



Center of Excellence for Poultry Science University of Arkansas Division of Agriculture

Winter 1997

EXTENSION EFFORTS EMERGING FOR CENTER

By **Dr. James Denton, Director**

Center of Excellence for Poultry Science

The Extension Education Program in the Center of Excellence for Poultry Science (CEPS) has the potential to provide a broad range of educational opportunities throughout the poultry industry. During the past three years, four faculty members have joined the Center of Excellence with expertise in poultry processing and HACCP (**Dr. John Marcy**), poultry health (**Dr. Dustan Clark**), poultry production and management (**Dr. Susan Watkins**) and poultry and environmental policy (**Dr. Wes Jamison**). An additional faculty member will join the program in July 1997; **Dr. Frank Jones** has the responsibility of serving as Section Leader for the poultry science extension program in the Center and will be providing program support in production and processing education.

The CEPS extension efforts are beginning to emerge for multiple areas which are important to the poultry industry. These topics include disease recognition and diagnosis, biosecurity and sanitation, and prevention of AI and other exotic diseases. A strong program for education of poultry processing personnel is being developed in the areas of good manufacturing practices (GMPs), sanitation standard operating procedures (SSOPs) and Hazard Analysis Critical Control Point (HACCP). An education initiative which will address human relations training is also under development. All of these initiatives have been developed with input from the Arkansas Poultry Federation.

Extension education initiatives have also been identified and are being implemented for poultry industry

personnel in southern, northeast and southwest Arkansas. The primary focuses in these efforts are production management and poultry health issues. Much of this education effort is being conducted with both the Center faculty and the veterinary resident associated with the poultry health program.

The first years of the emerging CEPS program have focused on facilities construction, equipment acquisition, new faculty recruitment, student recruitment and developing research capabilities. As our program begins to mature and our identity becomes more clear, the contributions of our Extension faculty will become more focused. Everyone in the Center of Excellence will continue to work at providing the highest quality education for our industry.

UA RECEIVES 1996 UNIVERSITY TO PRIVATE INDUSTRY AWARD

The University of Arkansas received the 1996 University to Private Industry Award at the annual awards celebration of the Arkansas Technology Transfer Society in Little Rock.

The University of Arkansas received the award for its viral neutralizing factor (VNF) technology developed by researchers from the poultry science department and the biochemistry department. **Craig Whithill**, former research associate; **John Thoma**, professor of biochemistry; and **N.R. Gyles**, professor emeritus of poultry science, developed the VNF technology used by Embrex, Inc., based at Research Triangle Park, N.C., to develop a vaccine for an infectious bursal disease of poultry known as gumboro.

Gumboro weakens a chicken's immune system and eventually kills the chicken. The vaccine, called BDA Blen, is expected to save the poultry industry millions of dollars by protecting against gumboro and eliminating the need for multiple vaccinations of mild and intermediate vaccines.

Dr. Charles Scifres, dean of the Dale Bumpers College of Agricultural, Food and Life Sciences, said, "The Technology Transfer Award is one more indicator that the research work of dedicated faculty members is successfully solving real-world problems with economic development implications for the state of Arkansas. We are proud of the recognition but are most proud of the advancements it represents."

In 1988 the VNF technology was licensed to Embrex, Inc. In 1995 alone, Embrex, Inc. paid \$24,000 in royalties to the University of Arkansas and the inventors of the technology.

The Arkansas Technology Transfer Society, a chapter of the national Technology Transfer Society, is an association of professionals who move technology from its conception to commercialization. Members of the society are from private industry, academia and federal, state and local governments.

BARNES HONORED WITH PRESIDENTIAL AWARD

Dr. David M. Barnes, a nutritional biochemist with the Department of Poultry Science at the University of Arkansas, received a Presidential Early Career Award for Scientists and Engineers at a ceremony in Washington, D.C. on December 16.

The Presidential Award, the highest honor bestowed by the U.S. government on beginning scientists and engineers, is intended to recognize those who exhibit exceptional potential at the outset of their independent research careers.

The Environmental Protection Agency (EPA) selected Barnes from the most meritorious investigators funded through a new program to provide research grants for promising young scientists.

Barnes received a grant of \$516,371 over five years from the EPA to study the impact of environmental contaminants - natural and man-made - on agriculture. He works primarily at the cellular level and then applies that knowledge to animal production and eventually to the benefit of humans. Research is done on cell cultures such as chicken immune cells, rat fat cells, and rat or mouse muscle cells, which are important and relevant models for studying the effects of minerals on an entire organism.

Dr. James Denton, director of the Center of Excellence for Poultry Science and poultry science department head, said, "I think this is a phenomenal tribute to the capabilities of Dr. Barnes in receiving this type of recognition at this stage of his career. Being recognized for the type of contribution that Dr. Barnes will make to the poultry industry and to the status of the Poultry Center, Dale Bumpers College of Agricultural Food and Life Sciences and the University of Arkansas is something of which we can all be proud."

INTERNATIONAL VISITORS TO THE CENTER OF EXCELLENCE FOR POULTRY SCIENCE

- * Six visitors from Slovakia were sponsored by H. L. Goodwin, AFSPA Slovak Ministry of Agriculture.
- * The U.S. Feed Grains Council sponsored a tour for guests from Korea.
- * Ivens Gomes Guimaraes, of the Campus Universitarias Perobal, Brazil, was sponsored by Rex Johns BIOMUNE.
- * Dr. Nagi Goher, Dean of Agriculture Faculty at the University of Cairo, Egypt, toured the poultry science facilities.
- * Visitors from Germany, toured the Center of Excellence and other poultry science facilities.

* Nine people from Mexico were led by Kirk Krusekopf, Texas A&M FSIS Training Center.

* Dr. Nick Sparks of the Scottish Agricultural College, Edinburgh, was a , the Department of Poultry Science.

4-H'ers RECEIVE POULTRY LESSONS

Local 4-H Club members recently took part in an introductory course on poultry health practices and a hands-on workshop on biosecurity conducted by the Washington County Cooperative Extension Service at the University of Arkansas.

Dr. Dustan Clark, Extension poultry veterinarian, presented an overview of disease recognition and prevention in commercial, show or hobby flocks and answered questions from those in attendance at the Center of Excellence for Poultry Science.

In a biosecurity field exercise at the UA broiler houses near Savoy, participants were instructed on the biologically safe entry and exit of poultry production facilities to avoid the spread of disease in poultry. They also took part in a mock biosecurity exercise by dressing in bio-safe clothing and touring the broiler houses.

The poultry health and biosecurity seminar was made possible by a Mallinckrodt Workforce Readiness for Youth Grant for Veterinary Science, which was also the stimulus for the Washington County Cooperative Extension home page and past animal health seminars. Through presentations by animal care professionals, participants have been able to gain an understanding of the animal health business.

Project coordinators have been **Noel** and **Janice Neighbor**, of the Land O-Goshen 4-H Club, and may be contacted through the County Extension Service by anyone wishing to offer assistance in the continuation of the veterinary education project.

FIVE HACCP WORKSHOPS SCHEDULED AT CENTER

The Center of Excellence, in cooperation with the Arkansas Poultry Federation, the Food Safety Consortium and ECOLAB Food and Beverage Division, conducted two SOP/GMP/HACCP workshops during the fall of 1996 and have planned five more for 1997.

One of the classes, intended for suppliers, has been moved from March to August 18. The classes for poultry industry representatives are May 12-15, Sept. 29-Oct. 2, Oct. 27-30 and Nov. 17-20. The cost of these classes is \$350 per person; the fee includes all necessary materials. For more information, call **Dr.**

John Marcy at 501-575-2211.

FOOD SAFETY CONSORTIUM HOSTS FIRST INDUSTRY SYMPOSIUM

The Food Safety Consortium hosted its first symposium for industry on Feb. 20 at the University of Arkansas Center of Excellence for Poultry Science. The Consortium is an alliance of food safety researchers at the U of A, Iowa State University and Kansas State University.

Representatives of the beef and pork industries attended the day long conference. Panels of Consortium researchers discussed efforts aimed at improving food safety in the production and processing stages and developments in the detection of pathogenic bacteria in food.

Participants included **Steve Grover**, manager of technical services, public safety and health for the National Restaurant Association. He spoke on food safety challenges facing the restaurant industry. Two newspaper food page editors - **Irene Wassel** of the *Arkansas Democrat-Gazette* and **Janice Denham** of the *Suburban Journals* of St. Louis - discussed food safety issues from a consumer perspective.

Consortium researchers' presentations were made by **James Denton** and **Amy Waldroup** of the U of A; **Gordon Schutze** of Arkansas Children's Hospital; **George Beran** and Karen Harmon of Iowa State University, and Curtis Kastner, Jim Marsden and Daniel Fung of Kansas State University. **Karen Harmon** of Iowa State University, and **Curtis Kastner**, **Jim Marsden** and **Daniel Fung** of Kansas State University.

HANDLING FOOD SAFELY

Dr. John Marcy taught a course for food service managers from the Arkansas State Parks Jan. 7-9, at DeGray Lake State Park. The course showed participants how to handle food safely and how to train their employees. This program represents a partnership among the University of Arkansas, the Arkansas Hospitality Association and the Arkansas Department of Health.

FACULTY PROFILE - DR. JOHN KIRBY

Dr. John Kirby's fascination with science is often fueled by his research in reproductive biology as well as his teaching of genetics, reproductive physiology and undergraduate seminar classes.

"I enjoy the opportunity to challenge students to contemplate ideas and concepts that are new to them. It is truly a pleasure when a difficult concept suddenly becomes clear to a student . . . it is amazing what you can learn by teaching; some of the most interest-ing questions I have ever had to deal with come out in genetics class."

Dr. Kirby received his B.A. and M.S. degrees in Biology from the University of Nebraska, Omaha. He completed Ph.D. studies in 1990 at Oregon State University, where he received the John T. Babcock Outstanding Ph.D. Student award and a Purina Mills Graduate Research Fellowship. Upon graduation he undertook post-doctoral studies at Northwestern University, Evanston, Ill.

Following an appointment at Northwestern University Medical School, Chicago, he moved to the University of Arkansas in 1993. Dr. Kirby received young investigator awards from the American Societies of Andrology (1992) and Nephrology (1994).

Dr. Kirby's research is focused on basic and applied aspects of male reproductive biology. The research in his lab is directed along three main themes: First, the factors or mechanisms that regulate spermatX and testis maturation in birds are researched. Lab personnel study the regulation of key molecules in developing sperm, the hormonal and physical environments associated with sperma-togenesis, and the interaction between somatic and germinal cells during spermatogenesis. Second, methods for selecting for increased duration of sperm survival within the hen's oviduct are evaluated. Commercial and select lines are used to model fertility data. Third, the effects of current broiler breeder male feeding schemes (for both elite pedigree as well as commercial males) on testis development and ultimate testis function and fertility are being studied in the lab.

His lab uses rodent and poultry models to study these complex processes. Studies of testicular growth and development have focused on the use of transient prepubertal hypothyroidism, a unique endocrine model that results in a doubling of testis size and even greater increases in sperm production.

"As a faculty member in a poultry science department, I have research interests in applying the information we gain from our model systems to a practical setting; for example, to make our new knowledge available to individuals in the poultry industry. Based on our interest in reproductive biology, the contributions my lab makes to the industry are in breeder male management and selection."

CEPS PROFESSOR SERVING IN SARAJEVO, BOSNIA

Although **Dr. J. Kirk Skeeles**, UA poultry science veterinarian, has taken a hiatus from the Center of Excellence for Poultry Science (CEPS) to serve as a lieutenant colonel of the U.S. Army Reserve with Operation Constant Guard in Bosnia, he hasn't taken a break from his duties as a professor.

Skeeles left for Bosnia-Herzegovina last November and is serving with the 431st Civil Affairs Army

Unit as part of the Combined Joint Civil Military Task Force. He is a member of a veterinary and agriculture team assisting people in a war-ravaged Sarajevo.

Through the use of postal services and e-mail, Skeeles has kept in touch with family, friends, assistants and students. He will graduate at least three students (two master's students and one doctoral student) this spring. Skeeles' assistants have mailed theses and a dissertation for him to read, and two special problems students have sent him final work to grade.

In addition to finding time to read students' work and prepare recent lectures for the University of Sarajevo, Skeeles has also tried to keep up with the Razorbacks by requesting recent scores via e-mail.

The veterinary and agriculture team, of which Skeeles is a member, has been visiting farms and dealing with animal health issues, but is also assisting faculty members of what is left of the College of Agriculture, University of Sarajevo.

One of the first buildings destroyed during the civil war of 1992-1995 in Bosnia-Herzegovina housed the Faculty of Agriculture at the University of Sarajevo. The building was located in a section of Sarajevo occupied by Serbian forces and was burned in 1992.

The agriculture college was established in 1940 and consisted of four departments: agronomy, horticulture, animal husbandry and food processing. The destroyed building consisted of many classrooms, laboratories and offices that were home to 80 faculty members and assistants.

From 1992 to the present, the faculty was able continue working at a reduced level, awarding 119 graduates with bachelor's degrees, 16 with master's and two students with doctorates.

The work was carried on despite the presence of snipers and mortar/artillery attacks, which were a daily threat until the NATO sanctioned airstrikes halted the aggression in August 1995.

The veterinary and agriculture team has had several meetings with the dean of the agriculture college, who has made the plea for Skeeles' group to lobby for the agriculture faculty. One of the areas faculty members are most concerned about is the loss of their library and their equipment.

"I can honestly say that I have more to work with in the way of equipment in my laboratory than the whole College of Agriculture in Sarajevo and probably more books in my office that are of any use than they now have in their library," wrote Skeeles in a letter to Dr. James H. Denton, Director of the Center of Excellence for Poultry Science.

Skeeles is urging people in agricultural faculties or people with an interest in doing something for Bosnia-Herzegovina to donate items in all agricultural scientific areas, including journals, textbooks, office equipment, computers and laboratory equipment.

If anyone would like to contribute their journals or textbooks, they can mail them attention of: LTC John K. Skeeles, CJ Civil Military Task Force, Sarajevo, Bosnia-Herzegovina, Operation Constant Guard, APO AE 09780.

"I appreciate all your support and will be much more appreciative of the way of life and things that we have to work with there at the U of A," wrote Skeeles.

1997 ATLANTA POULTRY EXPOSITION ATTRACTS UA FACULTY, STAFF, STUDENTS AND EXTENSION

Twenty-four UA poultry science students, numerous Center of Excellence faculty and staff members, and Arkansas Cooperative Extension personnel converged on Atlanta in January to attend the 1997 International Poultry Exposition held at the Georgia World Congress Center, Jan. 22-24.

The theme of this year's exposition was "Setting the Pace", and the UA followed suit as attendees joined over 27,000 people from around the world to set a new attendance record at the 49th annual event. More than 1,150 exhibitors, including the UA Department of Poultry Science, filled the 16 acres of display space in the second-largest convention center in the U.S.

In addition to viewing exhibits, attendees had the opportunity to attend numerous educational presentations. **Thomas J. Billy**, the newly selected administrator of USDA's Food Safety and Inspection Service, delivered the keynote address at the exposition. His presentation of "Food Safety and Inspection: What's Next?" was only one of many topics addressing the latest in technology and innovations for the poultry industry. An egg program, broiler and turkey program and an all-industry program took place, and several groups and organizations also conducted "satellite" meetings.

Dr. John Marcy, Center of Excellence, spoke during the broiler and turkey program on Thursday. He presented "Three Strikes, You're Out! Or What Happens When You Fail the Salmonella Standard."

UA poultry science students spent two full days viewing exhibits, making contacts with industry leaders, and touring the sites of Atlanta. Several poultry companies were also on hand to conduct interviews, and many UA upperclassmen took advantage of this process.

The National Poultry Science Club also met during the exposition, and new officers were chosen to lead the group. **Chris Fritz**, UA poultry science student, was elected treasurer and scholarship coordinator for the national club. She will be in charge of requesting scholarships for the club over the next year. Fritz said one of the club's main goals this year is to unite universities in order to form a stronger organization.

NEW VAN HELPS RESIDENT FULFILL STATEWIDE DUTIES

An 18-month program giving veterinarians the opportunity to work with some of the nation's finest poultry researchers began recently at the University of Arkansas' Center of Excellence for Poultry Science (CEPS).

Resident participants will work on issues in the poultry industry with some of the leading poultry health researchers around Arkansas, said **Dr. Kirk Skeeles**, a veterinarian in the University of Arkansas Department of Poultry Science. The program also will help prepare the participants for the American College of Poultry Veterinarians Certification Exam.

The recent donation of a 1996 Nissan Quest van by Hoechst Roussel Vet enables the current resident, **Dr. Steve Breeding**, to travel throughout the state to complete his program, and also accommodates his necessary supplies.

"I couldn't do the job without it. Most of my work is several hours from here [Fayetteville]," said Breeding.

"We wanted to support the program in a way that directly benefited the resident participants," said Mike Biggins, Hoechst Roussel Vet poultry market manager. "That's why we chose to provide a vehicle. It will have a direct impact on the participants' ability to fulfill their commitments to the industry."

FACULTY NOTES

Diana Bisbee will be working with the Dale Bumpers CAFLS as Distance Learning Coordinator. The College will be looking at new programs to teach over distance as well as providing faculty training and development in new telecommunications technology.

Walter Bottje accepted an invitation to participate in the USDA Animal Health and Well Being Panel in Washington, DC on June 9-13, 1997.

David Barnes received a Presidential Early Career Award for Scientists and Engineers at a ceremony in Washington, D.C. on December 16, 1996.

Wes Jamison and **David Barnes** are part of the Poultry Economist Search Committee that interviewed three candidates in early March for the unique position of Poultry Economist that will be jointly housed between the CEPS and the Department of Agricultural Economics.

John Marcy served again on Council III (Science and Technology) at the recent Conference for Food

Protection biannual meeting and has been appointed to a six-year term on the Board of Directors of the Conference for Food Protection. The Conference advises the Food and Drug Administration on the Model Food Code and other issues related to foodservice inspection and regulation. He also made an invited presentation on Hazard Analysis Critical Control Point System (HACCP) at the APINCO '96 Conference on Poultry Technology in Curitiba, Brazil. Dr. Marcy gave the invited presentation "Three Strikes, You're Out! Or What Happens When You Fail the Salmonella Standard" at the International Poultry Exposition in Atlanta, Georgia.

Park W. Waldroup was recognized as a Poultry Science Association Fellow, considered the highest honor by PSA, at the 1996 annual meeting banquet.

Susan Watkins presented "Evaluation of Alternative Bedding Materials for Poultry" at the Arkansas Farm Bureau meeting in Little Rock, December 3.

GRANTS AWARDED

N.B. Anthony. Mr. Edwin G. Meriwether. Research Pertaining to Ratites. \$200.

D.M. Barnes. Darling. Development of Methods for Measuring Peptide Composition in Processed Animal Protein Products. \$2,900.

W.G. Bottje. USDA NRICGP. Vitamin E and Ascites Syndrome in Broilers: Immune and Mitochondrial Function. \$72,865.

F.D. Clark and J.K. Skeeles. EMBREX. Viral Shedding After BDA-Blen Vaccination When Administered in Ovo to 18-Day HY-VAC SPF Embryos. \$3,738.

F.D. Clark, EMBREX. Research Assistant Support. \$10,830.

J.H. Denton. Various Sources. Procurement of Equipment for Center of Excellence for Poultry Science. \$66,850.

G.F. Erf. USDA NRICGP. Immune Activity in RSV-Infectesor and Progressor Chickens. \$47,877.

R. Okimoto. USDA NRI. Inbreeding Depression: Mapping Viability Loci Using a Genetic Linkage Map. \$48,833.

M.S. Parcels. USDA NRI transferring grant. Functional Characterization of the Marek's Disease Virus US1-Encoded Protein. \$101,230.

J.K. Skeeles. Intervet, Inc. Poultry Research. \$5,746; Schering-Plough Corp. Clinical Field Efficacy Study with Florfenicol in the Treatment of E. Coli Airsacculitis. \$24,150.

M.F. Slavik. Research and Technology. Optimization of Shell Egg Washing to Reduce Bacterial Attachment and Penetration. \$13,425.

P.W. Waldroup. Various Sources. Poultry Research Analyzing the Amino Acid Needs of Turkeys and Determination of Feeding Value of Poultry Meal Made from Spent Laying Hens by Conv Rendering Proc. \$34,368; A.L. Laboratories, Inc. Stability of Feed Additives. \$2,400.

R.F. Wideman, Degussa Corporation. Ascites Research. \$11,300.; Kemin Industries, Inc. Research Trial on Ascites. \$1,000.; Nutri-Quest, Inc. Amino Acid Needs of Ascitic Chickens. \$21,500.

STUDENT NOTES

Butch Watson was one of only three college seniors in the nation to receive the Outstanding Pre-Vet Senior award from the American Pre Veterinary Medical Association at the National Pre-Vet Symposium in March.

POULTRY SCIENCE CLUB ACTIVITIES

Poultry Science Club officers were elected in December and began office in January. President is **Chris Fritz**; Vice-president, **Caramie Atnip**; Secretary, **Belinda Floyd**; Treasurer, **Will Jones**; and the publicity and membership office is being held by **Diane Saladino** and **Scott Rainer**.

Club members scheduled upcoming events at their February 25 meeting. A banquet was planned for late April and a canoe trip was scheduled to take place during spring break. Club members are also planning to host a breakfast for the Arkansas Nutrition Conference on September 10.

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