NORTH CAROLINA
STATE UNIVERSITY

# Food Science News

Volume 23, No. 2 Summer 1995

## DEPARTMENTAL VISION SYMPOSIUM

On Monday, May 22, 1995, the Food Science department at NCSU held a Departmental Vision Symposium. Participants included faculty, staff, and graduate students. The program began with an overview of the early years of the department presented by Dr. Bill Roberts, head of the department from its founding in 1961 to his retirement in 1980, and Dr. Marvin Speck, Professor Emeritus. Dr. George Catignani reviewed the current departmental mission, and this was followed by a panel discussion of trends and directions for the future. Dr. Jim Oblinger, CALS Director of Academic Programs, summarized academic trends which included increased cooperation between departments, and a movement of extension and research into the classroom. Dr. Brian Sheldon cited decreasing state and federal funds as a considerable concern for the future of research programs, and stressed the potential for more contract work with industry and increased collaboration among investigators. Dr. Pat Curtis stressed technical literacy and the need to provide "distance" learning as future challenges for extension faculty. Dr. Brian Farkas provided the new faculty perspective by recommending a solid departmental foundation for recruitment, guidance, and support of new faculty members over the next 10 years. Overall general trends included a move toward regionalization of Food Science departments among adjacent states, an emphasis on performance-based budgeting, and a "seamless" interaction between teaching, research, and extension over the next 20-25 years. The symposium closed by concluding that the strengths of the Food Science Department at NCSU have relied on a strong national image, including key individuals with expertise in defined areas. Our future lies in maintaining our unique identity in these changing times, and continuing to provide a strong program of service to the people and industry of North Carolina.

## IAC-AGRIBUSINESS JOINT MEETING

More than one-hundred fifty agricultural industry leaders, food scientists, engineers, and students met on April 10 at the North Raleigh Hilton for a joint meeting of the NC Agribusiness Council and the NCSU Food Science Department Industry Advisory Council. The discussion centered on how to take advantage of food technology and marketing opportunities throughout the world into the next century. Michael J. Dwyer, chief of trade and marketing analysis for USDA's Foreign Trade Service, was the feature speaker. Other speakers included Dennis Heldman, unit leader for six food and engineering related programs at the University of Missouri, and Nancy Stallings, executive director of the Global TransPark Foundation in Kinston, NC. The meeting was co-chaired by Dr. Paul E. Dew and Dr. Kenneth R. Swartzel. Students from NCSU and NCA&T food science programs presented posters aimed at the connection between current research projects and the needs of the food industry.

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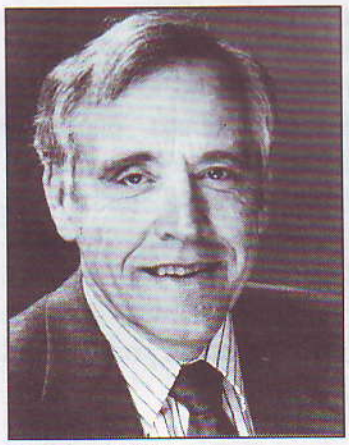
## ENDOWMENT ESTABLISHED

Dr. Ivan D. and Mrs. Lillian T. Jones have established a food science scholarship endowment through the North Carolina Agricultural Foundation. The endowment was established in an effort to afford outstanding and deserving students the opportunity to attend NCSU and the Department of Food Science. Dr. Ivan Jones, a fruit and vegetable chemistry professor, researcher, teacher, and extension specialist, retired from the department in 1970. He pioneered investigations in fruit and vegetable processing, and authored over fifty research publications. He was a charter member of the Institute of Food Technologists (IFT), a founding member and first chairperson of the Carolina-Virginia IFT, and he was the recipient of the first John H. Nair Distinguished Service Award. His wife, Mrs. Lillian Jones passed away on May 9, 1995. She had served for nineteen years as Head of the Home Economics Department at Peace College in Raleigh, and was the first woman to earn a Masters Degree from the School of Textiles at North Carolina State University.

## IFT MEETING



Dr. Donald Hamann

The annual meeting of the Institute of Food Technologists, held June 3-7 in Anaheim, California was well attended by our department. Dr. Donald Hamann was named a Fellow for his work in gel rheology and the development of the torsion gelometer. The torsion gelometer, an instrument widely used in both academia and industry, measures fundamental properties of food gels. Dr. Hamann was one of ten to be honored for their outstanding contributions to IFT and the field of food science and technology. The NCSU Food Science Club was awarded second place winner in the chapter of the year competition. Karina Sylvia, past-president of the Food Science Club, was honored with a special award for her outstanding efforts for the "Betterment of the Food Science Club and its Membership". Wendy Disario placed second in the poster competition in the Fruit & Vegetable Products Division, and Ellen Ciplinski was awarded third place in the Dairy Division for her oral presentation. Kay McNeill placed fourth in the Sensory Evaluation Division. John Soehnlen and Jay Schumann were finalists in their divisions: cheese whey starter technology, and antimicrobial agents, respectively.

## FS CLUB ELECTS OFFICERS

Kay McNeill was elected Food Science Club President for 1995-96. Other officers are: Carla Shook, Vice President; Keith Harris, Secretary; Greg Herndon, Treasurer. The Activities Chairpersons are Melissa Taylor and Lori Divoric. Alissa Dix will serve as Historian, and the Ag. Council Representatives will be Heath Lafevers and Sherrie Thomas. Faculty advisors are Drs. Brian Farkas and Lynn Turner.

## FOOD SCIENCE AWARDS CEREMONY

The twenty-ninth annual awards ceremony to recognize recipients of scholarships and awards in the Food Science Department was held on March 30, 1995. This year's program differed from the traditional evening banquet at a local restaurant or the Faculty Club. Instead, late afternoon hors d'oeuvres were served in the lobby of Schaub Hall, followed by the awards ceremony in our newly remodeled and upgraded lecture hall. The program concluded with dessert and socializing in the Schaub lobby.

Undergraduate students receiving Food Science Department scholarships were: Corey Adams, from Wilmington (NC); Melissa Modrell, Matthews; J. Wesley Underwood, Stedman; Regan Summerlin, Raleigh; Abby Schmidt, E. Lansing, MI; Holly Hendricks, Mocksville; Carla Shook, Conover; Paige Jordan, Concord; Cheryl Gaither, Raleigh; Luis Paiz, Guatemala; Brian Sauls, Angier; Ronald Seeley, Raleigh; Tiffany Ashburn, Raleigh; Heather Hollis, Raleigh; David Eagle,

Gold Hill; Chris Pernell, Cary; Dana Baldwin, Raleigh; Alina Lopez, Peru; Craig Sherwin, Raleigh; Jon Bird, Smithfield; Christopher Whitley, Mt. Olive; Brenda Waite, Raleigh; Wendy Jackson, Raleigh; Hillary Hunt, Raleigh; Angela Poland, Lebanon, NH; Patricia Barrientos, El Salvador; April Hix, Turnersburg; Tiffany Fox, Charlotte; Amanda Farnham, Wilmington; Harry Chance, Parkton; Crystal Burris, China Grove; Thomas Harvell, Salisbury; Sonya Mims, Raleigh; Valerie Spicer, Raleigh; Randall Lee, Greensboro; Buffy Beard, Vale; Judy Bridges, Fuquay Varina; Lela Thornton, Newton Grove; Thomas Harvell, Salisbury; and Lori Dovoric, Oradell, NJ. Approximately $25,000 are awarded annually in scholarships for students in the Food Science Department based on academic merit and financial need.

Undergraduate students receiving CALS scholarships were: Judy Bridges, Tim Pittman, Sehr Jangda, Brenda Waite, Michael Barnett, Thomas Harvell, Lela Thornton, Wanda Harvey, Eric Williamson, Angela Britt and Wendy Jackson.

Graduate students were recognized for the following scholarships and awards: NCSU Outstanding Teaching Assistants, Susan Heddleson, Rebecca Guzy; GAAN Biotechnology Fellowships, Alissa Dix, Shirley Walker; V. A. Jones Graduate Fellowship, Stephen Sylvia; National Science & Eng. Res. Council of Canada Scholarship, Gwen Allison; West Raleigh Rotary Scholarship, Gordana Djordjevic; Withycombe Fellowship in Food Chemistry, Alison Errington; and Gen. Mills & Gerber Grad. Scholarships, Heidi Bardole.

IFT Graduate Fellowships were received by Polly Dinsmore, Darrell Taylor and Alison Errington. IFT undergraduate scholarships went to Cheryl Gaither, Craig Sherwin, Hillary Hunt, Brenda Waite and Wendy Jackson.

Recipients of special departmental awards were: Forbes Leadership Award, Brenda Waite; Crouch Scholarship Achievement Award, Chris Pernell; B. M. Newell Award, Hillary Hunt; and Ambrosia Chocolate Award, Cheryl Gaither.

The Food Science Club also recognized the Outstanding Undergraduate member - Cheryl Gaither, the Outstanding Graduate member Wendy Disario, and the Outstanding Food Science Teaching Award- Dr. Lynn Turner. Hillary Hunt and Carla Shook expressed appreciation to the donors on behalf of the entire department. The awards ceremony is hosted and sponsored each year by the Food Science Club as a service to the department and to club members.

## LEVEILLE GIVES JAMES LECTURE

The twenty-first annual H. Brooks James Memorial Lecture was given by Gilbert A. Leveille, Ph.D., Vice President for Research and Technical Services, Nabisco Foods Group. The title of Dr. Leveille's talk was *"Role of the Food Industry in Providing Sound Nutrition: The Snackwell Phenomenon and Other Low-fat Products"*. During the talk he described the development and testing of a reduced calorie fat replacer developed at Nabisco recently. Dr. Leveille is uniquely qualified to provide an industry perspective on the topics of reducing the fat content of the diets of Americans and the increase in industry - university cooperation. He has been a leading nutritionist in both academic and industry positions. As a member of the Industry Advisory Council for the Food Science Department, Dr. Leveille has been a strong supporter of many programs at NCSU. The H. Brooks James Lecture series was established in 1974 by the Institute of Nutrition of the University of North Carolina to honor Dr. H. Brooks James, former Dean of the School of Agriculture and Life Sciences, and Vice President for Research and Public Service Programs of UNC-General Administration.

## SPRING COMMENCEMENT

University Commencement exercises were held Sat., May 13 at Carter-Finley Stadium. E. Gordon Gee, President of The Ohio State University, delivered the commencement address. Following the university program, the department honored its graduates with a program and reception in Schaub Hall. The following students earned degrees from the department. M.S. Degree: Gordon Adelsberg, Andrew Butler and Gregory Gilleland; B.S. Degree: Michael Barnett, Crystal Burris, Tiffany Fox, Cheryl Gaither, Hillary Hunt, Wendy Jackson, Charles Lamm, William Riddick III, Melissa Taylor,

*Graduation, B.S. Degree continued...*

Brenda Waite, and Brent Walker, Associate Degree: Judy Bridges, Angela Britt, David Eagle, Thomas Harvell, Michael Kennedy, and Smith Peeler.

## CVDPA HONORS RUSHING

Dr. John E. Rushing was named recipient of the 1995 Distinguished Service Award by the Carolina/Virginia Dairy Products Association (CVDPA). The announcement was made at the association's awards banquet on Friday, March 31, at the Myrtle Beach Hilton. The awards presentation was held in conjunction with the Tri-State Dairy Convention sponsored by CVDPA and the South Carolina Dairy Association. Grant Smith, CVDPA president, presented the tribute before an audience of 250 dairy industry members by saying "John Rushing has been a leader and an example for the entire dairy industry. He keeps association members abreast of pertinent changes and new developments which may affect the industry." Dr. Rushing is a key player in the NC Dairy Tech Program, which provides information to processors and quality control personnel. He conducts seminars and training courses to educate industry members on topics such as pasteurizers, quality control, and C.I.P. operations. He recently presented a closed-circuit television program for North Carolina dairy plant employees on production and plant operations.

## KLAENHAMMER HONORED

At the April meeting of Gamma Sigma Delta, Dr. Todd R. Klaenhammer was awarded the "Certificate of Merit". It is the highest honor given by the NCSU chapter, and recognizes distinguished service and scientific contributions to agriculture. Dr. Klaenhammer's research contributions in food and dairy microbiology have been widely recognized nationally and internationally by awards from the American Dairy Science Association, the American Cultured Dairy Products Institute, the Institute of Food Technologists, and Sigma Xi. He was recognized by the NC-Virginia Chapter of the National Agriculture Marketing Association with the Chapter Award for Agricultural Excellence. In 1992, he was named a William Neal Reynolds Professor in the Departments of Food Science and Microbiology, and in 1993 was named a Distinguished Professor of Graduate Teaching by the NCSU Alumni Association. In addition to his research and teaching activities, Dr. Klaenhammer is the director of the Southeast Dairy Foods Research Center at North Carolina State University.

## SWARTZEL RECEIVES AWARD

Dr. Kenneth Swartzel received an Award for Agricultural Excellence from Rhone-Poulenc Ag Co. The award was presented at the annual meeting of the CA/Virginia chapter of the National AgriMarketing Association. He was honored for his leadership in developing the pasteurization and aseptic packaging for extended shelf-life liquid egg.

## FACULTY INSTRUCTS McDONALDS IN FOOD SAFETY

Food safety is an important issue to McDonald's Restaurants, and the company has been providing its operators and managers with a HACCP-based training program. The program they are using is ServSafe which was developed by the Educational Foundation of the National Restaurant Association. The regional office, headquartered in Raleigh, requested assistance from the department's extension faculty in providing training to all operators and managers in North Carolina. Ten two-day programs have been scheduled at various locations around the state and, to date, half have been conducted. North Carolina is thought to be the only region working with outside professionals.

**Food Science News** is produced in the NCSU Department of Food Science for alumni, friends, faculty, students and others interested in departmental activities. Comments, personal and professional updates from alumni, and address corrections/additions/deletions should be sent to: J.C. Allen, Editor, Food Science News, 218 Schaub Hall, Box 7624, North Carolina State University, Raleigh, NC 27695-7624.

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## CAPPS NEWS

The spring CAPPS Industry Advisory Board meeting was held April 24-25 at the Microelectronics Center of North Carolina in Research Triangle Park. At the informal reception and poster session Monday evening, Khalid Abdelrahim, Diego Darquea, Wendy Disario, Deanna Nuszkowski, Jay Schuman, Josip Simunovic, and Ed Smith presented posters on various aspects of aseptic processing and packaging.

The following proposals from our department were funded by CAPPS: 1) Determination of the causes of seal failures other than optimum time-temperature pressure distributions, Dr. Brian Farkas and George Rutledge. 2) Experimental evaluation of secondary flows in helical heat exchanges for aseptic processing of liquid & particulates, Drs. Swartzel and Abdelrahim (6 mo. extension). 3) Measurement of particle residence time in multi-phase aseptic processing systems using digital video and image analysis, Drs. Swartzel and Simunovic (7 mo. extension).

Dr. Steve Schwartz, CAPPS Site Director, left on June 21 for a trip to Manila, Philippines where he met with the Asian Development Bank to discuss the ADB-APEC partnership proposal. While in the Pacific region, he stopped in Hong Kong to visit the Asian branch of International Paper Company, which is a member of CAPPS. Dr. Barry Yang, who received his Ph.D. from this department, invited Dr. Schwartz to visit the Food Industry Research and Development Institute in Taiwan while he was in the area. The last stop on Dr. Schwartz's trip was at the Agricultural Engineering University in Beijing, China, to discuss funding opportunities. He returned July 5.

## NC SEAFOOD LAB NEWS

Summer brought with it a flurry of student activity for the Seafood Laboratory personnel in Morehead City. **Mario Ferruzzi**, who worked at the laboratory last summer, has returned to conduct computer application studies in the development of process monitoring and control programs for industry. Mario, a rising senior at Duke University, is majoring in biochemistry. **Randy Lee**, a NCSU Food Science senior, is working as a research assistant with the Seafood Laboratory under a FS External Learning Experience. He is working on a National Fisheries Institute sponsored project entitled "A HACCP Study of Time and Temperature Abuse in Batter Operations". In July, high school students participating an NCA&T School of Agriculture Research Apprenticeship Program visited the Seafood Lab as part of their tour of North Carolina's coastal science facilities and seafood processing operations.

## USDA-ARS FOOD SCIENCE GROUP

Dr. Henry Fleming has been appointed Location Coordinator of the USDA ARS Programs and Activities in Raleigh. Dr. Fleming's duties include personnel management, budget matters, press releases, working arrangements between ARS and NCSU, as well as coordination with the ARS Area Director in Athens, GA.

The Spring Meeting of Pickle Packers International, Inc., was held at the Marriott Crabtree Hotel in Raleigh. Dr. Fleming helped organize the meeting which was attended by about 115 people from the pickle industry throughout the U.S. and other parts of the world. Drs. Fred Breidt, Roger McFeeters and Henry Fleming of the Food Science Department spoke at the meeting, as did numerous other NCSU scientists. The exceptionally high professional level of the meeting was enhanced by the creative talents of Ms. Dean Toler, who designed the brochure, and compiled the 39 abstracts of talks and posters.

The Acidified Foods GMP School was sponsored by the NCSU Food Science Department, in cooperation with the USDA-ARS Food Fermentation Laboratory, April 10-12. Seventy people throughout the U.S. and Canada attended. Dr. John Rushing organized the school, and he, Mr. George Rutledge, Dr. Henry Fleming, and Dr. Roger McFeeters helped teach the course.

## YOUTH SUMMER PROGRAM

A Food Quality and Safety Symposium sponsored by the NC Cooperative Extension 4-H, and NCSU Home Economics Foods & Nutrition Department was conducted June 11-16. Nineteen high school seniors participated in the one-week program designed to increase student awareness of food science career opportunities. Among the attendees was Craig Allen of Cary whose fellowship was sponsored by the NCSU Seafood Lab. Also participating were Carleen Lewis and Patricia Ann Reese of Beaufort who were sponsored by Washington Crab Company and NC Fisheries Association, respectively. Dr. Lynn Turner coordinated departmental activities, which included presentations by David Green, Michele Keziah, Brian Farkas, Dwain Pilkington, Tom Morrison and Den Van Troung. Topics included subjective and objective methods of texture analysis, quality pork production, seafood quality, and the influence of freezing procedures on food quality. Students enjoyed tours of Webb Technical Group's lab, led by Marjie Webb and Goodmark Foods, led by Art Defeo.

## FACULTY ACTIVITIES

**Dr. Jonathan Allen** presented a talk titled *"Modulation of Allerginicity of Proteins"* at the Brunner Protein Symposium, Michigan State University in May. Dr. Allen also received the first Food Allergy Award for Food Scientists from the International Life Sciences Allergy and Immunology Institute. The three-year $75,000. award will support research on methods to test allergenicity of new food products.

An equipment grant proposal to purchase a thermal stage for the image analysis system was written by **Dr. Brian Farkas**, as P..I., with **Drs. Allen Foegeding, Peggy Foegeding, Don Hamann,** and **Brian Sheldon** as contributors, and has been approved and funded for $5,217.00.

**Drs. Allen Foegeding, Tyre Lanier** and **Donald Hamann** conducted a short course titled *"Rheology of Food Biopolymer Gels: A Practical Approach"*, at the North Carolina Biotech Center in Research Triangle Park, N.C. , May 17 through May 19. The course was well attended by those from both industry and academia.

**Dr. Allen Foegeding** gave an invited talk at Davisco International Inc. titled *"Functional Properties of Whey Proteins"*.

**Drs. Peggy and Allen Foegeding** are spending a sabbatical year at the New Zealand Dairy Research Institute in Palmerston North, NZ. Their appointments are Aug. 1, 1995 - Aug. 1, 1996.

**Dr. Arthur Hansen** has taught FS 403, FS 324, FS 699 and ANS 324 this spring semester 1995. He has received two grants: one from International Paper, titled *"The Effect of Various Dairy Packaging Materials on the Shelf Life & Flavor of UltraPast Milk"*, in the amount of $45,181. **Drs. Hansen, Swaisgood** and **Allen** were awarded a grant from the Southeast Dairy Foods Research Center titled *"Applications for Purified Whey Protein Fractions Derived From Bioselective Adsorption Affinity Chromatography"* for $47,900. Dr. Hansen was invited to Combibloc to present a seminar on the effect of UHT processing on the chemical and physical properties of coffee cream. He also presented two papers at the 90th American Dairy Science Association meeting at Cornell University in June. Dr. Hansen has been invited to speak at the John E. Kinsella Memorial Symposium on Food Proteins and lipids which will be held in Chicago, August 22 and 23.

**Dr. John Rushing** was honored by the Pickle Packers International at its Spring Meeting held in Raleigh. He was cited for his work with the Pickle Industry's *Good Manufacturing Practice School.*

**Dr. Brian Sheldon** was invited, by Hoechst Celanese Corp. in Charlotte, to speak on *"Biocontrols to Inhibit Foodborne Pathogens"*, in January. He presented an overview of the Food Science Department's research program to Provost Stiles during his visit to the department in February, and presented visions of the research

program for the year 2005 at the 1995 Annual Department Retreat. Dr. Sheldon presented a talk titled *"Applications of Nisin-Based Treatments to Control Gram-Negative Foodborne Pathogens in Muscle Food Products"* at the International Workshop entitled *"Bacteriocins of Lactic Acid Bacteria - Applications and Fundamentals"* which was held April 17-23 in Banff, Alberta, Canada. A North Carolina Dairy Foundation Assistantship proposal prepared by Dr. Sheldon and Dr. Peggy Foegeding entitled *"Altering Thermal Resistance of Microorganisms in UHT Fluid Milk Supplemented with Nisin"* has been approved.

**Dr. Harold Swaisgood** combined business with pleasure when he and his wife, Janet, traveled to Spain in May. They visited with **Dr. Javier Fontecha** at the Instituto del Frio, Ciudad Universitaria, in Madrid where Dr. Swaisgood presented two seminars: *"Preparation of protein domains & some of their functional properties"* and *"Preparation of enzyme bioreactors by bioselective adsorption"*. Dr. Swaisgood also spoke on the *"Preparation and functionality of protein domains"* at the 9th Brunner Protein Symposium held at Michigan State University on May 15. *"The proteins of whey"* was the title of a talk he gave at the symposim entitled *"Whey Protein- A Functional and Nutritional Food Ingredient"* at the IFT Annual Meeting on June 4 in Anaheim, CA.

**Dr. Donn Ward** participated in the CSREES Review of Oregon State University's Department of Food Science in April. Recent presentations of his include: *"HACCP Programs for Processing Cultured Fish"*, World Aquaculture Society Conference, San Diego, CA; *"HACCP Training for the Seafood Industry"*, National Center for Food Safety and technology Symposium, Chicago, IL; *"Future Needs of the Food Processing Industry and How Extension Can Meet These Needs"*, IFT Annual Meeting, Anaheim, CA.

Professor emeritus, **Dr. Frank Thomas**, and **Ms. Rachael Kinlaw** were married on June 24 at the Edenton Street United Methodist Church.

**Dr. Clyde Young** was presented the Coyt T. Wilson Distinguished Service Award for service to the American Peanut Research and Education Society, Inc.

## ALUMNI, STAFF & STUDENTS

**Mack Henderson** has joined the staff as a Research Technician, and will be dividing his efforts between the labs of Dr. Jon Allan, and Dr. Lee-Ann Jaykus. He will serve as a resource person in the area of cell culture, and other biological assays.

A master's student, two undergraduate students, and a senior high school student are working with **Dr. Leon Boyd** this summer. **Nikki Drye** is a NCSU biochemistry major from Fayetteville, NC. **Teneia Wooden**, a senior biology major at Elizabeth State University is a summer intern through the USDA Challenge Grant Program who plans to attend graduate school in the area of immunology. **Angela Johnson,** a senior food science & biochemistry major at NCSU, is doing a summer internship, and is looking forward to a second internship in the Dominican Republic with a food company. **Benita Howard** is employed as part of the NIH high school apprentice program. She is an honor student at Apex High School and plans to major in pharmacy following graduation.

**Dr. T Ming Chu**, an alumni of the NCSU Department of Food Science, has been honored with the CALS Distinguished Alumni Award.

**Karl Hedrick III,** Food Science Department Dairy Plant Manager, and **Joy (Petunia) Mitchell** were married Saturday, June 24.

**Ok-Jin Park**, a Ph.D. student working with Dr. Jon Allen, and **Kyungjin Min**, an electrical engineering student at NCSU were married June 3.

**Joyce Taylor** of the Morehead Seafood Lab was featured in the June issue of *Wildlife in North Carolina*. Joyce's work as NC Sea Grant's seafood education specialist was discussed in an impressive article entitled "Guru of Seafood".