FROM THE EDITOR'S DESK:
This issue of Food Science News highlights several major events in the Department from the past 6 months. Some prestigious awards and achievements of students and faculty are noted (see pages 1, 2, 4, 6-7). A comprehensive review of teaching, research and extension programs involved virtually everyone (p. 4). A message from our department head, David Lindeberg, noted the usefulness of this review and expressed appreciation to those who participated. The faculty adopted a set of goals and objectives and began implementation (p. 4), and the Food Science Club (p. 2) and the research centers (p. 5) supported many activities. The article at right suggests changes in personnel and responsibilities that await us in the next year. On several issues, we need input from our friends and alumni (p. 2, 4). Please offer suggestions and ask questions. The address is on the back page.

KLAENHAMMER NAMED DISTINGUISHED PROFESSOR

Todd R. Klaenhammer was appointed July 1st as a William Neal Reynolds Professor at NCSU, one of the highest honors awarded to faculty in the College of Agriculture and Life Sciences. The Distinguished Reynolds Professorship Fund was established in 1950 to honor the most outstanding scholars and teachers in the College. The criteria require that recipients command the respect of the NCSU faculty as well as of the community of scholars of the nation and the world.

Klaenhammer has pioneered the application of molecular genetics to bacteria important in food processing and preservation. His research is widely respected, as evidenced by the six awards from various groups for outstanding research during the 14 years he has been on the NCSU Food Science faculty, and the constant flow of international researchers who visit and train in his lab. Klaenhammer modestly attributes his success to the hard work of all of the excellent students, postdoctorals, visiting scientists, and staff researchers who have worked with him. Four students who trained under Todd have won awards for the Outstanding Dissertations in the College of Agriculture and Life Sciences.

Klaenhammer makes the second William Neal Reynolds Professor in the Food Science Department. He and Dr. Harold Swaisgood are among the eighteen active WNR Professors at NCSU.

V. A. JONES RETIREMENT ANNOUNCED

Dr. Victor Jones has announced his retirement effective December 31, 1992. Among his list of achievements, Dr. Jones has taught Food Engineering since its inception and has served as Teaching Coordinator and Graduate Administrator since 1980. Jones was honored by the Food Science Club this year with the Meritorious Service Award. He has been elected to the Academy of Outstanding Teachers following nomination by students in his classes. He has served as an advisor to most incoming students and has been instrumental in placing many students in summer internships and jobs after graduation.

A reception in his honor will be held in the lobby of Schaub Hall on December 9 from 3:30 - 4:30 p.m. This will be a time for university friends and colleagues to say good-bye and wish him well. A retirement dinner will be held at the Faculty Club on January 22. Mark these dates on your calendar now. More details can be obtained from Joanne Giles at 919-515-7249.

Dr. Vic Jones receives teaching award from Dr. James Oblinger, CALS Director of Academic Programs.
ACADEMIC AFFAIRS
by V.A. Jones

P.M. FOEGEDING AND V.A. JONES
CHAIR NCSU COMMITTEES

The two most important committees at NCSU dealing with undergraduate matters were chaired by Food Science faculty in 1991-92. Dr. P.M. Foegeding was chair of the University Courses and Curricula Committee. The committee must review and approve any new or revised course or curriculum at NCSU. The Council on Undergraduate Education was led by Dr. V.A. Jones. The Council assists the Provost in the development and revision of policies with regard to General Education Requirements for all undergraduate curricula and advises the Provost on procedures for evaluating effectiveness.

COURSE AND CURRICULUM REVIEW

The current Food Science Curricula have seen only minor changes since being implemented in 1984. The ‘Science emphasis’ curriculum was designed to meet the Minimum Standards established by IFT and to prepare students for graduate school. The ‘Technology emphasis’ curriculum permits more flexibility in selecting courses that complement a students interest in Food Science.

The department is initiating a comprehensive review of the food science courses and curricula. Both NCSU and IFT are establishing new guidelines. The NCSU Council on Undergraduate Education, chaired by V.A. Jones, submitted recommendations to the Provost in March which will have an impact on all curricula at NCSU.

The IFT Minimum Standards were revised at the 1992 Annual Meeting. Both NCSU and IFT will require computer literacy and increased development of written and oral communication skills in Food Science courses. The new IFT standards require a capstone course and at least two courses that teach critical thinking skills. Although NCSU will increase the requirements in math, natural sciences, humanities, and social sciences expected in all curricula, Food Science curricula already meet or exceed these requirements. NCSU will also require two years of high school foreign language as an admission requirement and demonstration of foreign language proficiency at the freshman level.

Because it has been eight years since the present Food Science course and curriculum structure was established, the department will be soliciting input from alumni, industry leaders and other universities as it makes recommendations for curriculum revision. If you have suggestions about either courses or curricula, please send them to V.A. Jones.

IFT SCHOLARSHIP/FELLOWSHIP Awardees

Eleven students at NCSU were awarded Institute of Food Technologist (IFT) Scholarships or Fellowships for 1992-93. Polly Dinsmore, a Ph.D. student, received one of the six Kraft General Foods Foundation $10,000 IFT Fellowships for the second year. Carol Tompkins (Sprangfield, VA), and Hillary Hunt (Clinton) each were awarded one of the six Coca Cola Foundation $2,000 IFT Junior/Senior Scholarships. Other IFT Scholarships for $1,000 or $750 were awarded to sophomores Cheryl Gaither (Arden, NC), Wendy Jackson (Garner) and Craig Sherwin (Cary); juniors Diego Darquea (Ecuador); seniors Caroline Coffey (Raleigh), Vanessa Daniels (Castlina, NC) and Christy Wilson (Clinton, NC). Jeffrey Mackson (East Lansing, MI), a Ph.D. candidate, won the IFT Food Packaging Division $1,000 Fellowship.

FOOD SCIENCE CLUB NEWS

As usual, the Food Science Club has been very active in 1992. Traditional events sponsored by the club this spring included the wine and cheese party at Kildeare Farms Clubhouse, the Awards Banquet and the Spring Picnic. In addition to these activities, the club sponsored a Red Cross Blood Drive, participated in the Super Cities M.S. Walkathon and hosted a Carolina/Virginia Section IFT meeting with a first-ever NCSU/Va. Tech research poster session.

The Food Science Club honored Monica Seagroves and Jonathan Merkle as the Outstanding Undergraduate and Graduate Club Members for 1991-92, and Dr. Victor Jones with the Meritorious Service Award. Each was presented a plaque at the Food Science Club Awards Banquet.

The upcoming months look to be busy as well, with the club sponsoring the second annual Durham Bulls Bash in July and the traditional Fall Kick-Off when classes start in late August. The club is also beginning preparations for the ice cream sale at the State Fair in October. Funds generated from this sale support club dinners before scheduled meetings, club activities and travel by club members to professional meetings.

STUDENT SUCCESS AT NATIONAL MEETINGS

Several graduate students came up winners at the recent IFT meeting in New Orleans. Flavia L. Passoa, a student with Dr. Swatsgood, was selected as one of the four finalists in the graduate student paper contest. Pat Kocher, won first place in the Dairy Division Paper Contest for work he did under the direction of Dr. Allen Foegeding. Jonathan Merkle is the new chairman-elect of the IFT Student Division. He will succeed present chairman Kurt Emenhiser as chairman next year. Ms. Polly Dinsmore, Ph.D. student in Food Science, won second place in the graduate student paper competition in the Dairy Foods Research Division at the ADSA meeting in June.

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Extension Highlight:
THE NCSU SEAFOOD LABORATORY
by David Green

What would you do if your company had a $250,000 shipment of pasteurized crab meat detained in Los Angeles by the FDA for suspected product decomposition? Most North Carolina companies call the N.C. State University Seafood Laboratory. In this case, a quick computer search of the literature, a referral to a private lab for sample analyses and a few phone calls to key FDA officials turned the situation around and the detained crab meat was released.

The Seafood Laboratory has been part of NCSU’s Food Science Department since 1973. The lab is located in the N.C. Division of Marine Fisheries building on U.S. 70 in Morehead City (Carteret County). Lab facilities include offices, wet chemistry room, microplating room, test kitchen and wet processing areas with filleting, canning, smoking, minced fish production and packaging capabilities, in addition to a walk-in cooler and freezer storage.

Current programs at the seafood lab include: fishery products processing, utilization and education programs; the fish protein utilization program; and the crustacean process development program.

The fishery products processing, utilization and education programs were started in 1970 by Dr. Frank B. Thomas (Professor Emeritus). Dr. Thomas, along with Dr. Neil Webb (Webb Technical Group), were instrumental not only in establishing the Seafood Laboratory but in working with other state agencies to secure sufficient funds for construction of the current facilities. The present facility houses the N.C. Division of Marine Fisheries, the N.C. Office of Shellfish Sanitation, the N.C. Division of Coastal Management and the U.S. Fish and Wildlife Service. This unique combination of state agencies is a vestige of an era in fisheries development that occurred during the early 1970s.

Since that time, the programs and directions have changed for all agencies within the facility. The emphasis on fishery development by most of the national, and state agencies has been replaced by resource conservation and user-acceptance issues. Specific programs at the Seafood Laboratory also have evolved with current trends and critical issues.

The fishery products processing, utilization and education programs are funded through the Marine Advisory Service of the UNC Sea Grant College Program and are under direction of Donn R. Ward and David P. Green. Current activities focus on fishery product quality and safety issues, seafood processing water and waste management, and seafood training for food professionals.

A second major program impact has been the transfer of cryogenic freezing technology to the North Carolina seafood industry. As a direct result of a one-year commercial demonstration sponsored by Liquid Air Corporation of California, seven cryogenic freezing systems have been installed in North Carolina seafood facilities since 1989. In addition, seafood companies in Maine, South Carolina, Virginia and Washington have adopted this technology for improving product qualities and process efficiencies in their operations.

Over the years, the program has fostered increased consumption of seafood through seafood education and training programs. Joyce Taylor has expanded this aspect of the program to include food professionals and home economies extension agents. Training in seafood safety, nutrition and utilization has been conducted through numerous statewide workshops and county extension programs. Taylor has earned the reputation as "seafood guru" in North Carolina.

The fish protein utilization program has been supported through the UNC Sea Grant research program under the direction of Dr. Tyre Lanier. Reino Korhonen, research assistant at the lab, has developed and tested protein recovery techniques for wash-water proteins in surimi manufacturing. This research will soon be commercially tested at land-based surimi processing plants in Oregon.

The crustacean process development program is the most recent addition to the laboratory and is supported by the National Coastal Resources Institute under the direction of Dr. David P. Green. Dr. Jutta Mabau, extension research associate, has been working on application of organic acids either as direct or incidental additives in processing of fresh and frozen blue crab meat. Studies to-date have demonstrated shelf-life extension for fresh meat while commercial trials are underway for application of organic acids as an in-line process aid in the development of intermediate frozen blue crab products.

In summary, the Seafood Laboratory is a multi-program operation within the NCSU Food Science Department. Among local clientele the programs are simply referred as the "seafood lab." This is a credit to its quiet success and enduring quality in serving North Carolina, The Food Science Department and N.C. State University. The lab represents the only source of science-based food technology information for the processing sector of the North Carolina seafood industry. It is the only contact many individuals have with either the department or the university.

If you have any questions concerning the programs and activities at the Seafood Laboratory, just give Robin Lazenby a call. She is the glue that keeps the laboratory programs running smoothly. Lazenby not only answers the phone and keeps all the files and trust accounts in order but manages to handle the hectic demands of an off-campus extension program as well.
SPECIAL COMPREHENSIVE REVIEW
OF FOOD SCIENCE DEPARTMENT

The teaching, research, administration and extension programs in Food Science received a comprehensive review by a committee representing the Cooperative States Research Service of the USDA. Departments in Land Grant Universities are reviewed every 5 years to evaluate current programs with regard to quality, relevance and accomplishments, and to suggest future programs and alternatives. The review team, selected from nationally recognized food science programs, was composed of Dr. Bernard J. Liska (Purdue Univ., Team Leader), Dr. Eugenia A. Davis (Univ. Minn.), Dr. Michael P. Doyle (Univ. Ga.), Dr. Charles L. Duncan (Hershey Foods Corp.), Dr. Gerald D. Kuhn (Penn. State Univ.) and Dr. Philip E. Nelson (Purdue). They met with NCSU administrators, graduate and undergraduate students, faculty and staff, and reviewed written material provided by the department.

The team concluded that the NCSU Food Science Department "is clearly one of the top departments of food science in the U.S. It has a mature, distinguished, very productive faculty and excellent quality graduate and undergraduate students. In general, facilities and equipment are excellent. Funding from state, federal and industrial sources provides a reasonable resource base to develop quality programs in teaching, extension and research."

The report of the review team made a number of general recommendations regarding the balance of research efforts among disciplines, and departmental procedures and activities that should receive more attention. Implementation of the department's goals, continuation of the self-evaluations in progress, and coordination of the search for additional funding sources were recommended.

The Review team was complementary of the Department's leadership, faculty, facilities, cooperative spirit and professional staff. They stated, "Overall, with good planning and continued support by administration, faculty, staff and industry, this Department will continue to be one of the best in the nation."

EPA AWARD FOR FOOD SCIENCE
POLLUTION PREVENTION

The Department of Food Science at North Carolina State University has been recognized with a certificate from the United States Environmental Protection Agency, for outstanding efforts in the field of Pollution Prevention. Dr. Roy E. Carawan in his role as Specialist in the North Carolina Cooperative Extension Service, developed the Pollution Prevention in Food Processing Program that received regional recognition in the Individual category of the EPA Administrator's Awards Program in the area of Education, Communication, and Technology Transfer. Cooperators in this program within the Department have included Drs. Carawan, Sheldon, Rushing, Pilkington and Green. Based on the concept that the best, most economical way to solve a problem of pollution is to prevent it, the PFPF Program is an innovative and highly successful approach to informing food processing plant management and personnel about pollution prevention. To accomplish this end, the Department and the Cooperative Extension Service have developed educational materials, such as fact sheets, computer programs, and audio-visual aids, to provide and illustrate practical, effective process and management changes to reduced the amount of pollution generated, increase production efficiency, and conserve water.

INCREASED AWARENESS OF FOOD SCIENCE NEEDED FOR UNDERGRADUATE RECRUITING

Comprehensive goals for the department adopted by the faculty in February included a need to continue to improve quality and increase numbers of graduates. An objective is to graduate 25 students at the B.S. level and 15 associate degree students annually by 1995. The efforts needed to achieve these numbers were evaluated during the last year by a Task Force on Undergraduate Recruiting.

A survey of incoming freshmen showed that many factors influence their decision to enroll in Food Science at NCSU. Of major importance was guidance from high school teachers and parents who were aware of the field of Food Science and NCSU's Food Science Department. Most of the incoming students have had direct contact with the department before enrolling.

The Task Force suggested that recruiting must increase the awareness of our department and profession for high school teachers and counselors, parents of potential undergraduates and the potential students themselves. While we cannot visit all high schools, we can reach many science teachers who can inform the top students in sciences about our program.

Current, professionally-made videos about Food Science are available both from IFT and our department. These can be used to introduce the field to teachers, students and parents. The Task Force recommends that these be followed with an offer of an in-school presentation to science classes by a faculty member. We need to utilize food science students, our graduates and other professionals to set up contacts with high schools across the state in order to raise awareness of food science. If you can help in this effort, please contact the department.
CENTERS

Southeast Dairy Foods Research Center

Todd R. Klaenhammer has accepted the position of Director of the Southeast Dairy Foods Research Center effective July 1, 1992. This change in leadership is undertaken in an effort to provide additional time and resources to the communication and research efforts in the Center and prepare the SDFRC for a 5 year renewal proposal to continue as one of the six national dairy centers in July, 1993.

The activities of the SDFRC were reviewed during the fall of 1991 by a team of university and dairy industry representatives selected by the National Dairy Promotion and Research Board, the principal sponsor of the Dairy Center. The review team commended the investigators in the center for the scientific merit and excellent quality of research, the high morale and teamwork. The objectives of the Center's proposal, such as the conduct of research to develop new and improved dairy products, obtaining support for multidisciplinary research programs, and attracting visiting scholars, are largely being met. Recommendations for the future were to strengthen efforts to communicate results of research to industry and producers, to coordinate projects with other dairy centers, to encourage the involvement of interdisciplinary approaches to research and develop research projects with more investigators that would contribute breadth and depth to the research effort.

Planning is underway to address the recommendations of the review in preparation for the proposed renewal of the Dairy Center's funding. Dr. Klaenhammer’s appointment as the new Center Director is part of that planning effort.

Center for Aseptic Packaging and Processing Studies (CAPPs)

George A. Rutledge joined the CAPPs staff as Senior Research Associate and Managing Director on April 1, 1992. He brings with him a wealth of packaging expertise and extensive experience in the food processing and packaging industries. One of his major responsibilities will be to recruit new members and work closely with industrial members and project managers in the area of technology transfer. Mr. Rutledge came to us from the Pollution Prevention Research Center here at NCSU.

Mr. Rutledge graduated with a B.S. degree in Industrial Engineering from the University of Wisconsin to become one of the first participants in Seagram’s Management Training Program. His work encompassed all areas of a major plant’s operation, with emphasis on production. He initiated operating procedures and installed mechanical systems to improve production.

Rutledge joined the new Packaging Division of Reynolds Metals Company in 1958 where he and his associates were the predominant proponents in the development of aluminum foil packaging. In 1964, Mr. Rutledge was selected to be the Corporate Manager, New Product Development for International Paper Company, where he utilized his experience and expertise to expand their base from wood products to plastics, non-woven fabrics, machinery, and medical supplies. The new business opportunities created a need for a modern research center where he was designated Director of Packaging Development. Mr. Rutledge was issued several patents on package construction and the machinery to manufacture them.

As a hobby Mr. Rutledge drives a modified Triumph Spitfire and is a licensed competition sports car driver. He and his wife, Betty, have two sons, one daughter-in-law, and two grandsons.

Food Processing Environmental Center (FPEC)

Roy Carawan and Brian Sheldon are leading planning efforts to develop the Food Processing Environmental Center. Increasing the ability of the United States to compete in the global economy and protect our environment are national concerns. New technologies need to be developed to combat pollution and conserve our natural resources without any further reduction in U.S. industrial productivity. Furthermore, emphasis on international trade will bring increasing demands for environmentally clean processing technologies.

There is a need to keep the food processing industry strong and growing in the face of environmental challenges. Rapidly expanding demands for water and growing concerns about water quality, pesticide and waste chemical residues, water management, and pollution prevention in food processing plants have put heavy demands on the resources of the food processing industry. Specific demands that face the food industry include the need for adequate supplies and quality of water to make safe, high-quality products, the issue of food packaging that constitutes 20% of municipal solid waste, post-consumer food wastes that constitute an additional 7% of landfill space, the utilization of food plants residues, and the high costs associated with current solutions to each of these problems.

These problems and concerns suggest that expanded efforts by the University on food processing environmental issues will be important to the public, the university, and food processors. These efforts, focusing on environmental issues, will include basic and applied research, education, and technology transfer.
FACULTY ACTIVITIES

Jonathan Allen and Allen Foegeding were invited to speak about the Southeast Dairy Foods Research Center at the Orange County Dairy Herd Improvement Association Annual Banquet in Hillsboro, NC. Dr. Foegeding explained the concept of expanding the market for milk through basic research on the functional properties of milk components for use as food ingredients. Dr. Allen then summarized some of the technologies and products being investigated at the SDFRC and other dairy centers.

Dr. Hershell Ball made presentations in April on emerging issues relating to egg technology at the International Symposium on Non-Conventional Egg Uses and Newly Emerging Processing Technologies in Banff, Alberta and at the Poultry Health Seminar in Roanoke, VA.

Leon Boyd has been promoted to Associate Professor with Tenure.

Roy E. Carraway was an honoree at the Governor’s Conservation Awards Program, receiving recognition as the 1991 Water Conservationist of the Year by Governor James G. Martin. The Conservation Awards Program is conducted by the North Carolina Wildlife Federation and the National Wildlife Federation. Roy spent February helping the Indonesia Second University Development Project. He was in Yogyakarta, Indonesia lecturing at the Gadja Mada University. Roy helped Dr. W. James Harper, Professor Emeritus from The Ohio State University in an intensive 3 week workshop. They trained food processors and university lecturers from throughout Indonesia in food processing water conservation, and pollution prevention efforts. Roy also gave guest lectures to various governmental officials and food processors about pollution prevention. While there, Roy visited several food processing plants.

Daniel E. Carroll, Jr. was awarded the prestigious William V. Creuss Award from IFT for excellence in teaching food science at the IFT Awards Ceremony in New Orleans.

Peggy Foegeding hosted Dr. G.S.A.B. Stewart from University of Nottingham, England, who visited and gave a seminar on “Shedding New Light on Microbiology.” Dr. Foegeding was elected Vice-President of the NCSU chapter of Sigma Xi for the 1992-93 academic year.

E. Allen Foegeding was invited to present a talk at the 6th Annual J.R. Brunner Protein Symposium on “The Effect of Cations on Rheological Properties of Whey Protein Gels.” He received a grant from the Southeastern Poultry and Egg Association for “The role of thermal preconditioning in improving broiler performance at elevated temperatures.”

Todd R. Klaenhammer presented the Plenary Lecture at the Australian Biotechnology Conferences in February. In addition, Todd presented an invitational lecture at the Center for Gene and Microbial Technologies at Oregon State University as part of their University Biotechnology Seminar Series in May. Klaenhammer has recently received a new NDPRB competitive research grant entitled “Molecular Characterization of a Lactobacillus adherence bridging protein.” The project will attempt to identify the factors responsible for adherence of Lactobacillus to intestinal epithelial cells. Expression of these components may facilitate the colonization of Lactobacillus in the intestinal tract of man, creating the next generation of health cultures used in dietary adjuncts and cultured dairy products.

Dr. Klaenhammer’s group presented 8 papers at the 1992 annual meeting of the American Dairy Science Association and one research paper at the American Society for Microbiology meetings in New Orleans.

Duane K. Larkin was elected Chairman-Elect of the CA/VA Section of IFT. His application for the USDA National Needs Fellowships has received funding for 1 Doctoral Fellowship.

Tyre Lanier received grants from the National Live Stock and Meat Board for “Citation Approach to Determining Bind Values for Least Cost Formulation”, from the Sea Grant Program (with Dr. Don Hamann) for “A Filled Gel Approach to Texturization and Fat Replacement in Minced Meats”, and from Oregon State University for “Modeling Quality Changes Which Occur in Frozen Storage of Seafood”.

Dr. Dwain M. Pilkinson conducted an “Introductory Meat Course” for employees in the red meat industry. The course gave an overview of meat processing from the live animal to retail products. Dr. Pilkinson also conducted a two day meat carcass evaluation educational program for county extension livestock agents to familiarize agents with subjective and objective methods used to estimate carcass value. He presented a paper at the Western North Carolina Public Health Association Nutrition Section annual meeting entitled “Red Meat - Changes in Fresh and Processed Products” and was co-chairman of the technical session on meat processing at the IFT Annual Meeting in New Orleans, LA. Pilkinson recently received a $4,000 grant from the NC Extension Agricultural Foundation for developing boneless country ham and marinated roast and a $4,000.00 gift from Roche Vitamins and Fine Chemicals for his extension program involving the effect of Vitamin E in swine rations on meat quality.

Steve Schwartz received several new grants: “Reaction Chemistry of High Temperature Short Time Processing Under Aseptic Conditions” - funded by CAPPS: “Protovitamin A Carotenoids in Guatemalan Plants” - funded by the International Eye Foundation, Washington, D.C. N. Lieh Pusptasari-Nienaber, a visiting scholar from Bogor Agricultural University, Indonesia will be in Schwartz’s lab this summer conducting research on pro-vitamin A carotenoids. Dr. Schwartz spent two weeks in Taiwan at the Food Industry Research and Development Institute in Hsinchu giving seminars and investigating possibilities for a cooperative project with CAPPS.

Brian W. Sheldon was awarded a N.C. Agriculture Foundation Assistantship and a grant through the North Carolina Poultry Federation for $4,400 on “Development of Nisin Based Treatments to Control Poultry Foodborne Pathogens and
Spoilage Microorganisms." He was appointed Research Coordinator for the Department in January.

Harold E. Swaisgood was an invited speaker (one of three) for the Symposium on "Genetic Perspectives on Milk Proteins: Comparative Studies and Nomenclature" at the American Dairy Science Association Annual Meeting. He was elected to a three-year term to the ADSA Board of Directors. Dr. Swaisgood was elected as the departmental representative to the newly formed CALS Research Committee.

Alleen and Fred R. Tarver, Jr. (Professor Emeritus) gave four weeks of volunteer service to the Poultry Association of Cochabamba, Bolivia in the fall of 1991 (October and November). This activity was made possible by a request issued by Volunteers in Overseas Cooperative Assistance, Washington, D.C. The trip was granted through their Farmer to Farmer Program. They consulted with the Cochabamba Poultry Association membership and individual members. Their program included evaluating existing chicken processing activities, recommending adjustments to chicken meat product formulas and manufacturing procedures, participating in and giving lectures on product processes, sanitation, packaging, etc., presenting demonstrations on cutting and chicken meat utilization and giving media interviews. Visits and tours were made to area production facilities. They appreciated the opportunity to assist and find the visit interesting, challenging and stimulating.


STUDENT, STAFF AND ALUMNI NEWS

Beth Turner was honored for 25 years of service to NCSU at the 18th Annual Employee Recognition Luncheon on May 28.

Ms. Gwen Allison is a new Ph.D. student coming from the University of Alberta, Edmonton. Gwen was the IFT undergraduate research winner in 1991, and has been awarded a number of outstanding student honors from Canada. She will be working in the area of bacteriocin expression and regulation in Lactobacillus upon joining Dr. Klaenhammer's group in August.

Monica Seagroves, B.S. (1992) is beginning a M.S. program here in August, working on a project in Dr. Allen's lab sponsored by the N.C. Dairy Foundation.

Peifang Zhang and Dr. Shanthini Jayarajah from Dr. Allen's lab each presented work on mineral interactions with milk components sponsored by the Southeast Dairy Foods Research Center at the ADSA meeting in Columbus. Peifang and husband Zhe He had their first child, a girl named "Angela Run He" on March 6, 1991. Angela, who was born 6 weeks prematurely, weighed in at 4 lbs 3 oz.

Jim Heina, Research Assistant for Dr. Hansen, is joining the M.S. program in Information/Library Science at UNC beginning Fall Semester 1992. He has been awarded a fellowship from the American Chemical Society Division of Chemical Information.

Meghan Francis, (BSFS 1992), is working as a research assistant with Dr. Steve Schwartz conducting a project on carotenoids in infant formula.

Christine Averdung became Mrs. Jerome P. Lavelle on May 30, 1992. The couple met in May of 1990 playing on the intramural Food Science softball team.

Dr. Colin Hill and his wife, Dymphna have had their 3rd baby, a boy named "Darage". This baby was born after their return to Ireland. Congratulations to the Hill family!

Dr. Larry Steenson has taken a new job at Raskas Foods in St. Louis, MO, as their Director of Microbiology Research. Congratulations! Perhaps the Department can now look forward to some more industrial support from the greater Midwest.

George and Teresa Spanos had a new baby boy, June 5, 1992. His name is Andrew and he weighed over 8 lbs. We wish him a happy, healthy, long life.

Dexter McClain Jr., son of Kimberly Diane McClain, underwent surgery in March and again August 6. Kim would like to thank the department for their thoughts and prayers while her son was in the hospital.

Dennis A. Romero was awarded the Kenneth R. Keller Award in 1992 for the outstanding Ph.D. dissertation in the College of Agriculture and Life Sciences at NC State University. Dennis' degree was awarded in the Department of Microbiology, but his research was conducted in the Department of Food Science within the Southeast Dairy Foods Research Center. The title of his Ph.D. dissertation was "Lactococcal Insertion sequence IS946: isolation, characterization, and development as an experimental tool". Dr. Romero's work on IS946 elements in Lactococcus was recognized as a pioneering illustration of how native transposition elements can be used to develop genetic tools in bacteria that are of enormous significance to the food bioprocessing and preservation industries.

Dennis Romero also received the Richard M. Hoyt Award from the American Dairy Science Association at their annual meeting at Ohio State University in June. This national research award is given to the outstanding Ph.D. dissertation in dairy science conducted over the previous year. Dennis is the second Ph.D. student from Dr. Klaenhammer's group to be awarded this graduate recognition by the ADSA. Dennis is currently a research scientist with Promega Corporation in Madison, Wisconsin. Congratulations Dennis!

Ms. Jennifer Quinlan, Ph.D. student with Dr. Peggy Foegeding has received an American Society for Microbiology Presidential Award to visit the laboratory of Professor Michael Johnson, University of Arkansas, July 19-Aug. 1, 1992, to learn techniques for characterization of monoclonal antibodies.

Mr. Allen Thomas (M.S. 1990) now is employed as a Research Microbiologist at the Institute for Microbiology Research in Franklin, TN.