NEWS FROM THE DEPARTMENT HEAD

The last year has been most interesting and challenging. As with over two-thirds of all states, revenue generation in North Carolina has been less than predicted. This led to the university receiving less state funding than had been appropriated and having to revert funds to the state. During the first half of 1990, this was handled by the college and university administration using funds from vacant positions and a freeze on hiring.

By the beginning of the fiscal year on July 1, it was apparent that this would not be sufficient. The state requested a permanent budget reduction plus an additional one-time reversion of funds. This could no longer be handled by college and university administration. The department had to take a five percent reduction across its total appropriated budget for research, teaching and extension functions. The department has permanently lost one faculty position in extension (the fruits and vegetables processing and products position), a secretary, a graduate teaching assistantship, two research technician positions, and a modest amount of operating funds. Further reductions are possible since state revenues continue below projections.

It would be easy to be pessimistic about the situation. Even after the economy improves, it will take several years to again obtain the positions lost. However, with proper planning, we will emerge with strong programs. We are still working through how to best handle these changes while still maintaining excellence in teaching, extension and research. More emphasis must be placed on obtaining external grant, contract and gift funds. Faculty are aggressive in seeking such funding. Gift funds are more difficult to obtain due to the general state of the economy, although they are some of our most valuable resources since they represent our “flexible” funds.

This has been a good year too. Undergraduate enrollment is higher and we are making efforts to increase it even more. Our graduates have good employment opportunities. Graduate enrollment is at an all-time high and the quality is excellent. We have seven USDA National Needs Ph.D. Fellowships, the only department in the nation with this number. Efforts continue to increase the enrollment in our Agricultural Institute program after a significant decrease.

One concern continues to be how to make better contact with alumni and friends. You are important to us. You know our department, the quality of the education you received, and your thoughts about our programs. You are valuable resources of beneficial information. We want to hear from you and to include news about you in this newsletter. We need your news items, comments, suggestions, and help. Let us hear from you.

— David Lineback

Fall Course to be Taught During Late Afternoon

Principles of Human Nutrition, FS 400 will be taught from 4:05 to 5:15 Tuesdays and Thursdays during the fall semester, 1991. This lecture-discussion course will cover the sources of nutrients, the functions of nutrients in the human body, and effects of food industry practices on nutrients. Course objectives are to learn the nutrients required for health and their sources in diets, and to learn how the nutrients in foods affect and are affected by the metabolic function of the human body. The Food Science Department is trying to teach at least one of the regularly offered courses during a late afternoon or evening time slot as a service to people employed in the area who may wish to take additional food science courses. For additional information about FS 400, contact the instructor, Dr. Jonathan Allen at 737-2964 or call the Food Science Office.

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**Food Science Scholarships**

Scholarships have been awarded to 20 Food Science students for 1990-91. Seniors receiving scholarships include Ginger Goodman (Salisbury), Martha McLean (Wagram), Kerri Moreno (Raleigh), Keith Petrofsky (Creve Coeur, MO), Lisa Shaw (Raleigh) and Laura Willson (Matthews). At the junior level, Meghan Francis (Raleigh), Gregory Gililand (Newton), Cheryl Priebe (Youngsville), John Roberts (Newton), Carolyn Roff (Raleigh), and Carol Tompkins (Springfield, VA) were awarded scholarships. Sophomores honored with scholarships were Vanessa Daniels (Castalia), David Guisbert (Clemmons) and Christy Wilson (Clinton). Freshmen recipients were Michael Barnett (Greensboro), Tiffany Fox (Charlotte), Hillary Hunt (Clinton) and Deana Robinson (Mount Gilead). Alan Whitley (Yadkinville), a second year student in the Food Processing, Distribution and Service curriculum was also awarded a scholarship.

Both merit and financial need scholarships are available to Food Science majors. Fourteen of the fifteen sophomores, juniors and seniors have grade averages above a “B” average.

Food Science Scholarships are provided by Stouffer Foods, North Carolina Meat Processors Association, Carolina-Virginia Dairy Products Association, Tarheel Suppliers’ Association and the following endowments: Harvey L. and Kathleen Barnes, Benjamin W. Kilgore, Mose and Helen Kiser, J. Frank and Margaret Neely and Hase and Lena Maie Smith.

Five of the students won additional scholarships in national competition. Hillary Hunt, Keith Petrofsky, Carol Tompkins and Christy Wilson were awarded IFT Scholarships. Ginger Goodman was a repeat recipient of a National Dairy Promotion and Research Board Scholarship. Carol Tompkins continues on a RJR Nabisco Scholarship and also received the Carolina-Virginia IFT Scholarship. Charmaine Hooper (JR, Ottawa, Canada) also continues on an athletic scholarship in soccer.

**Graduate Student Fellowships**

Nine students are utilizing Graduate Fellowships in pursuing graduate programs in Food Science at NCSU. IFT Fellowships were awarded to Janelle Howe (Lincoln, NB) and Polly Dinsmore (College Station, TX). Tim Fairchild (Fremont, MI) received a Gerber Fellowship and Kelli Rodgers (Rantoul, IL) was presented a General Mills Fellowship. Three new recipients of USDA National Needs PhD Fellowships were named for 1990-91: Elaine Berry (Fayetteville, AR), Susan Saunders (Garden City, KS) and Harold Schmitz (Fayetteville, AR). Continuing USDA National Needs PhD Fellowship recipients are Mark Beaumont, Suzanne Case, Martha Neale Liu and Marie Walsh.

**Degrees Awarded**

A December Commencement was initiated to recognize students who completed degree programs in summer or fall semesters. Six graduates from Food Science were awarded degrees. BS degrees went to Jaime Mullerat (Barcelona, Spain), Martha McLean (Wagram) and Debra Smith (Clearwater, FL). K. Mark Wiencek and Karen Mot-singer Young received MS degrees in Microbiology working under the supervision of faculty in Food Science.

The December 19 ceremony, held in Reynolds Coliseum, was followed by awarding of diplomas in the departments. The Food Science program in Schaub Hall was shared with the Poultry Science Department. Congratulatory remarks were made by David Lineback and Jon Ort, Assistant Director of Academic Affairs. Diplomas were awarded by the Department Heads, Gerald Havens (Poultry Science) and Lineback. A reception for the graduates followed the ceremony.
Extension Highlight

Dr. John Rushing is an Associate Professor and Extension Specialist in the Department of Food Science. His primary responsibility is to the dairy processing industry. He is also responsible for programs in fruit and vegetable processing and non-muscle refrigerated foods. In this context, his programmatic approach is to be heavily involved in training programs and programs which can disseminate technical information to a large number of people.

The dairy industry of North Carolina is characterized by consolidation of the resources of smaller plants into larger, more efficient organizations. The costs of processing equipment and operations is escalating in the face of stable store prices. While fluid milk is the major product of North Carolina’s industry, frozen desserts production is also strong while cultured products such as cottage cheese and hard cheeses tend to lag behind.

North Carolina’s dairy farming industry produces mostly milk for the fluid market in the southeast. The utilization of this milk for fluid product is so high that surpluses of milk for production of cheese, butter, and powdered milk are small.

The dairy industry in North Carolina and the southeast is also in need of technical training for persons in managerial positions. The experienced and technically trained supervisors of the past have been moved into plant and general manager roles. They have not been replaced with technically trained persons on a widespread basis. This leaves the industry with a training crisis and a shortage of qualified supervisory personnel.

Dr. Rushing’s extension program works with the industry on several fronts, to, first of all, shore up the training of supervisory personnel, to disseminate technical information on processing technology, to work with plants and their key personnel, to encourage the production of safe and wholesome products of excellent quality and to assist in compliance with ever-changing regulatory milieu.

One of the primary vehicles of dissemination of technical material and maintaining an intimate contact with the dairy industry is the North Carolina Dairy Technology Society. This society has dues-paying members from all the processing plants in North Carolina. Monthly technical meetings are appended to social events and draw wide participation from the industry and its suppliers. Subjects of technical and regulatory interest are explored using speakers who are experts in their field.

Short courses and workshops are designed to benefit the industry with training in technical subjects such as pasteurizer operation, HACCP, microbiology, and residue testing. Superintendents cover the basics of the technology of processing dairy products with today’s needs for quality assurance and special regulatory compliance.

An issue of current consumer interest is the nature and level of foreign chemical residues in milk and dairy products. This extension program has focused resources to increase knowledge of the issues for both industry and consumers. A series of presentations has been arranged for presentation to fieldmen and sanitarians on this issue. Plant quality control personnel have attended a two-day workshop on proper testing techniques and interpretation. A project is in place, with Dairy Foundation funding, to survey rejected milks to determine the amounts and types of residues dominant in North Carolina. In addition, several public presentations have been made to county agents and the public on the issues surrounding residues in foods.

The fruit and vegetable processing industry in North Carolina is small and diverse. Due to the diversity, most contact with this industry has been on a plant-to-plant basis. Training programs for this industry focus on Better Process Control Schools to ensure the safety and integrity of the canned product. Another important aspect of this industry is the large number of small entrepreneurs who need technical help and direction to get products on the market. They turn to extension for help in regulatory compliance, labeling and processing. These entrepreneurs are directed at an early stage to small business development groups to work on business aspects of their enterprise while receiving product-related technical help from extension.

The food dairy and food technology extension program is committed to bringing the resources of the university to North Carolina’s dairy and food industry, to providing technical information for decision-making to training of those involved in processing and to promotion of a safe, wholesome, and economical food supply.

Dr. Pat Curtis — New Extension Faculty in Poultry Processing

The Extension Division of the NCSU Food Science Department has recently hired Dr. Patricia Ann Curtis as an Extension Specialist to work in the area of poultry products processing. Pat has been at the University of Wisconsin, River Falls, since 1985, where she served in positions of Assistant Professor in the Animal and Food Science Department and Assistant to the Vice Chancellor. She has taught food science courses in sensory evaluation, food law, food processing, food analysis, toxicology, packaging, sanitation and product development. Her administrative duties were related to instructional improvement and faculty development. She received her Ph.D. in 1985 and her M.S. in 1982 from Texas A&M University. Her research experience includes work on egg quality and use of computers in food science extension education. Dr. Curtis began her new position on January 1 and seems to be adjusting well to the demands of relocating and starting a new program.
Food Science Department Involved in Environmental Issues, Large and Small

All Americans must be aware of the recent emergence of environmental issues as a legitimate topic of concern. As urban areas run out of space for landfills, residents in communities such as Raleigh and its surrounding areas are instituting curbside recycling of household trash. With 1990 having the highest average temperature on record in this area, discussions of the coming "green-house effect" center more on magnitude than on its reality. "Ozone depletion", "toxic waste management", "pesticide residues" and other terms stemming from the environmental concerns over past decades are filling our everyday language, and are having an effect on the way we conduct our business.

The food industry is an ever-popular target for environmental criticism. Everyone is a consumer of retail food products, and the milk jugs and cereal boxes that fill the kitchen wastebasket are highly visible. Many food companies and industry groups are responding to consumer and government pressure to reduce their environmental impact, and members of the NCSU Food Science Department are involved.

Success story. The McDonald’s Poultry Process Quality Improvement Council and Food Science Extension, with the leaders of the proposed Food Industry Environmental Research Center (FIERC), sponsored an Environmental Symposium for all McDonald’s Suppliers December 4-6, 1990 at the Pinelise Resort, Lake Lanier Islands, Georgia. Among the featured speakers were NCSU faculty Dr. Roy E. Carawan and Dr. Brian W. Sheldon. The Symposium examined environmental issues and manufacturing issues as they relate to each other—in effect bringing adversaries together to work toward an environmentally clean and profitable processing future.

With more than 70 people attending, this was the first meeting of its kind ever held for McDonald’s Suppliers. Most attendees indicated a desire for additional, more industry-specific detailed programs as well as for programs offered to others in their organization. Everyone agreed that the Symposium was informative, and that it will have a profound impact on their future activities.

Jim Waynick, personnel manager for Equity Group, North Carolina division, summed up the meeting by saying, "The Environmental Symposium demonstrated McDonald’s commitment to a healthy and clean environment, and charged each of us with the responsibility for educating our employees and suppliers to do their part in achieving this goal."

Dr. Carawan has had an active extension program in food industry waste reduction for a number of years (see Food Science News, Jan. 1990, p. 3). The program was recently recognized in the September issue of Dairy Foods magazine, a trade journal. Publisher Carolyn Dress cited the "Pollution Prevention Pays in Food Processing Program" and its conclusions in her monthly editorial page, Food for Thought. The topic of September’s issue is The Age of Environmentalism, and in her editorial entitled "It's time to clean up your act," Dress writes, "One way processors can [clean up their act], is to modify the way they think about waste. A program called "Pollution Prevention Pays," headed by Dr. Roy Carawan at North Carolina State University, attempts to do just that."

Dress then proceeded to summarize the program’s conclusions on the costs of waste and water usage for food processors and the measures processors can take to reduce these costs. National recognition of this sort demonstrates the success of the program and serves to emphasize the timeliness of this program.

New initiative. Carawan and Sheldon have recently prepared a major research proposal to establish an EPA Exploratory Environmental Research Center. The proposal, entitled "The Food Industry Environmental Research Center (FIERC)," was submitted to the Environmental Protection Agency. The proposal was developed by a consortium of universities including NCSU (as the lead institution), Georgia Institute of Technology, and Clemson University. Funding for this proposed center is expected to exceed $15 million over a nine-year period.

The success of "Pollution Prevention Pays" and the program for FIERC are likely to help the food industry become more pro-active in their stance on environmental issues. The McDonald’s program arose after much criticism was leveled at the fast food industry for the environmental consequences of its use of packaging, imported beef and other issues. If the FIERC is supported, researchers can learn how to prevent the next generation of environmental problems, instead of leaving it to industry to correct the problems that may have developed through years of inattention.

Environmental protection begins at home. A major product of this or any academic department is information, and with that comes the by-product of reams of office paper and printed matter for disposal. Last spring, Dr. Arlene Klapes sought to reduce our solid waste generation by initiating recycling of office paper. At about the same time, the Food Science Club was beginning a recycling program for glass and aluminum within the department. Since then the University Physical Plant has moved both programs into a university-wide recycling effort, expanded to include the cardboard and styrofoam packing material that accompany much of our laboratory supplies. An effort to recycle is not complete without an effort to create a demand for recycled goods. This is the second Food Science News printed on recycled paper. Our printer did not offer that option one year ago, but increased demand has significantly reduced the cost of recycled paper.

The importance of encompassing environmental concerns in our personal and academic lives was summarized in a recent article in Nutrition Today. Author Kristen McNutt stated, "Consumers might be more inclined to pay attention to what we think is important about diet and health if we were more responsive to their interest in preserving the health of planet earth." The NCSU Food Science Department is certainly showing a concern for these issues.

— by J. C. Allen, R. E. Carawan, and B. W. Sheldon
FACULTY ACTIVITIES

Jonathan Allen received funding in the second round of grants awarded by the Institute of Nutrition, UNC-Chapel Hill, for continuation of a project on "Molecular and cellular mechanisms for zinc entry into and availability from milk." He was recently elected to full membership in the American Physiological Society.

Drs. Hershell Ball and Ken Swartzel have been instrumental in establishing the first Single-Sponsored Laboratory at NCSU. This Laboratory, sponsored by Michael Foods, Inc. will promote the advancement of knowledge for extended shelf-life refrigerated food products. Initial funding is for $200,000.00 and will support basic research on which to lay the groundwork for product and process development. In addition students will gain knowledge and experience for continuation of product processing research within industry, government and academic organizations.

Henry P. Fleming attended the Third International Symposium on Lactic Acid Bacteria in the Netherlands, September 17-21, 1990. He also visited food processing firms in Holland and West Germany that process pickle and sauerkraut products. He made a slide presentation of portions of this trip to the National Kraut Packer Association, Inc., in Chicago, IL, December 6, 1990.

Peggy Foegeding gave invited talks at the Cactus Section of IFT in Tucson, AZ on November 1; and at University of Arizona (Tucson), Department of Nutrition and Food Science on November 2; at Keystone Section of IFT in University Park, PA on November 8; and at Ross Laboratory in Columbus, OH, November 20. She received the AI Route Past Chairman Award from Carolina/Virginia IFT on November 29 and met with IFT's Student Association Executive Committee in Madison, WI on November 9 & 10 as new faculty advisor. Keith Petrofsky, an undergraduate in our department who represents the southeast area on the SA Executive Committee, was at this meeting too. Dr. Kevin Collins, Department of Immunology and Microbiology, University College-Cork, Ireland visited her on November 28. Peggy was one of several faculty lecturers participating in the Better Process Control School organized by John Rushing.

Arthur Hansen taught a short course on Aseptic Processing and Packaging of Dairy Products for Land O' Lakes (International Division). He recently lectured at the symposium on Application and Advances in Aseptic Technology, gave a one-day lecture at Proctor & Gamble, Cincinnati, OH, on "The Effect of UHT Processing on the Chemical and Physical Changes of Dairy Products" and spoke to the N.C. Dairy Society on Flavor Loss in Low-fat and Fat-Free Frozen Dairy Desserts. Dr. Hansen received grants from Kelco for "Physical and Sensory Properties of Ice Cream Containing Additives to Inhibit Xanthin Gums—Milk Protein Interactions" and from CAPPS for research on "The Effect of UHT Processing, Packaging Materials, Ingredients, Flavors, Oxygen and Storage on the Flavor Stability of UHT Products."

Dr. Don Hamann was invited to give the keynote lecture at International Institute of Refrigeration, Commission C2 (Food Science & Technology), meeting on Chilling and Freezing of New Fish Products, Aberdeen, Scotland, U.K. 19-20 September, 1990.

Hosni M. Hassan was invited to chair a session and to present a talk at a Cold Spring Harbor (NY) meeting on "Molecular Biology and Free Radical Scavenging Systems," November 11-14, 1990. He received a 2nd year funding of his NSF Grant (878,400) to study "Regulation of Manganese-Superoxide Dimutase in Escherichia Coli: Isolation and Characterization of the Repressor Protein."

Todd Klaenhammer, as a University of Nebraska Biotechnology Program Invited Speaker, presented a seminar on "Molecular Views of Bacterial Defenses and Phage Counter-defenses During Industrial Fermentation. New grants received for 1991, are from the National Dairy Board Competitive Grants Program, "Bacterioidal Proteins and Peptides in Dairy Lactococcus" 814,472 and from Nestle, Inc. "Gene Expression of Bacterioidal Proteins in Lactic Acid Bacteria."


Brian W. Sheldon also had two projects funded by Degussa Corp.: "Efficacy of hydrogen peroxide to control Salmonella and Listeria on poultry carcasses" (88,760) and "Efficacy of hydrogen peroxide to increase the shelf life of poultry carcasses" (85,840). He was an invited speaker at four national meetings: National Poultry Waste Management Symposium ("Poultry Chiller Water Recycling"), Raleigh, NC, October 3-4; National Meeting on Poultry Health and Considerations ("Research Preview of Poultry Chiller Water Recycling Systems") Ocean City, MD, October 18-19, 1990 Food Processing Waste Conference ("Research Overview of Poultry Chiller Water Recycling Systems") November 12-14 in Atlanta, GA: Environmental Symposium for McDonald's Suppliers ("The Environmental and Food Proceedings") December 4-6, Lake Lanier Islands, GA.

Dr. Dwain H. Pilkington was invited by University College Cork, Ireland to serve on the Board of Assessors considering the promotion of a faculty member in the Department of Food Science and Technology. While on the campus he gave three seminars on research studies involving Vitamin E in Swine Rations, Sodium Reduction in Country Hams, and Bacterioinhibition of Listeria monocytogenes in Fermented Sausage. Before returning to NCSU, he visited the German Research Meat Institute, Kulmbach, and meat plant operations. A highlight was a slide trip to observe the wall being torn down that separated what was formerly called East and West Germany. Dr. Pilkington is Principal Investigator on 810,000 competitive grant awarded by the North Carolina Pork Producers Association to study the "Use of Vitamin E In High Energy Swine Diets to Increase Carcass Firmness." This is an interdepartmental project with co-investigators Dr. Duane K. Larick, Food Science and Drs. M. T. Coffey and W. D. Schoenherr, Animal Science. He was also awarded a $4,000 grant from the NC Agricultural Foundation (Ex- tension) to continue the development of a process to produce boneless country hams.
Dave Lineback was an invited team member in a review of California Dairy Foods Research Center, University of California, Davis (July '80) and for a CSRS Comprehensive Review of the Department of Grain Science & Industry, Kansas State University (August). He was Chairman of the Review Team for a Comprehensive Review of the Department of Food Science, Pennsylvania State University (December '90). He attended the annual meeting of the Japanese Society of Starch Science, Amylase Symposium, and chaired a session at the International Conference on Cereal and other Plant Carbohydrates, Kagoshima, Japan in August. While there he visited the Department of Food Science at Nagoya University (NCSU and Nagoya have a contract). Lineback spoke at the Farm City Kick-Off Luncheon that initiated Farm City Week in N.C. on "Food Safety—Perceptions and Realities." Listeners to National Public Radio's Morning Edition in the triangle heard a "sound-bite" of these views as part of a WUNC radio story on health foods and food safety. Dave chaired Session I and spoke at N.C. Extension Leadership Development Institute in November and was Course Director and Lecturer in the American Association of Cereal Chemists Starch Short Course (Chicago, December '90).

William M. Walter Jr. is serving as Chairman for Regional Project S-214, "Product Development for Increased Utilization of the Sweet Potato." He presented a talk on "Control of the Textural Properties of Sweet Potato Products" at the International Symposium on Starch and Other Plant Carbohydrates in Kagoshima, Japan, August 1990 and was invited to present a talk on "Frozen Sweet Potato Products" at the International Symposium on Sweet Potato Technology, Montgomery, AL June 2-6, 1990. He will preside over the National Sweet Potato Collaborator Group meeting in Ft. Worth, TX on February 2-3, 1991.

Charm Testing Techniques Taught

Food Science and the SDFRC teamed up with the NC Dairy Products Association and with Penicillin Assays, Inc. to present the 1990 "Bo" Bullard Seminar. "Testing and Confirmation of Residues in Dairy Products Using Charm Test Methods" attracted quality control persons from dairy plants within the region for a two day hands-on training program using the Charm Testing technique. The program stressed correct procedures, proper use of equipment, interpretation, and confirmation of test results. Dr. John Rushing organized the meeting.

Club News

The Food Science Club had a very busy and active fall schedule. Several of the business meetings were highlighted by excellent speakers from the food industry, including representatives from Cryovac, M&M-Mars and General Mills. The State Fair Dairy Bar was very successful this year. Club members wish to thank everyone who supported their efforts.

Another function was hosting the November meeting of the Carolina/Virginia Section of IFT. Bruce Hein and Lesia Henry did an excellent job organizing the program. "Current Advances in Food Biotechnology and Consumer Perception." The afternoon program at the Crabtree Valley Marriott featured a speaker from Novo Biochemical on that company's work in production of food-grade enzymes, and Dr. Thomas Hoban, NCSU Department of Sociology, Anthropology and Social Work, speaking on "Consumer Perception of Biotechnology." A tour of the Ciba-Geigy research lab in Research Triangle Park gave participants a view of the future of plant molecular genetics in agriculture and food production.

The Poultry Science Club was assisted this fall by Dr. Dwain Pilkington and the Food Science Meats Processing Lab with their annual smoked turkey project. The club members became more familiar with poultry processing procedures while making money for other club activities. This year, they produced 350 whole birds and introduced whole smoked breasts, but still could not meet all potential orders for holiday turkeys. A "Reduced Sodium" cure was successfully produced for the second consecutive year.

The Scientist-Teacher Partnership

As scientists, many of us have experienced the difficulty of understanding a scientific concept at least once during our studies. Challenging concepts are often easier to grasp when we have examples or hands on experience. However, teachers in North Carolina schools do not always have access to exciting experiments and/or the necessary equipment. The Scientist-Teacher Partnership Program was developed to allow scientists to use their expertise to design experiments or demonstrations that they can take into the classrooms.

The Food Science Club volunteered as a group to be active in this program. Last year, a group of students and Dr. J. Allen developed some projects that relate to Food Science. A number of Food Science Club members have gone out to the schools and performed demonstrations. One school invited club members to present what a food scientist is.

The Scientist-Teacher Partnership Program was started in Wake County. It is now under the North Carolina Science and Mathematics Alliance, which provides several services to the entire state and hopes to spread the Scientist-Teacher Partnership Program across the state. Some supplies and equipment are being gathered for general use and money has been made available for some reimbursements to volunteers who need to purchase supplies.

My trips to the schools have been very rewarding. The children offer quite a paradox in that their innate curiosity makes it easy to teach them, yet their quick thoughts and rapid fire questions can be challenging. But do not be too afraid, they are very forgiving when you do not know the answers to everything.

By Ann O'Neill
Student, Staff and Alumni News


A new post-doc who joined Dr. Klaenhammer's lab in October, 1990 is Dr. Karen Zagula, from NCSU Plant Pathology. She will work on genes and regulation of restriction enzymes in Lactococci.

Carey Walker is a new Research Assistant, in Dr. Klaenhammer's lab as of September 1990. He will work on gene cloning and expression in lactobacilli.

Polly Dinsmore is a new M.S. student under Dr. Klaenhammer working on IS-based integration vectors for lactobacilli. She is from Texas A & M and holds an IFT Graduate Fellowship.

ALUMNI NEWS NEEDED! Send us information about yourself or your classmates: personal items, marriages, new children, hobbies; professional items, job titles, promotions, new companies, awards. Tell us about your classmates and other NCSU Food Science Alumni! Fill out the form below and mail to:
Jonathan C. Allen
Editor, Food Science News
236 Schaub Hall, Box 7624
North Carolina State University
Raleigh, NC 27695-7624

Name:
Degree(s), year(s):
Address:
City, State, Zip:

Employer/Company Name and Address:

News:

The Dairy Plant and the rest of the department would like to welcome Sheila Yandle back to Food Science as of December 17. She has filled the newly established position of Dairy Plant Bookkeeper and will be working in room 12, ext. 2760.

Mark Hines has joined Dr. Allen Foegeding's lab as a Post-doctoral Research Associate. Mark recently completed his Ph.D. in Food Science at Purdue and will be working on protein gelation with support from the Southeast Dairy Foods Research Center.

Several Food Science graduate students are serving as officers of important campus organizations. Mark Beaumont is Vice President and Andy Butler, Secretary, of the Graduate Student Association. Leola Henry is Assistant Secretary of the Association for the Concerns of African-American Graduate Students.

Departures

Linda Harris, Ph.D. in Microbiology, took an assistant professorship at the University of Guelph, Canada on January 1, 1991.

Peter Muriana completed his Ph.D. in Food Science, August 1990, and is now assistant professor in the Department of Food Science at Purdue University.

Debbie Daum Thunberg passed her M.S. defense on December 21. She has moved to New Jersey to work for McNeil Specialty Products in New Brunswick.