465	(5/18/64)	20 A.P.V. Company, Inc. 395 Fillmore Avenue Tonawanda, New York 14150	(9/ 4/56)
334	Stainless Products Inc. 1649 72nd Ave., Box 169 Somers, WI 53171	(12/18/80)	30 Cherry-Burrell Corporation (unit AMCA Int'l) 2400 Sixth Street, Southwest Cedar Rapids, Iowa 52404	(10/ 1/56)
73R	L. C. Thomsen & Sons, Inc. 1303 43rd Street Kenosha, Wisconsin 53140	(8/31/57)	14 Chester-Jensen Co., Inc. 5th & Tilgham Streets Chester, Pennsylvania 19013	(8/15/56)
300	Superior Stainless, Inc. 211 Sugar Creek Rd. P.O. Box 622 Delvan, Wisconsin 53115	(11/22/77)	38 CREPACO, Inc. 100 CP Avenue Lake Mills, Wisconsin 53551	(10/19/56)
191R	Tri-Canada, Ltd. P.O. Box 4589 Buffalo, NY 14240	(11/23/66)	120 DeLaval Company, Ltd. 113 Park Street South Peterborough, Ontario, Canada (not available in USA)	(12/ 3/59)
250	Universal Milking Machine Div. of Universal Cooperatives 407 First Ave, So. Albert Lea, Minnesota 56007	(6/11/73)	342 General Dairy Equipment Co. (Mfg. by Pasilak-Therm, Denmark) 437 Harding Street, N.E. Minneapolis, MN 55413	(7/6/81)
278	Valex Products 20447 Nordhoff St. Chatsworth, California 91311	(8/30/76)	279 The Schluter Co. (Mfg. by Samuel Parker Ltd.) 112 E. Centerway Janesville, WI 53545	(8/29/76)
86R	Waukesha Specialty Company, Inc. Darien, Wisconsin 53114	(12/20/57)	17 ALFA-LAVAL, Inc. (Mfg. in Sweden) 2115 Linwood Ave. Fl. Lee, New Jersey 07024	(8/30/56)
09-07 Instrument Fittings and Connections Used on Milk and Milk Products Equipment				
321	Anderson Instrument Co., Inc. R.D. #1, Fultonville, New York 12072	(6/14/79)	15 Kusel Equipment Company 820 West Street Watertown, Wisconsin 53094	(8/15/56)
315	Burns Engineering, Inc. 10201 Bren Road, East Minnetonka, MN 55343	(2/ 5/79)	12-04 Tubular Heat Exchangers, for Milk and Milk Products	
206	The Foxboro Company Neponset Avenue Foxboro, Massachusetts 02035	(8/11/69)	248 Allegheny Bradford Corporation P.O. Box 264 Bradford, Pennsylvania 16701	(4/16/73)
285	Tank Mate Company 2269 Ford Parkway St. Paul, Minnesota 55116	(12/ 7/76)	243 Babson Brothers Company 2100 S. York Road Oak Brook, Illinois 60521	(10/31/72)
32	Taylor Instrument Process Control Div. Sybron Corporation 95 Ames Street Rochester, New York 14601	(10/ 4/56)	103 Chester-Jensen Company, Inc. 5th & Tilgham Street Chester, Pennsylvania 19013	(6/ 6/58)
10-00 Milk and Milk Products Filters Using Disposable Filter Media, As Amended				
35	Ladish Co., Tri-Clover Division 9201 Wilmot Road Kenosha, Wisconsin 53140	(10/15/56)	307 G&H Products, Inc. 5718-52nd St. Kenosha, WI 53141	(5/ 2/78)
296	L. C. Thomsen & Sons, Inc. 1303 43rd St. Kenosha, Wisconsin 53140	(8/15/77)	217 Girton Manufacturing Co. Millville, Pennsylvania 17846	(1/23/71)
11-03 Plate-type Heat Exchangers for Milk and Milk Products				
316	Agric Machinery Corp. P.O. Box 6 Madison, NJ 07940	(2/ 7/79)	252 Ernest Laffranchi P.O. Box 455 Ferndale, California 95536	(12/27/73)
326	American Vicarb Corporation (Mfg by Vicarb S. A. France)	(2/ 4/80)	238 Paul Mueller Company P.O. Box 828 Springfield, Missouri 65801	(6/28/72)
240	Babson Brothers Company (Mfg. by CREPACO, Inc.)	(9/ 5/72)	96 C. E. Rogers Company P.O. Box 188 Mora, Minnesota 55051	(3/31/64)

- 2100 S. York Road
Oak Brook, Illinois 60521
- 11R CREPACO, Inc. (7/25/56)
100 CP Ave.
Lake Mills, Wisconsin 53551
- 119R DCI, Inc. (10/28/59)
St. Cloud Industrial Park
St. Cloud, Minnesota 56301
- 4R Dairy Equipment Company (6/15/56)
1919 South Stoughton Road
Madison, Wisconsin 53716
- 92R Alfa-Laval Limited (12/27/57)
350 Dutchess Turnpike
Poughkeepsie, N.Y. 12602
- 49R Alfa Laval, Inc. (12/ 5/56)
(De Laval Agricultural Division)
350 Dutchess Turnpike
Poughkeepsie, N.Y. 12602
- 10R Girtan Manufacturing Company (7/25/56)
Millville, Pennsylvania 17846
- 356 Meyer D. Haberer (2/3/81)
P. O. Box 220
Bowdle, S.D. 57428
- 179R Heavy Duty Products (Preston), Ltd. (3/ 8/66)
1261 Industrial Road
Preston, Ontario, Canada
(not available in USA)
- 12R Paul Mueller Company (7/31/56)
P.O. Box 828
Springfield, Missouri 65801
- 249 Sunset Equipment Co. (4/16/73)
293 Como Ave.
St. Paul, Minnesota 55103
- 16R Zero Manufacturing Company (8/27/56)
Washington, Missouri 63090

**16-04 Evaporators and Vacuum Pans for Milk and
Milk Products**

- 254 Anhydro, Inc. (1/ 7/74)
165 John Dietsch Square
Attleboro Falls, Massachusetts 02763
- 132R A.P.V. Company, Inc. (10/26/60)
137 Arthur Street
Buffalo, New York 14207
- 263 C. E. Howard Corporation (12/21/74)
240 N. Orange Avenue
City of Industry, California 91746
- 107R C. E. Rogers Company (8/ 1/58)
P.O. Box 118
Mora, Minnesota 55051
- 277 ConTherm Corp. (8/19/76)
DeLaval Contherm Division
P.O. Box 352
Newbury Port, MA 01950
- 186R Marriott Walker Corporation (9/ 6/66)
925 East Maple Road
Birmingham, Michigan 48010
- 273 Niro Atomizer Inc. (5/20/76)
1600 County Rd F.
Hudson, WI 54016
- 299 Stork Food Machinery, Inc. (11/16/77)
(Mfg. by Stork-Friesland B.V.)
P.O. Box 816

- Somerville, New Jersey 08876
- 311 Wiegand Evaporators, Inc. (8/28/78)
5585 Sterrett Place
Columbia, Maryland 21044

**17-06 Fillers and Sealers of Single Service Containers
For Milk and Milk Products**

- 333 Anderson Bros. Mfg. Co. (12/15/80)
1303 Samuelson Road
Rockford, Illinois 61101
- 192 Cherry-Burrell Corporation (1/ 3/67)
(unit AMCA Int'l)
2400 Sixth St., Southwest
Cedar Rapids, IA 52404
- 324 ERCA (11/29/79)
S.A.B.P. 54 Z.I. de Courtabeouf
Avenue de Pacifique, 91943 Les Ulis
Cedex, France
(not available in USA)
- 137 Ex-Cell-O Corporation (10/17/62)
2855 Coolidge,
Troy, Michigan 48084
- 220 Liquipak International, Inc. (4/24/71)
2285 University Ave.
St. Paul, Minnesota 55114
- 330 Milliken Packaging (8/26/80)
(Mfg. by Chubukikai Co. Ltd.)
White Stone, South Carolina 29353
- 281 Purity Packaging Corporation (11/ 8/76)
800 Kederly Drive
Columbus, Ohio 43228
- 211 Twin-Pak Ltd. (Canada) (2/ 4/70)
(Mfg. by Thimonnier & Cie, France)
Steel & Cohen, 745 Fifth Ave.
New York, New York 10022

**19-03 Batch and Continuous Freezers, For Ice Cream, Ices
and Similarly Frozen Dairy Foods, As Amended**

- 286 O.G. Hoyer, Inc. (12/ 8/76)
201 Broad St.
Lake Geneva, WI 53147
(Mfg. by O.G. Hoyer A/S of Denmark)
- 146 Cherry-Burrell Company (12/10/63)
(unit AMCA Int'l)
2400 Sixth Street, Southwest
Cedar Rapids, Iowa 52404
- 141 CREPACO, Inc. (4/15/63)
100 CP Avenue
Lake Mills, Wisconsin 53551

22-04 Silo-Type Storage Tanks for Milk and Milk Products

- 168 Cherry-Burrell Corporation (6/16/65)
(unit AMCA Int'l)
575 E. Mill St.
Little Falls, New York 13365
- 154 CREPACO, Inc. (2/10/65)
100 CP Avenue
Lake Mills, Wisconsin 53551
- 160 DCI, Inc. (4/ 5/65)
St. Cloud Industrial Park
St. Cloud, Minnesota 56301
- 181 Damrow Company, Division of DEC (5/18/66)
International, Inc., 196 Western Ave.

- Fond du Lac, Wisconsin 54935
 262 DeLaval Company Ltd., Canada (11/11/74)
 350 Dutchess Turnpike
 Poughkeepsie, N.Y. 12602 Canada
- 155 Paul Mueller Co. (2/10/65)
 P.O. Box 828
 Springfield, Missouri 65801
- 312 Sanitary Processing Equip. Corp. (9/15/78)
 P.O. Box 26
 Dewitt, New York 13214
- 165 Walker Stainless Equipment Co. (4/26/65)
 Elroy, Wisconsin 53929
- 23-01 Equipment for Packaging Frozen Desserts,
 Cottage Cheese and Milk Products Similar to
 Cottage Cheese in Single Service Containers**
- 174 Anderson Bros. Mfg. Co. (9/28/65)
 1303 Samuelson Road
 Rockford, Illinois 61109
- 209 Dobby Packaging Machinery Division (7/23/69)
 of Nordson Corporation, 215 N. Knowles Ave.
 New Richmond, Wisconsin 54017
- 302 Eskimo Pie Corp. (1/27/78)
 530 E. Main St.
 Richmond, Virginia 23219
- 24-00 Non-Coil Type Batch Pasteurizers**
- 161 Cherry-Burrell Corporation (4/5/65)
 (unit AMCA Int'l)
 575 E. Mill St.
 Little Falls, New York 13365
- 158 CREPACO, Inc. (3/24/65)
 100 CP Avenue
 Lake Mills, Wisconsin 53551
- 187 DCI, Inc. (9/26/66)
 St. Cloud Industrial Park
 St. Cloud, Minnesota 56301
- 166 Paul Mueller Co. (4/26/65)
 P.O. Box 828
 Springfield, Missouri 65601
- 25-00 Non-Coil Type Batch Processors for Milk and
 Milk Products**
- 162 Cherry-Burrell Corporation (4/5/65)
 (unit AMCA Int'l)
 575 E. Mill St.
 Little Falls, New York 13365
- 159 CREPACO, Inc. (3/24/65)
 100 CP Avenue
 Lake Mills, Wisconsin 53551
- 188 DCI, Inc. (9/26/66)
 St. Cloud Industrial Park
 St. Cloud, Minnesota 56301
- 177 Girton Manufacturing Co. (2/18/66)
 Millville, PA 17846
- 167 Paul Mueller Co. (4/26/65)
 Box 828
 Springfield, Missouri 65801
- 202 Walker Stainless Equipment Co. (9/24/68)
 New Lisbon, Wisconsin 53950
- 26-01 Sifters for Dry Milk and Dry Milk Products**
- 229 Russell Finex Inc. (3/15/72)
- 156 W. Sandford Boulevard
 Mt. Vernon, New York 10550
- 173 B. F. Gump Division (9/20/65)
 Blaw-Knox Food & Chem. Equip. Inc.
 750 E. Ferry St., P.O. Box 1041
 Buffalo, NY 14211
- 185 Rotex, Inc. (8/10/66)
 (Mfg. by Orville Simpson Co.)
 1230 Knowlton St.
 Cincinnati, Ohio 45223
- 176 Koppers Company, Inc. (1/4/66)
 Metal Products Division
 Sprout-Waldron Operation
 Munsy, Pennsylvania 17756
- 172 SWECO, Inc. (9/1/65)
 P.O. Box 4151
 6033 E. Bandini Blvd.
 Los Angeles, California 90051
- 27-01 Equipment for Packaging Dry Milk
 and Dry Milk Products**
- 313 WPM Systems, Inc. (10/10/78)
 Div. of St. Regis Paper Company
 4990 Acoma St.
 Denver, Colorado 80216
- 28-00 Flow Meters for Milk and Liquid Milk Products**
- 272 Accurate Metering Systems, Inc. (4/2/76)
 (RZ2A Mfg. by Ringkolbenzahler-Germany)
 1731 Carmen Drive
 Elk Grove Village, Illinois 60007
- 253 Badger Meter, Inc. (1/2/74)
 4545 W. Brown Deer Road
 Milwaukee, Wisconsin 53223
- 223 C-E IN-VAL-CO, Division of Combustion (11/15/71)
 Engineering, Inc.
 P.O. Box 556, 3102 Charles Page Blvd.
 Tulsa, Oklahoma 74101
- 265 Electronic Flo-Meters, Inc. (3/10/75)
 P.O. Box 38269
 Dallas, TX 75239
- 226 Fischer & Porter Co. (12/9/71)
 Magnetic Flowmeters
 Dept. 372 County Line Road
 Warminster, Pa. 18974
- 224 The Foxboro Company (11/16/71)
 Neponset Avenue
 Foxboro, Massachusetts 02035
- 320 Max Machinery, Inc. (3/28/79)
 1420 Healdsburg Ave.
 Healdsburg, CA 95448
- 270 Taylor Instrument Company Division (2/9/76)
 Sybron Corporation, 95 Ames Street
 Rochester, New York 14601
- 29-00 Air Eliminators for Milk and Fluid Milk Products**
- 340 Accurate Metering Systems (6/2/81)
 (Mfg. by Luftabscheider-Germany)
 1731-33 Carmen Drive
 Elk Grove Village, IL 60007
- 30-00 Farm Milk Storage Tanks**
- 257 Babson Bros. Co. (2/7/74)
 (Mfg. by CREPACO, Inc.)

2100 S. York Road
Oak Brook, Illinois 60521

31-00 Scraped Surface Heat Exchangers

- 274 Contherm Corporation (6/25/76)
P.O. Box 352
Newburyport, Massachusetts 01950
- 322 Cherry Burrell (7/26/79)
2400 6th St. SW
Cedar Rapids, IA 52406
- 290 CREPACO, Inc. (6/15/77)
100 So. CP Ave.
Lake Mills, WI 53551
- 337 Girton Manufacturing Co. (3/30/81)
(Mfg. by Machinefabriek-Holland)
Millville, PA 17846

32-00 Uninsulated Tanks for Milk and Milk Products

- 264 Cherry-Burrell Company, (1/27/75)
(unit AMCA Int'l)
575 E. Mill St.
Little Falls, NY 13365
- 268 DCI, Inc. (11/21/75)
P.O. Box 1227
St. Cloud, Minnesota 56301
- 341 Letsch Corporation (6/8/81)
501 N. Belcrest
Springfield, Missouri 65801

- 339 Walker Stainless Equipment Co., Inc. (6/2/81)
601 State Street
New Lisbon, WI 53950

33-00 Polished Metal Tubing for Dairy Products

- 310 Allegheny Bradford Corporation (7/19/78)
P.O. Box 264
Bradford, PA 16701
- 289 Ladish Co., Tri-Clover Division (1/21/77)
9201 Wilmot Road
Kenosha, Wisconsin 53140
- 308 Rath Mfg. Co. Inc. (6/15/77)
2505 Foster Ave.
Janesville, WI 53545
- 335 Stainless Products Inc. (1/4/81)
1649-72nd Ave., P.O. Box 169
Sumers, WI 53171
- 331 United Industries Incorporated (10/26/80)
1546 Henry Ave.
Beloit, WI 53511

35-00 Continuous Blenders

- 292 Waukesha Division, Abex Corp. (8/24/77)
1300 Lincoln Ave.
Waukesha, WI 53186

36-00 Colloid Mills

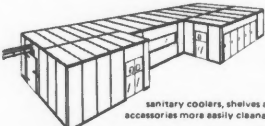
- 293 Waukesha Division, Abex Corp. (8/24/77)
1300 Lincoln Ave.
Waukesha, WI 53186

37-00 Pressure and Level Sensing Devices

- 318 Anderson Instrument Co., Inc. (4/ 9/79)
R.D. #1 Fultonville, N.Y. 12072
- 317 C-E Invalco Division of Combustion
Engineering, Inc. (2/26/79)
P.O. Box 556
Tulsa, OK 74101
- 328 Rosemount, Inc. (5/22/80)
12001 West 78th St.
P.O. Box 35129
Eden Prairie, MN 55344

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News and Events

Pennsylvanians Discuss "Art of Communication"

More than 250 sanitarians and laboratory directors from Pennsylvania and the northeast participated in the annual conference held June 1-4 at the Pennsylvania State University. A wide variety of topics were covered with 45 speakers and panel members. Topics varied from transient voltage to media preparation.

The "Art of Communicating" was rated by participants as the outstanding presentation. Panel discussions with industry and regulatory speakers were well received. Topics included bulk tank sampling, correcting rancidity, common problems of field and laboratory, antibiotic causes and penalties, causes and correction of mastitis problems and use of the microscope to correct farm problems.

Lester Tegler, Laboratory Director at Meadow Brook Dairy in Erie received the Sanitarian's Award. The Distinguished Service Award was given to Henry R. Geisinger, Executive Vice President of the Pennsylvania Association of Milk Dealers.

The 1982 conference will be held May 24-26 at the Keller Conference Center on the Penn State campus in State College, Pennsylvania.

J. Gene Lauver assumes the presidency of the Sanitarians Association with Ivan Redcay as vice president and Wallace Jackson continuing as secretary-treasurer.

Ganelle Kendall is the new president of the Laboratory Directors Association. Other officers are Daniel Hamilton, vice president; Kay Fontenoy, treasurer and Thomas Wright, secretary.

Both associations plan committee meetings for September 10 and 11 to initiate planning for next year's conference. All committees will review concerns and topics submitted for discussion and continue progress toward the goals for the year.



Scenes from the Awards Banquet included, top photo, Henry R. Geisinger receives the Distinguished Service Award from Gerald Schick, while bottom photo, Lester Tegler receives the Sanitarian's Award, also from Schick, Chairman of the Awards Committee.

Sign up a new member in IAMFES!

For more information, contact IAMFES, P.O. Box 701, Ames, IA 50010, 515-232-6699.

Crumbine Award to Nassau Co., NY

The 1981 Samuel J. Crumbine Consumer Protection Award for conducting an outstanding program of food and beverage sanitation was awarded to the health department of Nassau County, NY. The department serves a suburban area adjacent to New York City on Long Island.

The Crumbine Award is presented annually by the Single Service Institute, the trade association of manufacturers of disposables for food service and packaging. The Award honors the local health authority which has demonstrated outstanding achievement in the design and execution of a public health program of consumer protection in food and beverage service. A panel of seven jurors, made up of public health professionals and consumer representatives, selects the winning entry.

Established by the Single Service Institute in 1954, the Crumbine Award takes its name from the Kansas State Health Officer and public health pioneer who in 1909 first banned common drinking cups from public facilities.

The Nassau County Department of Health is responsible for providing all public and environmental health services, including food protection, to 1.3 million residents of the 298 square mile area on Long Island that borders New York City on one side and Suffolk County on the other.

The Crumbine Award Jury judged the Nassau County food protection program to have exceeded the norm, more than any other entry, in four principal areas of measurement: Program improvement, innovative use of evaluation, effectiveness of planning and management, and information and education activities.

According to Charles W. Felix, Director of Environment, Health and Public Affairs of the Single Service Institute, the Jury placed special emphasis on the following exceptional features of the Nassau program:

The creative use of reduced resources within the Division of Environmental Health, so that a high level of protection was maintained at considerably reduced cost to the County; the innovative approaches the County health unit exhibited to contemporary problems such as flea market sanitation, choking education and the promotion of non-smoking sections in public eating places; the ability the Department displayed in working cooperatively with the food industry and with the public. "The Health Department's communications" Felix said,

"displayed a commendable sensitivity to the needs of the people being regulated."

The Crumbine Award consists of a bronze medal and an engraved plate mounted on a walnut plaque. Engraved bronze medallions are also presented to individual public health officials who are directly responsible for the winning agency's program.

Don Raffel, 1980 Citation Award Winner, Dies

Donald G. Raffel, 54, supervisor of the Madison District Food Division of the Wisconsin Dept. of Agriculture, Trade & Consumer Protection where he had worked for 29 years, died unexpectedly July 27.

A registered sanitarian and active member and officer of the Wisconsin Association of Milk, Food and Environmental Sanitarians, Inc., Raffel was active in IAMFES. He received the 1980 IAMFES "Citation Award," presented during last year's Annual Meeting in Milwaukee.

He served as a regional liaison with the Food and Drug Administration, Washington, and on other state and national programs. For many years he served as secretary and treasurer of the Wisconsin Sanitarian's Association.

Don was a graduate of the University of Wisconsin-Madison, College of Agriculture. He served with the US Navy during World War II and also served with the Marine Corps during the Korean War, retiring as a major.

Marion Causey Passes Away

E. Marion Causey, Jr. passed away Sunday, July 12, 1981 at the Spartanburg, SC. General Hospital.

Marion and his wife were returning from an extended trip to Canada and Alaska. They had stopped off in Spartanburg to visit their daughter and her family on their way home. Marion became ill on the night of July 9 and was taken to the hospital about midnight. His heart attack occurred at 3:00 a.m., July 10.

Marion was very active in several IAMFES committees, as well as the Conference on Interstate Milk Shipments. In the latter group he served as a Board Member for several years.

His expertise in the field of regulations in the free movement of milk interstate will be missed.

IFT Award Winners, Officers Announced

Arthur T. Schramm was named president of the Institute of Food Technologists (IFT) at the group's annual meeting, held in Atlanta in early June. Dr. Owen R. Fennema was named president-elect and will become the organization's president July, 1982.

IFT award winners for 1981 were also recognized at the meeting and include Prof. Frode Bramsnaes, Dr. Paul A. Carroard and Dr. R. Larry Merson.

Schramm, president of Food Materials Corp. of Chicago, has served as chairman of IFT's Committee on Public Information and is active in the Flavor and Extract Manufacturers Association, the Food Safety Council, Food Update, and the American Medical Association's Food Industry Liaison Panel. Upon obtaining his masters degree from Canisius College in Buffalo, NY, Schramm worked for Allied Chemical where he served in several capacities including director of analytical and spectroscopy laboratories, manager of color sales, and national sales manager. In 1959 he joined the Stange Company as vice president of research and development. He joined Food Materials Corporation as vice president and general manager in 1968 and was named to his present position in 1972.

Dr. Fennema, professor and chairman of the Department of Food Science at the University of Wisconsin, received the society's Cruess Award for excellence in teaching in 1978 and was elected an IFT Fellow in 1980. After receiving his doctorate from the University of Wisconsin, he spent three years in the research department of the Pillsbury Company then returned to the University of Wisconsin as a member of its faculty.

His research interests have focused on the areas of low temperature preservation of food and biological matter; aqueous clathrates - their characteristics and applications in biological systems; characteristics of water and ice; and reaction kinetics in frozen systems.

Prof. Frode Bramsnaes, head of the Food Technology Department at the Technical University of Denmark, received the IFT International Award. The award recognizes a member who has made outstanding efforts to promote the international exchange of ideas and understanding in the field of food technology and consists of a silver salver and a \$1000 honorarium.



Arthur T. Schramm



Owen R. Fennema

Prof. Bramsnaes graduated from the Technical University of Denmark with a masters degree in chemical engineering in 1937 and worked briefly for Imperial Chemical Industries in London, the London Gas Light and Coke Co. and a pharmaceutical company in Belgium.

In 1943, he returned to Copenhagen and joined the staff at the Fishery Products Research Station on the University campus. During the ensuing years, Prof. Bramsnaes developed a number of courses at the Fisheries Station and the University, including courses on refrigeration of foods and on fishery technology for developing nations, and did research on processing and quality control of frozen foods. He was dean of the faculty of chemical engineering at the Technical University from 1959 to 1964.

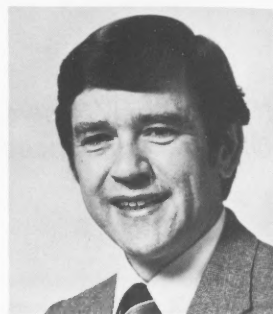
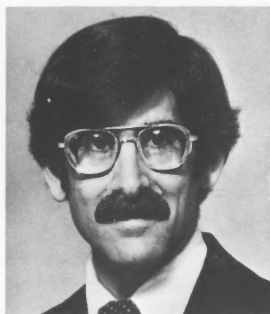
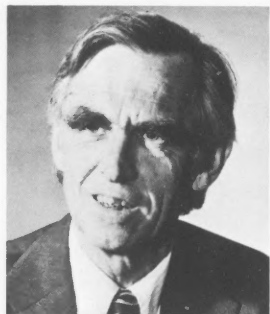
In 1966, he established a Food Technology Department at the University and has headed it since that time.

Dr. Bramsnaes is an honorable member of the International Institute of Refrigeration and was president of the IIR committee for application of refrigeration to food from 1963 to 1971. He is a member of the Danish Academy of Technical Sciences and of the honorary society Phi Tau Sigma. He was chairman of the Technical Committee of Danish Fruit and Vegetable Canners for 15 years.

Recipient of the 1981 Nicholas Appert Award was Dr. Bernard S. Schweigert, professor and chairman of the Department of Food Science and Technology at the University of California-Davis. The award recognizes "pre-eminence in and contributions to the field of food technology" and consists of a bronze medal and a \$1000 honorarium.

Schweigert received his B.S., M.S. and Ph.D. degrees from the University of Wisconsin. Upon receiving his doctorate, he joined the faculty of Texas A & M University as associate professor of biochemistry and

IFT Award Winners, l to r, include Frode Bramsnaes, Paul A. Carroard, and R. Larry Merson.



nutrition. Two years later, he moved to the American Meat Institute Foundation at the University of Chicago as chief of the Division of Biochemistry and Nutrition. He was named assistant director of research and education there in 1953, and director in 1956.

In 1960, he was named professor and chairman of the Department of Food Science at Michigan State University, a post he held for 10 years, when he moved to the University of California-Davis in his present capacity.

Dr. Schweigert received the Signal Service Award from the American Meat Science Association in 1963. The Massachusetts Institute of Technology presented him with the Underwood Prescott Award for outstanding contributions to food science in 1969, and in 1974, IFT named him Babcock-Hart Award winner for "contributions to food technology which have improved public health through more nutritious food."

He has published almost 200 scientific papers in the fields of biochemistry, nutrition and food science, as well as an internationally known text *The Science of Meat and Meat Products*.

He is or has been a member of several advisory committees for the National Academy of Sciences, the Food and Nutrition Board, the Board of Agriculture and Renewable Resources, and the GRAS review. Dr. Schweigert was IFT president in 1978-79 and has served on many IFT committees including service as the original chairman of the society's Public Information Program's Expert Panel on Food Safety and Nutrition.

Dr. Paul A. Carroard, assistant professor in the Department of Food Science and Technology at the University of California-Davis, has been named recipient of the Samuel Cate Prescott Award which honors a research scientist who is 35 or younger for outstanding ability in some area of food science and technology. The award includes a \$1000 honorarium and a plaque.

Dr. Carroard received both his B.S. and M.S. degrees in chemical engineering from Massachusetts Institute of Technology in 1971. He then moved to the University of California-Berkeley where he earned a M.B.A. in finance and applied economics in 1975 and a Ph.D. in chemical

engineering in 1976. On receipt of his doctorate, he joined the faculty at the University of California-Davis as an assistant professor.

His research interests focus on converting agricultural and food processing waste products into useful products which have resulted in the publication of 27 journal articles and 18 reviews or reports, plus 19 presentations at scientific and professional meetings. He was presented the UC-Davis Magnar Ronning Award for Excellence in Teaching in 1979, only three years after his appointment to the faculty.

Dr. R. Larry Merson, professor in the Department of Food Science and Technology at the University of California-Davis, received the 1981 Wm. V. Cruess award. The award honors a person who has achieved excellence in teaching food science and technology and includes a bronze medal and a \$1000 honorarium.

Dr. Merson received his B.S. degree in chemical engineering from the University of California-Berkeley in 1960. He then moved to the University of Illinois for graduate study, receiving his M.S. and Ph.D. degrees in chemical engineering in 1962 and 1964, respectively.

Upon receiving his doctorate, he joined the staff of the USDA Western Regional Research Center as a research chemical engineer. After five years, he moved to the University of California-Davis and has served on the faculty there ever since. He has been full professor since 1977.

In 1976, Dr. Merson spent one year on sabbatical leave in Germany as an Alexander von Humboldt Fellow. This time was spent at the University of Karlsruhe with Prof. Marcel Loncin with whom he published a text on food engineering in 1979.

While at Davis, Dr. Merson has developed basic courses entitled "Introduction to Thermal Processing," "Physical Principles in Food Processing," "Thermal Process Design" and "Freezing Preservation of Foods." His nomination for the IFT teaching award was "seconded" by a remarkable number of students, former students and colleagues who praised both his classroom presentations and his effective counseling.

Single Service Institute Offers Ten Issue Papers

A series of 10 issue papers about disposables has just been published by the Single Service Institute (SSI) under the title "In The Public Eye --- The Issues Surrounding Disposables." The issues discussed in these papers include: the economic impact of a ban; water conservation; energy conservation; solid waste; single service and sanitation; public health attitudes; concern about litter; convenience, safety and the consumer; single service food packaging; and fast food packaging.

The Single Service Institute is the national trade association of makers of disposable products for food service and packaging. Its members manufacture paper and plastic cups, plates, bowls and platters; fast food containers and round nested containers for ice cream, cottage cheese and yogurt; fibre and foam trays for prepackaging meat and produce; fibre and foam egg cartons; and linen and lace placemats and doilies.

A single set of the 10 issue papers is available free. Multiple sets are available at a cost of .75¢ each prepaid. To order write: In The Public Eye, Single Service Institute, 1025 Connecticut Avenue, N.W., Washington, D.C. 20036.

Hepatitis Outbreak Traced to Babysitting

Judy Watt, R.N.

An outbreak of Hepatitis A occurred among food-handlers in a restaurant in Marion County, IN during March 1981. All three cases were confirmed by clinical signs (including jaundice) and were differentiated from Hepatitis B by a negative HBSAG (Hepatitis B Surface Antigen).

The local health department first learned of these cases from a private physician's telephone call on 3-25-81. The physician was not treating any of the cases but was made aware of the outbreak because one of his patients had requested prophylaxis for exposure to one of the cases.

On 3-26-81 the Department of Food Protection contacted the manager of the restaurant who provided the names of the cases. On 3-27-81 the cases were

con't. p. 390



Receiving a \$2,000 graduate fellowship from the NIFI-Heinz Graduate Degree Fellowship Program is Robert W. Small (center), an instructor in the Department of Hotel and Restaurant Management, California State Polytechnic University, Pomona, California. Looking on (from left) are Dr. Angelo Bentivegna, Chairman, Hotel and Restaurant Management Department, and Dr. W. Slater Hollis, Dean of the School of Business of California State Polytechnic University. NIFI is the not-for-profit foundation created by the industry to professionalize foodservice management through education.

AIB Educational Programs Offered

A wide range of educational programs dealing with food plant sanitation and food product quality assurance is currently available from the Department of Sanitation Education at the American Institute of Baking.

"The cornerstone of our educational offerings lies with our two primary training courses, the Basic Food Plant Sanitation Course and the Advanced Food Plant Sanitation Course," stated Bill Pursley, program coordinator for the Sanitation Education Department at AIB. "In addition, we also offer several other short courses and seminars throughout the year covering such topics as basic and advanced microbiology, pest control operator recertification, principles of quality assurance, and warehousing practices. We also have the capability to prepare custom-designed courses and seminars for use by individual companies on request."

The Sanitation Education Department also has a variety of books and other regular publications available to assist individuals within the food industry in keeping current on approved practices and standards for food product safety. Four manuals are currently available; *Basic Food Plant Sanitation Manual*, *Quality Assurance Manual For Food Processors*, *Warehouse Sanitation Manual*, and *Basic Microbiology For Sanitation and Quality Control*, and *Retail Store Sanitation Manual*. For more information, contact AIB, 1213 Bakers Way, Manhattan, KS 66502, 913-537-4750.

Enteritis Outbreak Caused by Raw Milk

An outbreak of enteritis caused by a multiresistant *Salmonella typhimurium* occurred from June 25-August 3, 1980 in 105 persons in Montana who drank raw milk from a local dairy. Isolates from 77 patients were confirmed as *Salmonella* group b; 22 were serotyped as *S. typhimurium*. All of these isolates were resistant to tetracycline, ampicillin, kanamycin, streptomycin, sulfonamides and cephalothin. The following symptoms were noted among persons affected: diarrhea, fever, abdominal pain, headache, chills, nausea, and vomiting. Raw milk was ingested in the three days before onset of illness by 59 of the 77 persons with confirmed cases. A matched-pair case-control study of 36 ill persons and age-, sex-, and neighborhood-matched controls showed a significant association between drinking raw milk and being ill. A group of 19 children and 4 adults visited the dairy on July 2. Each drank 2 oz. of raw milk. One child became ill with diarrhea 72 hours later. Two weeks after the visit, 6 of 13 members of this group, including the symptomatic child, were found to be excreting *Salmonella*. The dairy involved in the case produces about 3,000 gallons of raw milk each week and it is the least expensive milk on sale in the area and is sold only at the dairy. Multiresistant *S. typhimurium* was isolated from 2 of 6 unopened milk samples obtained in the

period July 8-19. Extensive environmental culturing did not show how the milk had been contaminated. No salmonellae were isolated from fecal specimens from dairy cattle, water and feed samples, fecal specimens from dairy employees or from swabs from milking machinery. The cattle feed did not contain antimicrobials, and no signs of mastitis appeared among the milk cows.

Inman Retires from ADMI, WPI

Marshall O. Inman retired from the staff of the American Dry Milk Institute and the Whey Products Institute on June 30. Inman coordinated membership services for the American Dry Milk Institute since joining that organization in 1960; he also coordinated membership services for the Whey Products Institute since that organization was founded in 1971. He was recognized for his service to the Institutes, and the industries which they serve, during the April, 1981 Annual Meeting in Chicago.

John A. "Tony" Scott, a staff member of the Institutes, will succeed Inman in coordinating membership services for both ADMI and WPI.

Hepatitis Outbreak, *con't. from p. 389*

interviewed by phone by the Communicable Disease Office and subsequently confirmed by the attending physicians. It was noted that all 3 of the cases had onset of symptoms either March 17th or 18th. Two of the cases were female and 1 was male. The ages ranged between 24 and 32 years. All were Caucasian. The 32-year-old male was a cook and the females were waitresses. They were not permitted to return to work until their physicians released them.

Because of the similarity in onset dates, a common source was suspected. All of the cases denied socializing outside of the restaurant.

On 3-30 and 3-31-81 ISG (Immune Serum Globulin) was offered to the restaurant co-workers by the Division of Public Health. One of these co-workers requested ISG for her daughter (age 10 months) because all 3 of the cases had babysat for her. An interview with this child's mother revealed no history in the child of symptoms compatible with hepatitis within the last several weeks; however, this child may have been the common source.

Further conversation with the three cases revealed that this suspect child and 2 children of 1 of the cases were routinely cared for by another adult who developed hepatitis 3-24-81. One of these 2 children, age 4 months,

was remembered to have had very dark urine early in February and the other child, age 9, developed hepatitis 3-25-81.

It was postulated that the 4-month-old had an inapparent infection early in February infecting the suspect child at the babysitter's home. The suspect child, with an inapparent infection, infected the 3 foodhandlers, the babysitter and the 9-year-old.

The importance of handwashing after changing diapers, using the bathroom, and prior to handling food was discussed with all of the cases and with the parents of the children in the babysitting group.

After the babysitter became ill, all of the children in this group were cared for by their own parents at home. Most of these children received ISG.

This outbreak demonstrates the role of children in diapers with inapparent infections spreading hepatitis to older siblings, parents and babysitters. When investigating hepatitis outbreaks it is important to ascertain if a day care center or a babysitting situation is involved.

Reprinted from "The Hoosier Sanitarian," the newsletter of the Indiana Association of Sanitarians.

NRA Officers Installed

The annual membership meeting of the National Restaurant Association at McCormick Place, Chicago, IL, unanimously elected Walter J. Conti, president of Conti Cross Keys Inn, Doylestown, Pennsylvania, as Chairman of the Board for a year-long term beginning July 1.

Conti, a past president of the Pennsylvania Restaurant Association, was elected to the NRA Board in 1977. He has served on several association committees and was chairman of the Education and Membership committees before being elected Vice President for 1980-81. He is a graduate of Penn State University and is a past president of the Penn State Hotel and Restaurant Alumni. A director of Big Brothers and a member of the Pennsylvania Governor's Council on Physical Fitness and Sports, Conti was a delegate to the White House Conference on Small Business in January, 1980.

Elected to the position of Vice Chairman of the NRA Board was Jack A. Laughery, president and chief executive officer of Hardee's Food Systems, Inc., Rocky Mount, NC. Laughery currently serves as NRA Treasurer and was elected to the Board in 1977. Laughery, a graduate of Iowa State University, is on the board of the North Carolina Restaurant Association, and active in civic and business affairs. He has served as Chairman of the NRA Energy and Government Affairs committees.

Elected 1981-82 Treasurer of the NRA was John G. Dankos, president of Dankos Enterprises, Inc., Richmond, VA. Dankos is a past president of the Virginia Restaurant Association and the National Tobacco Festival. He serves on the board of the Virginia Capital Bank of Richmond. A member of the NRA Board since 1975, Dankos currently chairs the association's Communications Council and is a past chairman of the Convention and Nominating committees.

On the unanimous vote of the general membership, former secretary to the NRA Board, Ruth K. Tracy, has been elected Corporate Secretary of the association. She is the first woman to be elected an NRA officer. As Corporate Secretary Mrs. Tracy assists the NRA President with a wide range of managerial responsibilities, maintains official NRA records, and is the holder of the corporate seal.

Mrs. Tracy first joined the NRA staff as secretary to the Directors of Public Health and Safety and Research.



The new members of the College of Diplomates of the National Institute for the Foodservice Industry (NIFI) are shown with the plaques they were awarded at the Eighth Annual NIFI Champagne Brunch, May 17 at Chicago's Palmer House. From left to right are: Joseph W. Gilbert, Sr., Vice President-Public Relations, Gilbert/Robinson, Inc., Kansas City, Missouri; NIFI President William G. Stratton, former Governor of Illinois; William H. Edwards, President, Hotels Division, Hilton Hotels Corporation, Beverly Hills, California; Alex Schoenbaum, Senior Chairman of the Board, Shoney's, Inc., Charleston, West Virginia, and NIFI Executive Vice President Chester G. Hall.

The National Institute for the Foodservice Industry is the not-for-profit foundation created by the industry to advance foodservice management standards through education. NIFI established the College of Diplomates in 1974 to recognize outstanding members of the foodservice industry whose activities embody the objectives of the Institute. A NIFI Diploma of Honor and election to the College of Diplomates constitutes the highest honor conferable by the foundation.

NRA/NIFI Work Study Program Outlined

Thirty-three foodservice educators are gaining on-the-job experience through the NRA/NIFI Teacher Work-Study Grant Program. Made possible by a \$50,000 grant from the NRA, the program is administered by NIFI, the not-for-profit foundation established to advance professionalism in the foodservice industry through education.

Grants were awarded on a competitive basis to teachers and administrators of foodservice career education programs to "enable them to update their knowledge of the industry and increase their capacity to relate that knowledge to students," Stratton said.

Each grant is in the amount of \$1,500. Teachers must work in foodservice establishments for a minimum eight-week period, thereby increasing both their skills and awareness of trends and operational techniques. Teachers interested in applying for next year's program should contact NIFI, 20 North Wacker Drive, Suite 2620, Chicago, IL 60606.

Book Reviews

Microbial Diseases: Notes, Reports, Summaries, Trends. Edited by Carl W. May. William Kauffmann, Inc., Los Altos, CA. 300 pages, \$7.95 paperback, \$14.00 hardcover. 1980 Edition.

The first of a new series - Microbial Diseases - is supposed to bring together information on the etiology, symptoms, diagnosis, treatment, transmission and prevention of major and unusual diseases caused by bacteria, viruses, fungi and protozoa. The material presented in this 1980 edition is reproduced directly from The Morbidity and Mortality Weekly Report (MMWR) printed by the Center of Disease Control in Atlanta, Georgia. Each article reports the outbreak of a disease (including symptoms, diagnostic procedures, and treatment), epidemiological investigations and public health measures. In addition, the editor has included the editorial notes included in the MMWR. The editor placed emphasis on recent information. Almost all articles included volumes 27 and 28 of MMWR, extending coverage through January 4, 1980. New editions of Microbial Diseases will appear every two years.

con't. p. 394

Food Sanitation. 2nd Edition, Rufus K. Guthrie. AVI Publishing Co., Inc. \$22.00 US and Canada, \$24.00 elsewhere.

The second edition of *Food Sanitation* by Rufus Guthrie, in collaboration with other specialists, is not intended as a text for the experienced sanitarian. In the preface Guthrie implies that the target population for this edition is inexperienced individuals in the health care field. *Food Sanitation* can provide health care professionals who have little or no background in food service sanitation (nurses, engineers, entomologists) a working knowledge of basic terminology and techniques.

In the first chapter Guthrie provides an introduction to the art and practice of sanitary science and lays a foundation for chapters two through five that focus on food microbiology. Chapters six and seven review basic water and wastewater treatment and relate these two subjects to the food service industry. Chapter eight reviews various regulatory standards including federal, state, and local food sanitation codes. Chapters nine and ten concern sanitary procedures in dairy and food processing plants. Sanitation in food preparation areas and sanitary aspects of equipment are discussed in

Quantity Food Sanitation. 3rd Edition. by Karla Longree. Wiley & Sons, Inc.

Karla Longree has done the impossible! She has made the best better. The 2nd edition of *Quantity Food Sanitation* was the best - but the third edition is even better. Once again Longree has provided a classic text and reference to the art and practice of food service sanitation.

Not only does Longree provide a firm foundation to basic food sanitation microbiology, but she also provides what might be the best state-of-the-art references to current literature. Throughout *Quantity Food Sanitation* the reader will find current research findings that provide the indepth knowledge required by the food sanitation specialist.

This reviewer highly recommends the use of CDC's home study course in foodborne disease control, which uses the Longree text as a basic reference. This course, together with *Quantity Food Sanitation* should be mandatory for all personnel involved in food sanitation programs.

con't. p. 394

chapters 11 and 12. The final chapter provides information on training of food service workers and certification of food service facility managers.

One problem that I noted was that food sanitation regulations and standards that are presented use the 1962 USPHS definition for potentially hazardous food instead of the definition presented in the 1976 revised code. The 1976 revision excludes those foods with a pH of 4.6 or below or a water activity value of 0.85 or less. Guthrie does not address water activity value in *Food Sanitation*.

The second edition of *Food Sanitation* does achieve its stated purpose of providing the uninformed public health worker with a basic understanding of food sanitation. For the experienced individual Guthrie's text would not serve as a technical reference. Individuals teaching basic courses in food sanitation would find *Food Sanitation* useful as a student text.

Homer C. Emery, Ph.D
Academy of Health Sciences

Somatic Cell Count Must Be Interpreted Correctly

SOMATIC CELL COUNTS on an individual cow basis can be a very useful tool in a mastitis control program. However, they must be interpreted correctly.

Perhaps it is even more important to determine what factors are causing high counts and eliminate them. Treatment without correcting the cause is a waste of time and money. Here are some key points to remember and to pass along to your dairy patrons:

1. Excluding counts taken the first week or the last two weeks of lactation, most cows with cell counts between 500,000 and 1,000,000 are infected. The chances are 80 percent or greater that cows with cell counts above 800,000 have one or more infected quarters. This level indicates udder irritation with some loss of production.

2. Age of the animal plays a very important role in interpreting cell counts on composite milk samples. Second lactation and older cows with cell counts below 500,000 can generally be considered uninfected, although some infected cows may occasionally dip below this level.

First calf heifers normally freshen without mastitis and with low cell counts (100,000 to 350,000). The cell counts gradually increase as the cow becomes older and has been exposed to injury and infection. Therefore, higher cell counts - up to about 750,000 - can be considered normal in older cows.

3. Testing composite samples may hide an infected quarter. Because of the dilution effect, an infected quarter shedding 1,000,000 cells may not be detected when the three healthy quarters have cell counts of 350,000 or less. In this case the composite sample would have 550,000 or fewer cells and the mastitis in the one quarter would probably go undetected.

4. The DHI composite cell count does not indicate which quarter or quarters are infected. The affected quarters can only be identified by use of the California Mastitis Test or an equivalent test of individual quarter milk samples.

5. Treatment of infected cows, if effective, may cause cell counts to decrease within 10 to 14 days. However, depending on the organisms, several weeks may pass before the cell count approaches a normal level.

Cell counts may remain above normal throughout a lactation in a quarter that had a coliform or *Strep ag* infection in early lactation. If the treatment was successful, when the cow freshens again the count will be near normal.

It is also possible that the treatment will reduce the number of organisms and cells temporarily, but not eliminate the infection. One way for dairymen to

determine if the treatment was successful is to wait at least 10 days after treatment, then have a milk sample from the quarter cultured.

6. Cows (especially first and second calf heifers) with low cell counts may suddenly flare up with severe mastitis without prior warning. This occurs most frequently in the first two weeks after freshening.

These cases usually are caused by coliform (digestive tract or environmental) organisms. Cows with low cell counts seem to be particularly susceptible to these infections, which usually result from unsanitary environmental conditions such as wet bedding, mud and manure.

7. Information is incomplete on factors other than infection, age and stage of lactation that influence cell counts. Infection is the single most important cause of high cell counts. Other stresses such as a stepped-on-teat, udder injury or systematic infections may cause high cell counts without udder infection.

8. Culturing milk for bacteria is the only way to determine whether a high cell count is due to infection or some other stress. Culturing milk from high-count cows will help guide both treatment and control procedures. Wait at least 10 days after the last treatment before taking milk samples for culturing.

9. A veterinarian should be consulted to evaluate cell counts and treat infected cows.

Dairymen must learn to accept that there are some forms of mastitis that do not respond to treatment even with modern "miracle" drugs and that prevention and culling are the only ways of eliminating such mastitis.

10. Individual somatic cell counts are also useful in selecting cows for dry treatment. Cows whose cell counts slowly increase through lactation (see cow 121, table) probably have a low grade, subclinical infection. Dry cow treatment is often effective in eliminating this type of infection.

Cows that have been treated during lactation and whose cell counts remain high are also candidates for dry-cow treatment or culling, depending on the severity and chronicity of the infection.

11. Cell counts also can be useful to dairymen when purchasing lactating cows.

Cows with composite milk cell counts in excess of 800,000 to 1,000,000 cells should not be purchased. In addition, all purchased cows should be quarter-cultured before they are added to the milking string. Cows shown to have *Streptococcus agalactiae* or *Staphylococcus aureus* infections should not be placed in the milking string until the infection has been eliminated.

The table shows somatic cell counts that can be found in a dairy herd.

Somatic Cells, *con't. from p. 393*

Monthly cell counts in a sample dairy herd

Cow	Fresh date	Age	Month			
			Aug	Sept	Oct	Nov
			Somatic cell count in hundred thousands (100,000)			
326	July	2 yrs	2	3	3	3
127	June	3 yrs	4	12	15	21
243	May	2 yrs	8*	3	2	2
83	March	8 yrs	8	7	8	8
92	June	9 yrs	25	28	25	30
121	April	5 yrs	4	5	6	7
36	August	4 yrs	6	3	2	3
201	May	3 yrs	16*	46	5	3

* Antibiotic therapy administered.

Cow 326: Young cow, recently fresh. Normal cell count should be 300,000 or less.

Microbial Diseases, *con't. from p. 392*

The book includes 40 chapters divided into five sections: I) Diseases caused by bacteria, II) Diseases caused by viruses, III) Diseases caused by fungi, IV) Diseases caused by protozoa and animal parasites and V) Data for the United States on diseases caused by microorganisms-1978. However, few chapters are of direct relevance to the food industry or food microbiologists. These chapters include salmonellosis, typhoid fever, shigellosis, *Campylobacter* enteritis, cholera, food poisoning, botulism, viral gastroenteritis and assorted protozoan diseases.

Carl W. May states on the preface of the book that Microbial Diseases should be used as a "supplementary desk, laboratory or library reference to update older texts or reference works." However, if the laboratory receives MMWR they already have the information about each disease. A feature of Microbial Diseases not seen in weekly MMWR issues is the bringing together of the individual reports concerning a disease during the previous two years. Microbial Disease is an experimental book that has a good place in pathogenic/medical microbiology, clinical microbiology, epidemiology, and public health laboratories. However, its application to food technology, food safety, food poisoning or food microbiology is very limited.

Ricardo J. Alvarez
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Madison, WI 53711

Cow 127: Young cow, obviously has picked up infection in September or October. Identify problem quarter or quarters and culture. Treatment may be based on culture result. Cow cannot wait until dry period for treatment.

Cow 243: Young cow with infection in early lactation and treated in August. Decrease in cell count indicates successful treatment.

Cow 83: Older cow, cell count is intermediate. No lactation treatment necessary. Dry cow treatment is necessary.

Cow 92: Older cow with chronic mastitis. Cull as soon as possible.

Cow 121: Slowly advancing cell count, late lactation. Dry cow treatment recommended.

Cow 36: Fresh seven days when first somatic cell count run. Cell count may be slightly higher at start of lactation. Wait for next month's count.

Cow 201: August count indicates infection. Treatment occurred in August. September cell count taken 10 days after treatment. Cell count will normally increase after antibiotic therapy and remain elevated for days or weeks depending on bacteria involved. Therefore, disregard September count and wait for October, which in this case indicates successful treatment. For earlier information on results of treatment, quarter milk samples could be cultured 10 to 14 days after treatment - Myers Owens and C. A. Kirkbride, South Dakota State University.

Reprinted from "Professional Fieldman," a publication of Klenzade Products.

Quantity Food Sanitation, *con't. from p. 392*

In the preface Longree describes *Quantity Food Sanitation* as a text for students in dietetics and hotel administration. This is a gross understatement. The scope of this publication is far beyond the dietetic and hotel administration student. Any public health professional with responsibility in food sanitation programs should have this publication available as a reference. Information provided in *Quantity Food Sanitation* can assist the public health worker in determining the actual health implications of specific food sanitation problems.

Whether a student, novice, or experienced specialist in food service sanitation the 3rd edition of *Quantity Food Sanitation* is a must.

Homer C. Emery
MAJ MSC
Academy of Health Sciences
Fort Sam Houston, Texas
78234

Food Service Sanitation Notes



Food Service Sanitation Notes is written by the National Sanitation Foundation. Write to the NSF with your questions on food service sanitation, problems for which you need answers, or issues you feel should be aired. They'll be included in a future issue of Dairy and Food Sanitation.

Q. The information on walk-in cooler shelving published in NSF's Notes in the May 1981 issue of "Dairy & Food Sanitation" magazine prompts me to ask this question for a solution to a shelving problem.

Our restaurant inspectors frequently observe deteriorating cooler racks which I believe in most cases is attributable to high abrasion and continual moisture conditions. As NSF is aware, rust, chipping chrome, and inferiorly painted racks can deposit their exfoliates on the food below, especially when food is not sufficiently covered.

Restaurant owners are hard pressed to purchase new racks at the prevailing prices. We recommend that a new establishment purchase stainless racks but few if any ever do, even though they would save in the long run at today's inflationary rates. They always ask if they can resurface the old racks and some unfortunately go ahead without approval and spray with a rustoleum-type paint which rubs off immediately by hand.

Question: Does NSF approve or suggest a method that operators can use to restore cooler racks such as a type of paint that one could apply to a rusted rack that would be adequate for continued commercial use? Unfortunately, we have no local industries in the Ithaca-Finger Lakes area that I know of that restores these racks.

-Steven J. Smolen, Public Health Sanitarian, Tompkins Co. Health Dept., Ithaca, NY 14850.

A. There is no provision within the NSF evaluation and listing service for restoration (recoating) of cooler racks.

At the April 1981 meeting of the NSF Joint Committee on Food Equipment Standards, the subject of shelving was discussed. One issue relating to knock-down shelving was the end use application.

It was the consensus of the Joint Committee that the NSF listing of shelving should identify the intended

end use (i.e., dry storage only or general purpose). "General purpose: uses to include walk-in refrigerator/freezers and other areas subject to routine moisture. The manufacturers would include the designation in sales literature and heavily stress its importance. This action should be of future benefit as a preventive measure.

Q. What does NSF have to offer in the way of detailed information on converting hot water sanitizing dishwashing machines to chemical sanitizing machines?

A. Field conversion of an NSF listed hot water sanitizing dishwashing machine to a chemical sanitizing machine voids the NSF listing for the following reasons:

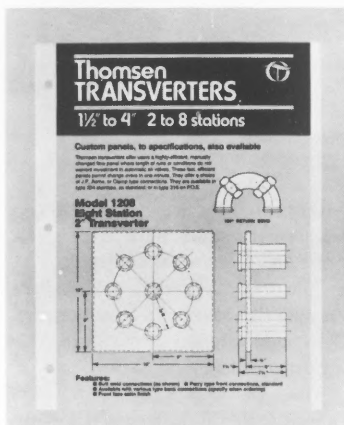
- a. The machine was tested in a hot water sanitizing mode. Without additional testing, it cannot be verified that the machine will continue to meet the requirements of the standard.
- b. NSF does not have an evaluation/listing program for chemical sanitizing agent feeders for use in field conversion.
- c. Materials used in the construction of hot water sanitizing machines may not be compatible with the higher concentrations of sanitizing solutions. This may result in accelerated corrosion of parts (nozzles, pump parts, etc) and adversely affect the performance of the machine.

Should you have any question regarding this subject, please feel free to contact the NSF regional office in your area.

ADDRESS any problem or questions you wish clarified or answered to:

Food Service Sanitation Notes
National Sanitation Foundation
3475 Plymouth Road
P.O. Box 1468
Ann Arbor, Michigan, U.S.A. 48106

New Product News



• **Thomsen Transverters** offer food and dairy users an efficient, manually-changed flow panel, where length of runs or conditions do not warrant investment in automatic air valves. A new bulletin describes Thomsen's complete line of 2 to 8 station, standard, stainless steel transverters with 1-1/2" to 4" fittings. The company also offers custom panels to specifications. A copy of the new bulletin can be obtained from L. C. Thomsen & Sons, Inc., 1303 - 43rd Street, Kenosha, WI 53140, 414-652-8755.

• **Milprint**, a converter of flexible packaging materials, has recently installed new pouch making equipment capable of producing pouches up to 46" x 80". The equipment was installed primarily to service the cheese industry with pouches for block cheese vacuum packaging. Using its patented Neal-am extrusion process, Milprint provides pouches constructed of tough PVDC coated Nylon/EVA polyethylene that meet or exceed USDA standards for holding block cheese. A full line of cheese pouch products is available to meet individual cheese maker's needs. For more information, contact Milprint, PO Box 454, 4200 N. Holton Street, Milwaukee, WI.

• A new line of sight gauges has been announced by L. C. Thomsen & Sons, Kenosha, WI manufacturer of sanitary and industrial equipment for the dairy and food processing industries. The new sight gauges are available in sizes from 1-1/2" to 2", with sizes to 4" on F.O.A. For additional information, contact L. C. Thomsen & Sons, Inc., 1303 - 43rd Street, Kenosha, WI 53140, 414-652-8755.

• **Foss America Inc.**, has introduced a new Milkmeter for measuring an individual cow's yield. Called the Milko-Scope, the unit is now approved by the National DHIA. It is of a sanitary design and is constructed to resist breakage through rough handling. For more information, contact Foss America, PO Box 504, Fishkill, NY 12524.

• **Don Gilbert Industries** introduces a new flying insect electrocutor to their line of equipment. Model 711 'Imperial' was developed specifically for fly control and the results prove far superior to general purpose units. Features include more attractant area, 80 watt power factor, easy access for cleaning and service, plus a narrow profile to avoid damage. Write Don Gilbert Industries, P.O. Box 2188, Jonesboro, AR 72401 for further information.



• A new ultra sonic sound wave system, named "Pest Sentry", broadcasts high intensity ultrasonic waves on a continually changing frequency of from 30,000 to 60,000 Hz. The ultrasonic waves seriously affect the auditory and nervous system of rats, mice, roaches, flies, mosquitoes, waterbugs and other flying and crawling pests. While "resident" pests, those used to having water and food supplies immediately available, are eliminated in 2 to 6 weeks, Pest Sentry will not harm people, pets, farm animals, birds, plants, T.V. receivers or related technical equipment. Each unit covers an indoor area of from 1500 to 2000 square feet. Developed for indoor use, Pest Sentry works in homes, restaurants, warehouses, schools, farm buildings, garages, retail stores, hospitals, nursing homes -- any indoor location where flying and crawling pests are a problem. Pest Sentry is a warranted, maintenance-free device developed by Sentronic Controls Corp., Chicago, IL. Suggested retail price is \$99.95.



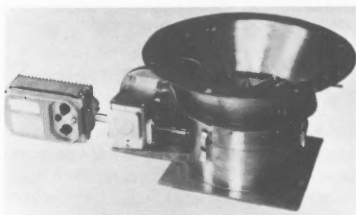
• An easy-to-use test for the monitoring and control of microbial problems in cooling water systems is offered in kit form by Mogul, Division of The Dexter Corporation. The test provides a measurement of bacteria populations in cooling water samples, and can be used to determine effectiveness of a microbicide or the need for additional treatment. The Mogulab^(R) Total Count Test Kit III includes a re-sealable tube containing a sterile dip slide coated with agar culture medium. To obtain additional information, write to Mogul, Division of The Dexter Corporation, P.O. Box 200, Chagrin Falls, OH 44022, 216-247-5000.

• A 20-page brochure describing high capacity evaporative condensers is available from Frick Company, manufacturers of industrial refrigeration systems and equipment. Detailed information is provided on both the Model HCU-A and Model AFC. Both models are operable with either ammonia or halocarbon refrigerants. Specific subjects included are equipment selection and construction, physical data, application information, and optional equipment available. For a copy of the brochure, "High Capacity Evaporative Condensers, Models HCU-A and AFC" write Frick Company, 345 W. Main Street, Waynesboro, PA 17268.

• "Volatile Halocarbons in Water by Purge and Trap" is available free from the Varian Instrument Group. It describes analysis of several halocarbons frequently found in drinking or waste waters, using EPA Method 601. These halocarbons are all suspected carcinogens and are found on the EPA priority pollutant list. To receive the applications note, Number GC-46, contact the nearest Varian Instrument Group sales office or write: Varian Instrument Group, D-070, 10060 Burb Road, Cupertino, CA 95014, (408) 725-2950; ext. 44.

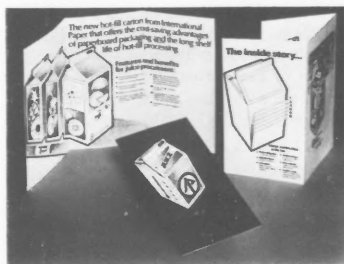


• *The latest Sampling Equipment Catalog* is now available from Nasco, Fort Atkinson, WI. This updated catalog includes equipment and materials for dairy, DHIA, veterinary, food, medical, water, sewage, soil, and forage sampling. The catalog features Nasco's Whirl-Pak Bag, and describes its basic features, advantages, and uses. It also provides pertinent facts concerning sampling, laboratory facilities, and methods of application for Whirl-Pak Bags. The 40-page catalog also includes the Whirl-Pak Sodium Thiosulfate Sampling Bags, recently approved by the EPA for testing potable water. For a free copy of Nasco's Sampling Equipment Catalog, write to Nasco, Fort Atkinson, WI 53538.



• *A precision granular feeder* from Johnson Engineering and Sales, Inc., is now available with 3A acceptance and USDA approval. Dry granular feeders accurately meter, within grams, from 30 grams per minute to 1200 pounds per minute. A wide variety of control options are available. For more information, contact: Johnson Engineering and Sales, Inc., 11 North Grant St., Hinsdale, IL, 312-325-2272.

• *Transparent, reach-through plastic curtains* that keep cold air inside upright freezer and dairy cases while maintaining comfortable aisle temperatures are available from BSL Corporation of Nashua, NH. BSL Frig-I-Door™ is a clear, reach-through plastic curtain for multi-deck freezers, dairy, and deli cases that maintains even temperatures to maximize product life. Slit every 3" for easy product access, each 48"W x 54" or 66"L panel is attached to the case canopy with lock and loop fasteners. Each curtain folds back on itself to make stocking shelves easy. According to the firm, Frig-I-Door™ reduces electrical consumption by up to 25% on multi-deck freezers and as much as 50% on dairy and deli cases. For more information contact: BSL Corporation, Bill French, National Sales Mgr., 14 Mica Lane, Wellesley, MA 02181, 617-235-5340.



• *Juice processors* can reduce packaging and distribution costs by replacing metal cans and glass bottles with a new extended shelf life paperboard carton, according to a brochure just released by International Paper Company (IP). Non-refrigerated juices, packaged in the new IP carton have a shelf life of three months. In a dairy case, product shelf life is substantially increased. For a copy of "The Carton That Came in From the Cold," contact International Paper Company, 77 West 45th Street, New York, NY 10036 or call toll-free: (800) 223-1268.

• *Applications of welded stainless steel tubing and pipe* are featured in a new 20-page brochure offered by Republic Steel Corporation. A section of the brochure is devoted to Republic's Electronite Enduro^R stainless tubing and pipe, detailing manufacturing, testing, marking and shipping stages. Copies of the brochure are available from Republic Steel Corporation, P.O. Box 6778, Cleveland, OH 44101. Ask for ADV 2650.



• *Groen's full line of continuous processing equipment* and complete engineered processing systems for the food, confectionery, pharmaceutical and chemical industries are featured in a new 12-page catalog. Send for a copy of this brochure to Groen Division/Dover Corporation, 1900 Pratt Boulevard, Elk Grove Village, IL 60007.

• *The first lightweight, fiberglass floor grates* for milking parlor and prep-stall have been introduced by Babson Bros. Co., builder of Surge Dairy Farm Equipment. The grates weigh approximately one-third as much as galvanized steel grates, but are heavy-duty and corrosion resistant. Because they are lightweight, the grates can be easily moved for cleanup. Special fiberglass I-beam construction provides extra strength and offers a durable non-slip surface. The grates measure 15 5/8 in. wide by 41 1/8 in. long but can be shortened by removing sections to fit varying gutter lengths. For more information, contact your Surge dealer, or write: Babson Bros. Co., 2100 S. York Road, Oak Brook, IL 60521.

• *A new sanitary pipeline pulsation dampener* has been developed by the Gaulin Corporation specifically for application in milk product and other liquid food processing pipelines where transfer pumps are utilized. The new product is effective in dampening both low and high-frequency pressure fluctuations which cause potentially destructive vibrations in pipelines and large equipment, as well as in gauges and other instrumentation. Technical, illustrated data-pack is available from Gaulin Corporation, Garden Street, Everett, MA 02149.



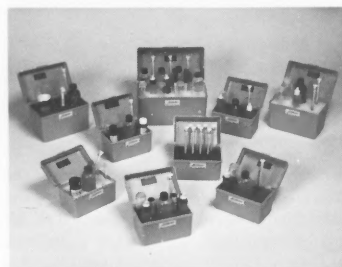
• **Chemidyne Corporation** has introduced an energy-saving Combo Rinse/Foam Station as a module component to the Commander (TM) High Pressure Cleaning System used in food processing plant operations. Each restrictor is custom-machined to the exact size necessary for the desired GPM for each rinse station. By taking control of the water volume out of the hands of the operator, costs for energy, hot water and sewage can be reduced as much as 50%. Detergent usage is controlled by a stainless steel injector that injects only the amount of detergent necessary to produce the foam required to accomplish a particular cleaning job. For more information on the Combo Rinse/Foam Station and the Commander (TM) high pressure cleaning and sanitizing systems, contact David Trombley, national sales manager (216) 653-5512, Chemidyne Corporation, 8679 Freeway Dr., Macedonia, OH 44056.

• **The Productivity Balance** from American Scientific Products is the lab industry's first portable electronic balance. Applications include lab, plant, field, production line and educational labs. This balance converts grams to ounces automatically. For more information, contact: American Scientific Products, 1430 Waukegon Road, McGraw Park, IL 60085, 312-689-8410.

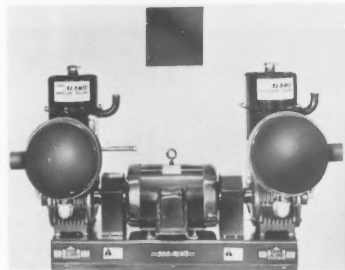
• **"Analysis of Volatile Nitrosamines With The Hall Detector"** is another in the series "Varian Instruments at Work". Its application note gives procedures for using the Hall electrolytic conductivity detector with a Varian automated Model 3700 Gas Chromatograph to measure nitrosamines. The minimum detectable quantity of N, N-dimethylnitrosamine using this procedure was found to be less than 40 picograms. To receive the applications note (No. 43) contact: Varian Instrument Group, Box D-070, 10060 Bubb Road, Cupertino, CA 95014, 408-725-2950, Ext. 44.

• A new catalog describing the Reliance Electric family of *Easy Clean* electrical and mechanical products for specialized applications in the food industry is available. The catalog describes and depicts Reliance *Easy Clean* A-C motors, Duty Master® Energy Efficient XE A-C motors, D-C motors and Master® XL EASY CLEAN gearmotors as well as Dodge speed reducers. All products are designed to withstand washdown requirements according to the NEMA MG1-1.26E definition for waterproof machinery. To obtain a free copy of the catalog, write to Reliance Electric Company, 24701 Euclid Avenue, Cleveland, OH 44117. Request Bulletin A-2612.

• **The role of a Westfalia "Wine Design" Clarifier** in doubling champagne production is described in the lead article of *Centri-Facts'* latest issue. The publication of Centrico, Inc., Northvale, NJ, also includes articles on how a large Florida citrus cooperative uses ten Westfalia De-Slugger/Separators to purify peel oil, its most profitable product by weight. Copies of *Centri-Facts* No. 40 are available from Centrico, Inc., 100 Fairway Court, Northvale, NJ 07647.



• **LaMotte Chemical Products Company** has developed a new series of water quality test kits with specific applications in the food processing and food service industries. Each of these portable titration test kits features a LaMotte Direct Reading Titrator which gives test results directly in terms of the test factor concentration. No counting of drops or calculations are required. Titrator kits are available for control of sanitizing solutions, food inspection, control of pretreated process waters, waste water treatment, and a variety of other water quality and sanitation testing applications. No special training is needed to perform critical chemical tests on-site, in a matter of minutes, with professional accuracy. Direct Reading Titrator Test Kits are available from the LaMotte Chemical Products Company, P.O. Box 329, Chestertown, MD 21620, 301-778-3100.



• For large dairy installations requiring two or more vacuum pumps, Babson Bros. Co., builder of Surge Dairy Farm Equipment, has made the Alamo 100- and 200-plus pumps available without the 60-gallon vacuum tanks. The pumps, without tanks, must be used with a header or balance tank. Both the Alamo 100- and 200-plus pumps feature the Surge L-2 oiling system and filtered air intake. For more information, contact your Surge dealer, or write: Babson Bros. Co., 2100 S. York Road, Oak Brook, IL 60521.

• **New product literature** available from Beckman Instruments, Inc. describes the company's pH monitoring system designed for improved technology and simplification in waste water applications. The 8-page brochure provides system performance features and photographs detailing non-isolated and isolated current outputs, alarm modules, preamplifiers and electrode selections. Specifications and dimensions are also provided. For your free Bulletin 4213A, please contact Beckman Instruments, Inc., Technical Information Services, Process Instruments Division, 2500 Harbor Boulevard, Fullerton, CA 92634.

• **University Micro Reference Laboratories, Inc.** supplies standard and custom cultures to educational, clinical, industrial and veterinary laboratories. Over 100 cultures routinely used by labs are available, as well as specialized custom cultures and controls for microbiological testing. As a full-service reference laboratory, University Micro Reference Laboratories provide specialized services for the dairy, food, pharmaceutical, beverage, biological and chemical industries. These services encompass microbiological testing, protocol development, quality control analysis, and a complete consultation program. For further details, and your free UMRL catalog, write or call University Micro Reference Laboratories, Inc. at 7885 Jackson Road, Suite 4, Ann Arbor, MI 48103, 313-426-5052.

Calendar

Sept. 14-16---PESTICIDE RECERTIFICATION. Chicago, IL. Course sponsored by American Institute of Baking, 1213 Bakers Way, Manhattan, KS 66502.

Sept. 14-16---AMERICAN CULTURED DAIRY PRODUCTS INSTITUTE, Annual Meeting and Conference. Sheraton Royal Hotel, Kansas City, MO. For information: Dr. C. Bronson Lane, P.O. Box 7813, Orlando, FL 32854.

Sept. 14-18 --- MICROANALYTICAL SANITATION SERIES I (Basic Quantitative). Melbourne, FL. Course sponsored by American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.

Sept. 15-17---FEMS SYMPOSIUM, "Significance of Indicator Organisms." Netherlands Congress Centre, Churchillplein 10, The Hague, 070-512851. For information: H. J. Beckers, Rijksinstituut voor de Volksgezondheid, Postbus 1.3720BA Bilthoven, The Netherlands.

Sept. 15-17---INTRODUCTION TO FOOD LAW AND REGULATIONS, Chicago, IL. Course sponsored by American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.

Sept. 15-17---"SIGNIFICANCE OF INDICATOR ORGANISMS." Symposium sponsored by Food Microbiology Section, Netherlands Society for Microbiology. The Hague, Netherlands. Contact: H. J. Beckers, Meeting Secretary, Rijksinstituut voor de Volksgezondheid, Postbus 1, 3720 BA Bilthoven, The Netherlands.

Sept. 16-18---NEW YORK STATE ASSOCIATION OF MILK AND FOOD SANITARIANS. Annual Meeting, Hotel Syracuse, Syracuse, NY. Contact: Dave Bandler, 11 Stocking Hall, Ithaca, NY 14853. 607-256-3027.

Sept. 17-18---MINNESOTA SANITARIANS ASSOCIATION, Inc., Annual Educational Conference. Earle C. Brown Continuing Education Center. St. Paul Campus, University of Minnesota. Banquet, Sept. 10. Olympia Brewing Co.'s "Rathskellar in the Sky." Contact: Roy Ginn, Dairy Quality Control Institute, Inc., 2353 N. Rice St., St. Paul, MN 55113. 1-612-484-7269.

Sept. 23-24---SOUTH DAKOTA STATE DAIRY CONVENTION. Downtown Holiday Inn, Sioux Falls, SD 57100. Contact: Shirley W. Seas, Dairy Science Dept., South Dakota State University, Brookings, SD 57007, 605-688-5420.

Sept. 25---FOCUS ON FOOD SCIENCE SYMPOSIUM III, "Modern Meat Technology---Microbial Considerations." Kansas State Union. Contact: D.Y.C. Fung, Food Science Graduate Program, Call Hall, Manhattan, KS 66506, 913-532-5654.

Oct. 4-9---65th Annual Session, INTERNATIONAL DAIRY FEDERATION, Torremolinos, Spain. For information and registration: Harold Wainess, Secretary, United States of America National Committee of the International Dairy Federation (USNAC), 464 Central Ave., Northfield, IL 60093.

Oct. 7-8---NEBRASKA DAIRY INDUSTRIES ASSOCIATION, 27th Annual Convention Regency West Motel, 1-680 and Pacific Street, Omaha, NE. Contact: T. A. Evans, Executive Secretary, 116 Filley Hall, East Campus, University of Nebraska-Lincoln, Lincoln, NE 68583.

Oct. 7-9---KANSAS ASSOCIATION OF SANITARIANS, Annual Meeting. Thunderbird Motel, Concordia, KS. Contact: John Mitchell, 2715 Ousdahl Rd., Lawrence, KS 66044.

Oct. 13-14---CALIFORNIA ASSOCIATION OF DAIRY AND MILK SANITARIANS, Annual Meeting. Holiday Inn, Ontario, CA. Contact: Jack Pollock, 402 Johnson St., Manhattan Beach, CA 90266, 213-374-4752.

Oct. 14-15---NEBRASKA DAIRY INDUSTRIES ASSOCIATION, Annual Convention. Omaha, NE. For information: T. A. Evans, 116 Filley Hall, East Campus, University of Nebraska-Lincoln, Lincoln, NE 68583.

Oct. 19-21---CANADIAN SANITATION SEMINAR. Course sponsored by American Institute of Baking, 1213 Bakers Way, Manhattan, KS 66502.

Oct. 21---IOWA ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, Fall Meeting. Holiday Inn, Cedar Rapids, IA. Contact: Hale Hansen, 4010 University Avenue, Des Moines, IA 50311, 515-281-4937.

Oct. 21-22---NORTH CENTRAL CHEESE INDUSTRIES, Annual Conference. Earl Brown Center, University of Minnesota, St. Paul. For information: E. A. Zottola, Secretary-Treasurer, North Central Cheese Industries Association, P.O. Box 80113, St. Paul, MN 55108.

Oct. 22-24---GUM CHEMISTRY AND TECHNOLOGY IN THE FOOD INDUSTRY, Denver, CO. Course sponsored by American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.

Nov. 15-19---FOOD AND DAIRY EXPO '81, Dairy and Food Industries Supply Association. World Congress Center, Atlanta, GA. Contact: Fred Greiner, DFISA, 5530 Wisconsin Ave., Room 1050, Washington, DC 20015.

Nov. 16-19---ADVANCED FOOD MICROBIOLOGY. Manhattan, KS. Course sponsored by American Institute of Baking, 1213 Bakers Way, Manhattan, KS 66502.

Jan. 7-9, 1982---ANALYTICAL AND QUALITY - CONTROL TECHNIQUES, Manhattan, KS. Course sponsored by American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.

Mar. 22-26, 1982---MICROANALYTICAL SANITATION SERIES II (Intermediate Quantitative Interpretive), Melbourne, FL. Course sponsored by American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.

Apr. 26-30, 1982---MICROANALYTICAL SANITATION SERIES III (Advanced Qualitative Interpretive), Melbourne, FL. Course sponsored by American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.

Home Formaldehyde Emission Can Be A Problem

*E. Edsel Moore, Manager
Pesticide and Consumer Product Safety Branch
Kentucky Department for Human Resources*

Is formaldehyde in mobile and conventional homes a health hazard?

Several Federal agencies that include the CPSC, HUD, EPA and OSHA are concerned about a recent industry study indicating formaldehyde may be a carcinogen. Consequently, these and other agencies assisted by state and local governments, are gathering information and instituting further scientific studies to evaluate the health effects of formaldehyde.

The Formaldehyde Institute report revealed that preliminary results of a two-year animal study showed the development of squamous cell carcinoma of the nasal passages. This is the first evidence suggesting that formaldehyde may be a carcinogen.

The use of the chemical is very broad and has grown to an annual production of about 6.5 billion pounds. Approximately 50% is used in the manufacture of wood building materials that include particle board, plywood and paneling, about 5% is used in the manufacture of urea formaldehyde foam insulation. These products are commonly used in mobile and conventional homes.

The remainder is used in the manufacture of plastics, cosmetics and deodorants, textiles that include both carpeting, as a dye, and perma-press garments, paper manufacture, embalming fluid and many other products.

FORMALDEHYDE EMISSION

Particle board and chip board are processed by impregnating wood chips or sawdust with a synthetic resin, usually urea formaldehyde. This mixture undergoes high pressure and forms a 4 ft. x 4 ft. board that varies in thickness from 1/4 in. to 1 in.

Plywood and paneling are produced by bonding various layers of veneered wood with urea formaldehyde under increased pressure and temperature.

Formaldehyde emissions from chip board and particle board utilizing urea formaldehyde adhesives results from free formaldehyde that remains in the boards after manufacture which, in the course of time, is released and partly replaced by formaldehyde regenerated from the polymerized urea formaldehyde glue by reaction with water vapor and temperature.

In the manufacture of plywood and paneling, the gaseous formaldehyde escapes during the pressing or during subsequent storage, sanding, trimming. However, small amounts of the formaldehyde gas is emitted after

shipment and after being installed. Emission of vapors for these wood products is dependent on several factors.

- The amount of "free" formaldehyde remaining in the panels.
- The panel volume held in an enclosed space in relation to the volume of that space.
- The area of exposed surface of the panels.
- The temperature and humidity and the time for vapor to diffuse from the panels.
- The extent of ventilation available to exchange the enclosed space with fresh air.

Because of the concern for energy conservation, rising energy costs and tax incentives, consumers are installing additional insulation in their homes.

Because of the high R-value rating (resistance to heat), plastic foams such as polystyrene, polyurethane or urea formaldehyde are popular and used in addition to mineral wool, rock wool, fiberglass, cellulose, or other insulating materials.

con't. p. 401

Food Sampling.

Simple as one, two, three.



Just put your food samples in Nasco pre-sterilized Whirl-Pak bags. Whirl shut for a tight seal. Sizes range from 1-36 oz., with two new wide mouth bags, 5½" x 9" and 5½" x 15". Easy to handle, easy to store. Send for free sample bag and a copy of Nasco's Sampling Equipment Catalog. Write Dept. WL-819.

Free Phone Order Service
1-800-558-9595
In Wisconsin 1-800-242-9587

Nasco

Fort Atkinson, WI 53538
Modesto, CA 95352

con't. from p. 400

One of the urea formaldehyde foam formulation is a two-part system comprised of liquid urea formaldehyde resin combined with a hardener containing a foaming agent. Both the resin and hardener are applied under pressure by a specially designed mixing gun at the installing site. The two components are ejected in a liquid foam consisting of tiny air cells somewhat like shaving cream.

The foam is forced directly into the hollow stud space from the interior or exterior of the building through pre-drilled holes.

The foam may also be installed into a pre-studded wall and "sits up" within a minute or two, and subsequently covered by a vapor barrier and drywalled, paneled or plastered.

Foam is generally not placed in the attic because of extreme shrinkage and "off-gasing."

The stability of the foam relative to emission of formaldehyde is unknown and the potential for releasing vapors is dependent on the following factors and may continue indefinitely.

- Quality of the ingredients.
- Age or shelf life of ingredients.
- Viscosities of ingredients.
- Ratio of ingredients. (This is critical.)
- Temperatures at which foaming occurs.
- Blending of ingredients.

There are several factors that enhance the likelihood of liberating formaldehyde. These include improper blending, foaming at low temperature or high humidity, dry density of foam exceeding the manufacturer's specifications.

After a proper installation of foam insulation, there may be an initial "off-gasing" that may last for several weeks dependent on numerous factors and then disappears when the "free" formaldehyde is exhausted.

There is no doubt that the presence of formaldehyde in mobile homes and conventional homes is of urgent concern.

At present, the problem appears to be more serious in mobile and modular homes since these homes utilize much more plywood, particle board and paneling per volume of space than is found in conventional homes. In addition, the mobile and modular home is constructed much tighter than are conventional homes; therefore, dilution with fresh air is minimized.

Temperature and humidity are the two most critical factors in the liberation of formaldehyde gas and the "off-gasing" increases with higher temperatures and humidity.

Consequently, there may be a delay of "off-gasing" in certain situations.

HEALTH CONSIDERATIONS

Formaldehyde is a known "sensitizer" and sensitivity to formaldehyde varies among individuals. Infants, elderly persons and individuals with allergies and respiratory problems may become sensitized to low levels of formaldehyde (less than 1 ppm) if chronically exposed.

Symptoms of exposure to formaldehyde fumes are:

- Eye, ear and nose irritation and other upper respiratory problems
- Lower respiratory tract problems such as coughing, asthma and shortness of breath
- Swelling of the face and neck
- Nausea and vomiting
- Nose bleeds
- Skin rashes
- Headaches and dizziness
- Allergic reactions
- Neurological problems

What action should consumers take if they notice or detect formaldehyde gas in their mobile, modular or conventional home?

- Ventilation is always helpful.
- Maintain the lowest comfortable temperature setting and control humidity, if feasible.
- If householders notice allergic reactions or experience symptoms of exposure, they should consult their family doctor immediately.
- In the case of problems in mobile and modular homes, contact the manufacturer immediately.
- In the case of conventional homes where "off gasing" continues to occur after initial installation of urea formaldehyde, contact the installer immediately.

The extent of the problems associated with the use of formaldehyde, wood and insulation containing products in mobile, modular and conventional homes is not known. However, the potential exists. The U.S. Consumer Product Safety Commission has received approximately 500 complaints associated with urea formaldehyde foam insulation and 150 complaints associated with formaldehyde in other products, largely wood product in mobile and modular homes.

Reprinted from Fall Issue, Kentucky Sanitarian's and Fieldmen's Journal.

JFP Abstracts

Abstracts of papers in the September Journal of Food Protection

Use of Salted Whey to Reconstitute Dried Milk for Manufacturing White Soft Cheese. I. Character of the Curd, M. S. El-Safty, A. Ellen and N. Fahmy, Faculty of Agriculture, Tanta University, Kafr El-Sheik, Egypt and Misr Dairy and Food Company, Cairo, Egypt

J. Food Prot. 44:652-654

Dried skim or whole milk was used for manufacture of Domiati cheese, the popular soft white cheese in Egypt. Salted whey instead of water was used for reconstitution of non-fat dry milk and/or dried whole milk. Use of whey caused a decrease in curd firmness. Increasing the amount of CaCl₂ and rennet improved curd firmness. Yield of cheese made using salted whey was higher than when cheese was made without using salted whey. Salted whey gave the cheese a flavor of pickled cheese of 45 days of age.

Thermostable Deoxyribonuclease Content and Enterotoxigenicity of Cheddar Cheese Made with Sub-Normal Starter Activity, G. F. Ibrahim and A. K. Baldock, Dairy Research Centre, Department of Agriculture, P.O. Box 217, Richmond, N.S.W. 2753, Australia

J. Food Prot. 44:655-660

The minimum detectable concentrations of purified thermostable deoxyribonuclease (nuclease) in Tris buffer and in Tris buffer containing 0.1% bovine serum albumin were 300 and 10 ng/ml, respectively. Recovery rate of nuclease added to cheese samples was 57 ± 18%. The trend of changes in nuclease concentration in unsalted and salted Cheddar cheese made with sub-normal starter activity, during production and storage at 11 and 4 C for 6 weeks, was similar to that of enterotoxin-A. Correlations between *Staphylococcus aureus* count, nuclease and enterotoxin concentrations were not significant under all experimental conditions. Nuclease was always detected in cheese containing enterotoxin, and also in cheese containing *S. aureus* in numbers below those required for producing detectable amounts of enterotoxin. In some instances, uncharacteristic results were observed on the nuclease assay reagent; however, these were easily distinguishable. The nuclease test appeared to be specific for *S. aureus* when concentrations of > 20 ng/20 g of cheese were considered a positive result. Nuclease showed stability to the extensive biological activity of the cheese during extended storage. It is recommended that the nuclease test be done routinely in factories processing cheese, made with sub-normal starter activity, immediately before processing.

Factors Affecting Lipase Production by *Mucor racemosus*, A. K. Chopra, Harish Chander, V. K. Batish and B. Ranganathan, Division of Dairy Bacteriology, National Dairy Research Institute, Karnal (Haryana) 132 001, India

J. Food Prot. 44:661-664

Mucor racemosus isolated from butter exhibited maximum lipase production at 22 C in 3 days at pH 5.0, when grown as a static culture. Supplementation of the medium with glucose and lactose at 1% level resulted in maximum (18.0 μmoles FFA) and minimum (10.5 μmoles FFA) enzyme production. Of the five different nitrogen sources tested, peptone at the 2% level supported highest production of lipase. Calcium, potassium and sodium citrate (0.1%), when incorporated in the medium, stimulated production of enzyme to the extent of 80, 60 and 47%, respectively.

Control of *Staphylococcus aureus* in Dry Sausage by a Newly Developed Meat Starter Culture and Phenolic-Type Antioxidants, Moshe Raccach, Microlife Technics, P.O. Box 3917, Sarasota, Florida 33578

J. Food Prot. 44:665-669

Genoa sausage and pepperoni inoculated with LACTACEL 75, a selected strain of *Pediococcus* sp., attained pH 5.0 after 12 and 11 h, respectively, at 35 C and after 48 and 40 h, respectively, at 21 C. LACTACEL 75 controlled the growth of *S. aureus* in the outer surface (0.5-1.0 cm, depth) of both Genoa sausage and pepperoni during the fermentation period to attain pH 5.0. In Genoa sausage, the population of *S. aureus*, in association with LACTACEL 75, was up to 1,000-fold lower than the minimal level associated with enterotoxin production. The generation times of *S. aureus*, in association with LACTACEL 75, (in Genoa sausage) were up to 15 times longer than those of the pathogen growing alone. In Genoa sausage at 21 C, LACTACEL 75 was bactericidal, causing a 42% decrease in the population of *S. aureus*. LACTACEL 75, in combination with BHA and BHT, brought about a 67% inhibition of growth of *S. aureus* in Genoa sausage, as compared to the growth of the pathogen in the absence of the starter culture and the phenolic-type antioxidants. In pepperoni at 35 C, LACTACEL 75 prevented a >2 log increase in the population of *S. aureus*.

Storage Life of Pork Chops in CO₂-Containing Atmospheres, Amy Spahl, Gary Reineccius and Sita Tatini, Department of Food Science and Nutrition, University of Minnesota, 1334 Eckles Avenue, St. Paul, Minnesota 55108

J. Food Prot. 44:670-673

Pork chops were packaged in a controlled atmosphere (10% CO₂/79% N₂/1% O₂, 30% CO₂/68% N₂/2% O₂, 30% CO₂/70% N₂, 100% CO₂ or air) and then stored at either 2 or 5 C. Changes in gas composition, microbiological counts and sensory quality were monitored after 0, 9, 12, 16, 19, 23, 30 and 37 days of storage. Two chops from each treatment were stored additionally under retail-like conditions for 3 and 5 days. The CO₂ percent composition in the packages increased greatly during storage while O₂ and N₂ showed corresponding decreases. The most effective gas environment in extending sensory acceptability was 100% CO₂. The best gas mixtures for extending shelf life at both 2 and 5 C were those containing only CO₂ and N₂. Sensory data indicated that odor became objectionable before the chops were rejected because of

appearance. A temperature increase from 2 to 5 C resulted in greater increases in psychrotroph growth in the control environment (air) than in the CO₂-containing environments. *Pseudomonas* (oxidase-positive colony count) accounted for 25-60% of these counts. The inhibition of microbial growth in the CO₂-containing environments during controlled atmosphere storage appeared to carry over to the rewrap environment.

Use of a Simple Fermentation Test to Detect Antibiotic Residues in Milk, Dalal A. Jurdi and Joseph A. Asmar, Departments of Food Technology and Nutrition and Animal Production and Protection, The American University of Beirut, Beirut, Lebanon

J. Food Prot. 44:674-676

The sensitivity of a local Lebanese yogurt culture to different antibiotics was checked, using either a fresh or a freeze-dried culture. Laban fermentation was significantly affected by 0.005 IU of penicillin/ml, 1 µg of streptomycin/ml, 1 µg of dihydrostreptomycin/ml, 10 µg of chloramphenicol/ml and a level of oxytetracycline between 0.05 and 0.5 µg/ml. Although the method was not standardized, it was used to check 858 milk samples in Lebanon of which 11.20% were found to contain lactic acid bacterial inhibitory substances.

Radurization of Prime Beef Cuts, J. G. Niemand, H. J. Van Der Linde and W. H. Holzapfel, Atomic Energy Board, Private Bag X256, Pretoria 0001 and Department of Microbiology, University of Pretoria, Pretoria, South Africa

J. Food Prot. 44:677-681

The bacteriology, organoleptic quality and shelf-life extension of radurized beef cuts were investigated. Application of doses of 2 kGy to vacuum-packed meat caused a considerable change in the bacterial population by elimination of the pseudomonads, *Enterobacteriaceae* and enterococci. The LLP group of lactic acid bacteria was relatively resistant to radiation, and after radurization was mostly comprised of *Lactobacillus* species. The lactobacilli multiplied rapidly on the meat during storage at 4 C, and reached relatively high numbers toward the end of the storage period. Odor and appearance evaluations were carried out at regular intervals and were used together with organoleptic testing and bacteriological analyses to determine the shelf-life extension of radurized beef cuts. A doubling in the shelf-life of samples irradiated to 2 kGy was attained when compared to non-irradiated (control) samples.

Incidence of Canned Food Spoilage at the Retail Level, I. J. Pflug, P. M. Davidson and R. G. Holcomb, Department of Food Science and Nutrition, 1334 Eckles Avenue, University of Minnesota, St. Paul, Minnesota 55108

J. Food Prot. 44:682-685

Swelled cans were collected over a 17-month period from outlets of two supermarket food chains. Each swelled can was classified by product and the probable cause of the swelled condition. Using weekly sales volume data for each outlet, the incidence rate of swelled cans for each type of food was estimated. The incidence rates ranged from 2.1 to 78.4 swelled cans per 100,000 units sold, depending upon the type of food. Of the 1,104 swelled cans collected, 314 (28.4%) were found to have major container defects which were assumed to have

resulted in the swelled condition. Microbiological analyses were performed on the products in the remaining 790 cans; the following results were obtained: (a) typical leaker spoilage, 86%; (b) typical underprocessing spoilage, 7%; (c) thermophilic spoilage, 1% and (d) nonmicrobial swells, 6%. Using vacuum testing and double seam measurements, the causes of the leakage were determined as follows: (a) poor or questionable quality canner's end double seam, 51%; (b) leaks at locations other than the double seam, 26% and (c) poor or questionable quality manufacturer's end double seam, 4%. It was concluded that examining swelled cans of low-acid foods at the retail level is a valid method for evaluating the canning operation of commercial food processing.

Microbiological Analysis of Food Product in Swelled Cans of Low-Acid Foods Collected From Supermarkets, P. M. Davidson, I. J. Pflug and G. M. Smith, Department of Food Science and Nutrition, University of Minnesota 1334 Eckles Avenue, St. Paul, Minnesota 55108

J. Food Prot. 44:686-691

Swelled cans of low-acid food were collected from supermarkets over a 17-month period. Microorganisms were recovered from 47% of the 790 containers tested. Calculations suggested that approximately another 47% of the swelled cans were the result of microbial contamination, although no microorganisms were recovered, while 6% were physically induced (nonmicrobiological) swells. Food type appeared to influence the recovery of microorganisms. Types and incidences of organisms recovered were: 91.6% typical leaker spoilage microorganisms, 0.5% thermophiles, and 7.9% pure cultures of sporeforming organisms traditionally associated with under-processing.

Leakage Potential of Swelled Cans of Low-Acid Foods Collected from Supermarkets, P. M. Davidson and I. J. Pflug, Department of Food Science and Nutrition, University of Minnesota, 1334 Eckles Avenue, St. Paul, Minnesota 55108

J. Food Prot. 44:692-695

The objective of this study was to determine the potential for leakage of swelled cans of low-acid foods. Using a vacuum leak test, 294 (38.5%) of 764 containers tested were found to have leaks. Most leakage detected by the vacuum test was located in the canner's end area (73.5%). The lap area at the side seam-double seam junction was the specific location that had the highest incidence of leakage. Can seam measurement data indicated that insufficient seam tightness was one of the primary double seam defects. It was not possible to account for double seam leakage from the individual seam measurement data. Therefore, a scoring system was developed to give a single number that included interactions of the double seam measurements. Seam measurement scores indicated that 55% of the cans had double seams of poor or questionable quality which were judged as having a potential for leakage. The results of the vacuum leak test indicated that in 26% of the cans there was potential for leakage at points other than the double seam. Therefore, a total of 81% of the swelled cans showed a potential for leakage.

Evaluation of Methods Used to Detect Antibiotic Residues in Milk, D. M. Macaulay and V. S. Packard, Manitoba Department of Agriculture, Animal Industry Branch, Dairy Laboratory, 545 University Crescent, University of Manitoba Campus, Winnipeg, Manitoba R3T 2N2, Canada and Department of Food Science and Nutrition, University of Minnesota, 1354 Eckles Ave., St. Paul, Minnesota 55108

J. Food Prot. 44:696-698

Over nine replicate trials, five methods for detecting antibiotic residues were evaluated for sensitivity to various levels of penicillin, erythromycin and chloramphenicol in milk. The methods included (a) the Charm test, (b) Delvotest P, (c) disc assay with *Bacillus subtilis* on whey agar, (d) *B. subtilis* on Antibiotic Medium #1 and (e) Difco disc assay method using *Bacillus stearothermophilus* var. *calidolactis* on PMI agar. Specific to penicillin only, the Charm test detected the antibiotic 100% of the time down to and including 0.01 unit/ml, dropping to 56% detectability at 0.0025 unit/ml. Delvotest P detected penicillin 100% of the time at 0.025 unit/ml, but at varying degrees of sensitivity through 0.0025 unit/ml, and with evidence of showing false-positive results. Methods (c), (d) and (e) detected penicillin at 0.05 unit/ml 78, 89 and 100% of the time, respectively. Methods (d) and (e) were generally more sensitive to erythromycin and chloramphenicol than either (b) or (c).

Improved Bactericidal Efficiency of an Acidic Quaternary Ammonium Compound with Increasing Temperature, C. D. Freke and D. Haggie, National Dairy Laboratory, Ruakura Animal Research Centre, Private Bag, Hamilton, New Zealand

J. Food Prot. 44:699-700

The bactericidal efficiency of an acidic quaternary ammonium compound (QAC) was examined over a temperature range of 20-55 C. The efficiency increased from no detectable kill in 1 min at 20 C to a 5-decimal reduction in 1 min at 55 C. It is recommended that temperature be taken into account when assessing the efficiency of disinfectants.

Mycotoxins Other than Aflatoxins--Their Relationships to Food Safety, Introduction, Lloyd B. Bullerman and Robert L. Buchanan, Department of Food Science and Technology, University of Nebraska, Lincoln, Nebraska 68583 and Department of Nutrition and Food Science, Drexel University, Philadelphia, Pennsylvania 19104

J. Food Prot. 44:701

Toxins of *Penicillium* Species Used in Cheese Manufacture, P. M. Scott, Food Directorate, Health Protection Branch, Health and Welfare Canada, Ottawa, Ontario, Canada K1A 0L2

J. Food Prot. 44:702-710

The known metabolites of strains of *Penicillium roqueforti* associated with blue-veined cheeses are penicillic acid, roquefortine, isofumigaclavines A and B, PR toxin and related metabolites, mycophenolic acid and siderophores. Of these, penicillic acid and PR toxin, one of the most acutely toxic

metabolites of *P. roqueforti*, are unstable in cheese. Roquefortine, isofumigaclavine A, mycophenolic acid and the siderophore ferrichrome have been detected in blue cheese at low ppm levels. Cyclopiazonic acid is a metabolite of *Penicillium caseicola* (*P. camemberti*), the fungus used in the manufacture of Camembert-type cheeses. Low concentrations of this mycotoxin have been detected in the cheese crusts. Although no acute health hazard can be identified from the presence of these known fungal metabolites in mold-ripened cheeses, there are conflicting reports on the carcinogenicity of *P. camemberti* cultures and one report on sub-acute toxicity of lipids from an Egyptian blue cheese.

Sterigmatocystin and other Mycotoxins Produced by *Aspergillus* Species, Norman D. Davis, Department of Botany, Plant Pathology and Microbiology, Agricultural Experiment Station, Auburn University, Auburn, Alabama 36849

J. Food Prot. 44:711-714

The aflatoxins, ochratoxins and sterigmatocystin are the principal mycotoxins of *Aspergillus* spp. that are known to occur naturally in levels sufficient to be regarded as significant hazards to animal and human health. Adequate research has not been done to allow generalizations concerning the other 27 or more mycotoxins of *Aspergillus* spp. However, the widespread and frequent occurrence of toxigenic isolates of these fungi in feed and food materials indicates that concern is justified, and these fungi and their mycotoxins must be considered hazards until proven otherwise.

Fungal Tremorgens, R. J. Cole, National Peanut Research Laboratory, USDA, SEA, AR, SR, P.O. Box 637, Dawson, Georgia 31742

J. Food Prot. 44:715-722

Contamination of feed supplies by fungal tremorgens has been well established. This fact, in conjunction with the widespread occurrence of fungi capable of producing tremorgenic metabolites, warrants further study to determine if these metabolites can contaminate our food supply. Studies directed toward analysis of tissues, especially in cattle fed fungal tremorgens, should be done to determine if tremorgens can enter the food supply indirectly through tissue residues.

Toxic Species of *Penicillium* Common in Food, Philip B. Mislivec, Division of Microbiology, Food and Drug Administration, Washington, DC 20204

J. Food Prot. 44:723-726

Brief descriptions are presented of six toxigenic *Penicillium* species: *P. cyclopium*, *P. viridicatum*, *P. islandicum*, *P. expansum*, *P. citrinum* and *P. urticae*. The profiles are based on previous studies in which mold flora were determined in various stored and dried foods. The toxic metabolites of these *Penicillium* species are also reviewed.

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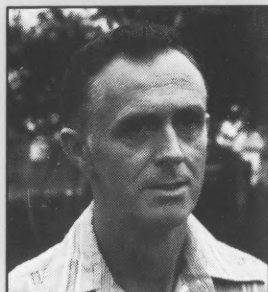
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SOMEONE YOU SHOULD KNOW IN THE DAIRY INDUSTRY



**Clarence Pearson,
VO-AG Instructor**

Mr. Pearson grew up on a small dairy farm in Elma, Washington. Graduating from Washington State University with a degree in Agricultural Education in 1959, he eventually returned to his alma mater, Elma High School, as a vo-ag teacher after teaching twelve years in Eatonville and three years at Winlock. Earning a masters degree through summer study at the University of Wisconsin at River Falls in 1970, his teaching efforts in animal science, farm management and forestry have contributed to the continued success of the Vo-ag program at Elma High. Each year, FFA judges rank the school's program among the national leaders and in 1979, Elma was the only school in the nation receiving gold medals in all areas of competition. In addition, Mr. Pearson operates a dairy farm consisting of 84 registered Guernseys and grade Holsteins.

We Stress Variety and Practical Management

"Our program exposes young people to a large variety of agricultural related areas from grades nine through twelve. We plan a good, well rounded program of activities so each student can find an area suiting their interests. Once a student finds an area of interest, they really become dedicated to the Ag Program. Success in one area seems to rub off on other areas and the student finds he or she can accomplish many things; a positive attitude results, which helps them succeed in life.

"We tour many farms in the area to see what farmers are doing to find out what things are working for them. We stress the practical application of dairy management, so knowledge gained in the classroom can be used on the home farm or the place of employment.

"As part of this effort, each student must have a project for the school year called a 'supervised occupational experience program' or SOEP. These projects range from actual on-farm production to agri-business related activities. In this way, students who might not actually live on a farm can still participate in the many vocational opportunities which exist in and around the agricultural industry. The goal is to profit from the experience and build on it for the future."

Leadership and Quality are the Goals

"It is very rewarding to see the growth of a student who, on the surface, might appear shy and awkward at first. Time and time again we have seen these kids blossom into leaders. They have learned that success requires participation, confidence and determination. We teach the importance of taking pride in workmanship, being dependable, having a good attitude, and being able to enjoy those whom you must associate with each day, whether in business or leisure activities.

"We believe anyone can be a leader if they have the desire. It often takes some kind of program to bring this out. It is very self satisfying for me to see someone succeed, and become a leader in the community or industry.

"I feel being an active dairyman, in addition to my teaching duties, helps bring a certain value to my efforts with students. At a recent ag teachers conference, the question of teacher's involvement in farming arose. The conclusion was that it does help in two ways: It helps improve the teacher's knowledge and, perhaps more important, it tends to help the teacher keep current on the latest advances in agriculture.

"However, being active in farming is far less important for a vo-ag teacher than being dedicated to helping his students succeed. This requires a certain amount of sacrifice such as not being home much on weekends and contributing some of your vacation time to helping students who ask for extra assistance. But the rewards of helping young people succeed far outweigh the sacrifice. Successful teaching and farming both have the same important ingredient; 'Dedication'."



SURGE

