



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

**Spring-Summer 1996**

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### **Rising to the Challenge**

**Dr. James Denton, Director  
Center of Excellence for Poultry Science**

The most accurate way to describe the group of young people who comprise our first graduating class since we have been in the John W. Tyson Building would be to simply say that they "rose to the challenge."

When the concept for the Poultry Center was first described and the leaders involved in the early planning stages were outlining their expectations, the common theme that kept recurring was quite simple. The expectation was for the research program to become more fundamental and focused scientifically. The expectation for the academic program was for the curriculum to become more challenging and in-depth with regard to the scientific and technical content. These challenges outlined by our industry leaders were taken seriously from the beginning and continue to be part of our guiding philosophy as we continue to work toward our goal. In order to meet the challenge of increasing our performance academically, several areas received greater attention.

**Higher Standards.** The first area we began to improve was the allocation of scholarship resources. The first year, 1993-1994, we established minimum requirements regarding the number of semester credit hours (12) and the minimum GPA (2.50) necessary for a student to receive an academic scholarship. At the time there was concern that we might exclude the good, hard working, middle of the road student from scholarship eligibility. It was not then, is not now, nor will it ever be, the intention of this program to exclude those students.

Instead, it is the obligation of the faculty to assist these young people to elevate their performance either through developing better study habits, or through greater faculty involvement in tutoring. There has also been additional support available from the other Poultry Science students in group study sessions. To our great pleasure and gratification, all of the students who were on scholarship prior to establishing the increased performance standards remained on scholarship under the new guidelines.

The next year we increased the minimum GPA slightly (2.63) with the same number of hours and experienced similar results with almost all of our students remaining on scholarship, except for a student who left school. The following year, 1994-1995, we increased the minimum GPA again (2.75) and experienced similar results with regard to the number of students remaining on scholarship. This now meant that in 3 years we had been successful in elevating the performance of our students and they still retained their scholarship support. In doing this we achieved two goals which are very important to the long term success of our program. First, we provided the necessary support for some very deserving and hard working young people to continue in their education process. Second, we ensured that the scholarship support which our industry contributors have so generously provided is being used effectively for young people who are serious about completing their university education.

Tougher Curriculum. The improved academic performance shown by this group of fine young people occurred at the same time that we as a faculty were addressing the second major issue for improving our academic program by making some much needed changes in our undergraduate curriculum. Not only were they being asked to elevate their academic performance, but they were also being challenged with a more rigorous degree program. It is also pleasing to report that undergraduate enrollment has increased from 53 in 1992 to 78 in 1996, and we expect a significant increase in the fall. If all the projected students who qualify for scholarships enroll this fall, we will have the largest ever number of undergraduates majoring in Poultry Science and receiving scholarship.

The bottom line is that this graduating class has set the standard for future classes. They have risen to the challenge by investing their work, dreams and ambitions in a new program that is tied to the industry that has the brightest possible future, our poultry industry. When we raised our expectations for their improved academic performance, they met the challenge. This should serve as a constant reminder: If we want them to do better, all we have to do is ask. Long experience has taught us that our young people will either live up to our expectations or they will live down to our expectations. It all boils down to where we set our expectations.

## **Class of '96**

James Tyrel Anderson received the Outstanding Poultry Science Senior Award from the Dale Bumpers College of Agricultural, Food and Life Sciences.

Poultry Science graduates in the Class of 1996 were the first to attend classes in the Center of Excellence for Poultry Science. This class is also distinguished by being the first four-year class from the UA Poultry Science Department formed in 1992 from the former Department of Animal and Poultry

Science.

Members of the Class of 1996 are James Tyrel Anderson, Michael J. Conway, Chris A. Holtgrewe, Chad E. Jacobs, Jarrod H. Kersey, Tracy Shawn Peterson, Jodye M. Pool, Scott A. Scharhag, Kenneth W. Storm, Jason D. Tyer, David A. Walsh and Peyton B. Weaver.

### **33 Students Earn Scholarships**

Thirty-three poultry science scholarships were awarded for 1996-1997 and four students will be conducting internships with poultry and allied industry companies this summer.

Freshman scholarships totalling \$5,500 were awarded to Scharidi J. Hale, Travis Hester, Heath E. Cruikshank, John I. Curry, Paul B. Eiland, Crystal Rose Cornish, David O. Wilson and Brandy Wade.

Transfer Scholarships totalling \$4,000 were awarded to Patricia M. Moore, Bobbie James Mills and David Austin.

Current scholarships for a total of \$55,593 were renewed for Allen Woodley, Gabe Wight, Butch Watson, James C. Scanlon, Dianne B. Saladino, Scott Ramer, Cody Polley, Sarah Parks, Ken Meaux, Jeremiah Judd, Will Jones, Debra Henderson, Chris Fritts, Melissa Duke, Scott Donnell, Chad Clem, Jason Braziel, Chasadee Bohannon, Caramie Atnip, Jared Thomson, Mathew Drewyor and Kenneth Hanson.

### **Internships**

Internships will be conducted this summer by Brett Wright at Tyson Foods, Springdale North Hatchery; Leasea Taylor at the UARK Savoy Commercial Broiler Farm; Jennifer George at George's, Inc., Springdale; and Debra Henderson at Roxell, Inc.--Southeast USA Equipment Sales.

### **Molecular Geneticist, Extension Specialist Join Cebter Faculty**

Two new faculty members are Ronald Okimoto, whose appointment as assistant professor of molecular genetics begins in July, and Susan E. Watkins, Extension poultry specialist.

Dr. Okimoto received a doctorate in biology from the University of Utah and is currently on a postdoctoral appointment at Michigan State University. His current research interests are in the use of molecular genetic markers to identify and characterize quantitative trait loci. He will join the UA faculty in July 1996.

Watkins will receive a doctoral degree in poultry nutrition from the University of Arkansas. Her duties as an Extension specialist will include developing programs in cage layer and turkey management. She

also will coordinate the poultry science scholarship program and will assist with youth programs.

Watkins grew up in Hope and has B.S. and M.S. degrees from the U of A in animal nutrition and poultry nutrition, respectively. She was employed as a quality control specialist and service person by Mahard Egg Farm, Prosper, Texas, from 1987-1989.

She and her husband, Philip, have two children.

## **Central Lab Provides Range Of Services**

The Central Analytical Laboratory (CAL) in the Center of Excellence for Poultry Science provides a wide range of analytical services for poultry researchers and other scientists at the University of Arkansas and other research agencies and institutions.

Analyses currently available include protein/nitrogen content, amino acid and fatty acid profiles, energy content, crude fat content, and biogenic amine levels in poultry feed or tissues.

Each test has undergone extensive validation both within the CAL and by other certified laboratories and most protocols are AOAC approved. Published guidelines and detailed description of current protocols are available.

In addition, CAL personnel are developing new analytical methods to answer important questions in poultry science.

The laboratory is directed by Assistant Professor David Barnes, supervised by Research Associate Kelly Beers, with technical support provided by Research Specialists Linda Kirby and Eric Vaught. For more information on services provided by the Central Analytical Laboratory, call (501) 575-6532.

## **Faculty Profile: Robert Wideman**

*When I teach physiology, I emphasize to my students that we can make tremendous progress in improving poultry productivity by understanding the functional capacities and limitations of the bird's cells, tissues, and organs.*

Get out the highlighter. The above statement by Distinguished Professor of Poultry Science Robert F. Wideman Jr. will probably be on the final in "Animal/Poultry Physiology II" or one of the other courses and seminars taught by one of the world's leading poultry physiologists who joined the UA faculty in 1993.

Dr. Wideman's teaching and research focus on the anatomy and function of organ systems and how they must work in concert for optimal growth and development of the animal.

Practical examples of metabolic diseases in poultry are used to teach the consequences of damaging or stressing organ systems beyond their functional limits.

His areas of scientific expertise include kidney function and dysfunction, endocrine regulation of calcium and phosphorus metabolism, and broiler pulmonary hypertension (ascites). He has spoken on these topics at more than 100 national and international seminars.

His current research is on the genetics and pathophysiology of broiler pulmonary hypertension syndrome (ascites), and on factors affecting proventricular enlargement (proventriculitis) in broilers. He developed a method using heart surgery to identify broilers with genetic resistance to ascites, and he is collaborating with a major poultry breeding company on developing a breeding line of ascites-resistant broilers.

Bob Wideman was born in Dallas, Texas. He received a bachelor's degree in biology from the University of Delaware in 1971 and then spent two years as an officer in the Army Medical Corps. His M.S. degree in zoology and doctoral degree in physiology (1978) are from the University of Connecticut.

He was a research associate for three years in the physiology department of the University of Arizona College of Medicine prior to accepting a faculty post in the poultry science department at the Pennsylvania State University in 1981 where he remained until joining the UA faculty in 1993.

Dr. Wideman is a member of the Phi Kappa Phi, Sigma Xi and Gamma Sigma Delta national honor societies. He received the Poultry Science Association Research Award in 1988.

His publications include seven book chapters and review articles, 85 refereed journal articles and more than 100 technical and poultry industry publications or scientific abstracts.

Bob and Brenda Wideman--computer network director for the Dale Bumpers College of Agricultural, Food and Life Sciences--have three children.

## **Student Recruiter Joins Center Staff**

Gary Davis, formerly director of the Arkansas 4-H Center at Ferndale, has joined the Center staff as undergraduate recruiting specialist.

Davis was a Cooperative Extension Service 4-H specialist and director of the 4-H Center for the previous five years. Prior to that he was an Extension agent in Logan and Crawford counties for six years.

A native of Fort Smith, he has a bachelor's degree in environmental science and a master's in agronomy (1982) from UA, Fayetteville. He and his wife, Phyllis, have three children.

He works with high school students, teachers and counselors to make them aware of educational and career opportunities in poultry science. Any questions about the undergraduate recruiting program can be directed to Davis at (501) 575-7256.

A new recruiting video about the Center of Excellence for Poultry Science is available.

## **'Research Updates' Available From Center**

"Research Updates," compiled by Associate Director Walter Bottje, provides a quarterly review of research being conducted by Center faculty. To receive a copy, contact Diana Bisbee, POSC O114, University of Arkansas, Fayetteville, AR 72701.

## **Poultry Judging Team Places Third**

The UA Poultry Judging Team placed third overall in spring college competition.

Team awards included fourth place in Market Products, fourth in Breed Selection and first in Production.

High individual scores were posted by Erin Johnson, James T. Anderson and Jason Braziel, who tied for first place in Production; Erin Johnson, third high in Market Products; Jason Braziel, third high individual overall; and Peyton Weaver, eighth high individual overall.

## **Research Benefits People and Chickens**

Physiological and biochemical functions in chickens that are also issues in human health are studied by U of A poultry scientists, including Walter Bottje who received the John W. White Award for Research, the top research award for faculty of the Dale Bumpers College of Agricultural, Food and Life Sciences.

A relatively new health concern is the effects of "free radicals." Simply stated, a free radical is an atom or molecule with an unpaired electron, which makes it unstable.

Free radicals "steal" electrons from other molecules in the body, which can damage vital cells or DNA. Each electron "theft" creates a new free radical in a chain reaction that changes the structure of zillions of molecules in our body every split second of our lives.

Free radicals may be generated naturally in the body or as a consequence of consuming toxins or breathing air pollutants.

The body's defense against free radical damage is "antioxidants"-specialized substances that "sacrifice" electrons to free radicals in order to prevent them from stealing electrons from DNA, protein molecules and vital cells.

Extensive free radical assault on the body results in a general condition termed oxidative stress, which is considered a contributing cause of many diseases and may actually be a "cause" of aging.

Dr.Bottje and colleagues have found a link between free radicals and a poultry health problem known as

ascites or pulmonary hypertension syndrome (PHS).

Ascites occurs in a small but economically important percentage of chickens when their rapid growth exceeds the capacity of their respiration system. These chickens develop symptoms that can quickly result in congestive heart failure and death.

"We have found that major antioxidants are depressed in birds with pulmonary hypertension," Dr. Bottje said.

In one study with chickens in which ascites was induced, a treatment group received implants of an antioxidant, vitamin E, and control groups received either no implant or a placebo implant.

The chickens that received vitamin E had more antioxidants in lung and liver tissue, and they suffered much less severe ascites symptoms than the chickens which did not receive the vitamin E.

Dr. Bottje's interest in free radicals and antioxidants resulted in an assignment in England this summer where he is working with Dr. Frank Kelly, a pioneer in the study of antioxidants in lung lining fluid in humans. Kelly is a professor of lung physiology at the Rayne Institute, St. Thomas' Hospital, London.

While learning Kelly's techniques, Dr. Bottje is, among other things, documenting differences in antioxidants in the lung lining from Arkansas chickens. One group is from a house with dust, ammonia and other air pollutants. The other group was kept in a clean cage environment.

These and related studies have been supported by research grants from the USDA, National Institute of Health, and Novus International, and are currently supported by a grant from the Southeastern Poultry and Egg Association.

This sharing of information by medical and poultry scientists not only helps humans live longer and healthier lives, but helps keep one of life's necessities, barbecued chicken, abundant and affordable.

## **Gifts**

Amoco Foam Products Co. executives presented a \$25,000 contribution to Center Director James Denton (right) for the Allied Industries Capital Campaign to provide scientific research equipment for Center laboratories. The presentation was made by Jim Riggsbee, packaging tray sales manager; Nancy Foust, manager of the Malvern foam products plant; and Joe Johnson, sales representative. The Malvern plant provides a large portion of the trays used in poultry packaging.

Merck Research Lab Field Operations Director Raymond Plue and Hubbard Farms Regional Manager Vaughn King presented a \$25,000 check for the third payment of a \$100,000 pledge to the Allied Industries Capital Campaign to equip the Center of Excellence for Poultry Science. The contribution, from the Hubbard Farms Division of Merck, is designated for the Coccidiosis Lab of Professor David Chapman, seated in front of Center Director James Denton.

A royalty check for \$24,000 from the sale of BDA-Blen vaccine for Gumboro, a major poultry disease

that weakens the chicken's immune system, was presented to Center Director James Denton by Embrex, Inc., officials Craig Whitfill, director of commercial product development, and Brian Cosgriff, vice president for sales and marketing. The product was developed using a "viral neutralizing factor" jointly patented by the University of Arkansas and Embrex, Inc., based in Research Triangle Park, N.C.

## **\$1.5 Million Pledged in Allied Industries Campaign**

The Allied Industries Capital Campaign to provide scientific research equipment for Center laboratories had received approximately \$1.5 million in pledges as of June 1, 1996.

The faculty, staff and students of the Center and the University of Arkansas are deeply indebted to the companies, and the individuals within those companies, who are helping to provide the modern tools needed for meaningful poultry research, education and extension programs.

The 65 companies that have participated in the campaign so far include a number that have given major gifts, which have provided a solid foundation and momentum for the Campaign.

The largest contributions to date, some of which have not been publicly acknowledged, are as follows:

- Newlyweds Food, Inc. \$250,000
- Novus International Inc. \$250,000
- International Paper Company \$100,000
- Merck \$100,000
- Riceland Foods \$100,000
- Hoechst-Roussel Agri Vet Company \$51,000
- American Cyanamid \$50,000
- Baader North American Corp. \$50,000
- Elanco \$50,000
- Kansas City Southern Railway Company \$50,000
- Southwestern Bell \$50,000

## **Recent Contributors**

Additional companies contributing (pledged or received) as of June 1, 1996, included the following:

- Amoco Foam Products \$25,000
- Animal Health & Specialties \$1,000
- BCE Technologies/Woodside Labs \$5,000
- Chick Master Incubator Co. \$10,000
- Curwood Inc. (Bemis Co.) \$3,000
- FPEC \$10,000
- Frez-N-Stor, Inc. \$1,000
- Frost & Company \$9,400
- H. J. Baker & Bros. \$5,000

Heartland Lysine Inc. \$10,000  
Intralox, Inc. \$1,000  
Nutra Blend Corporation \$25,000  
Philip Morris Management Corp. \$2,000  
Select Laboratories \$30,000  
Sunray Services \$1,000

## Faculty Notes

Furman G. "Butch" Sizemore received a two-year postdoctoral fellowship from the USDA National Research Initiative Competitive Grants Program. Dr. Sizemore, under the mentorship of John Kirby and Douglas Rhoades, has proposed to characterize the molecular genetic basis for heritable sperm degeneration in the domestic fowl. This fellowship was one of only six awarded nationally under the auspices of the "Enhancing the Reproductive Efficiency of Animals" program within the USDA/NRI/CGP.

John Kirby made an invited presentation on "Prepubertal hypothyroidism as a model system for studying testis development and function" to the College of Veterinary Medicine at Oklahoma State University. He was an invited speaker on the topic "Transient neonatal hypothyroidism permanently alters testicular size and function" at the Oregon State University animal science department. He presented an invited paper on "Spermatogenesis and sperm maturation: Targets for improving male reproductive performance" at the National Poultry Breeders Roundtable May 2-3 in St. Louis.

F. Dustan Clark presented an invited paper at the Arkansas Poultry Symposium in March on "Managing Antibiotic Therapy." He also presented a paper to the Northwest Arkansas Emu Association on "Avian Influenza... the disease, recognition, prevention and biosecurity." Dr. Clark coordinated the annual NPIP Blood Testing School in Little Rock in April and at the Center in May.

Susan Watkins and F. Dustan Clark conducted the South Arkansas Poultry Seminar, which is to be an annual event, in Hope in May.

Phil Hargis left the faculty in June for a position as vice president for nutrition with Marshall Durbin Companies in Birmingham.

John Marcy was elected Chair-Elect of the Extension division of the Ozark Section of the Institute of Food Technologists. He was named as a member of the Executive Council of the Muscle Foods Division of I.F.T., and he will serve a six year term on the Board of Directors of the "Conference for Feed Protection."

Amy Waldroup was elected Chair-Elect of the Ozark Section of the Institute of Food Technologists.

## Cargill Hosts Poultry Science Club Banquet

Cargill, Inc., hosted the Annual Student Awards Banquet April 27th at the Holiday Inn in Springdale.

Cargill Agricultural Manager Deryle Oxford delivered the keynote address at the event attended by 72 students, family members, industry representatives and faculty members.

The recipients of four new faculty teaching and advising awards were presented as voted on by the students. Nick Anthony was named best dressed and best mentor, Robert Moore was most entertaining, and most challenging was John Kirby.

The Poultry Science Club started an incentive program for the first time this year also. Students were competing on most active participants, based on a point system. The top five individuals, who received cash awards, were Peyton Weaver, Erin Johnson, Chris Holtgrewe, Belinda Floyd and Chad Jacobs. The high individuals by class were Freshman, Caramie Atnip; Sophomore, Chris Fritts; Junior, Ken Meaux; and Senior, Jeremiah Judd. The award money came from a "jackpot" account of money raised by the club.

## **Grants Awarded**

Gisela Erf. Research Incentives Grant, Dale Bumpers CAFLS. "Arkansas Rous sarcoma Regressor and Progressor Lines of Chickens: Animal Model to Study Immune Mechanisms in Chickens." \$9,930.

Walter Bottje and Gisela Erf. Southeastern Poultry and Egg Association. "Effect of Vitamin E on Immune System and Ascites Mortality in Broilers." \$33,754

F.D. Clark. Intervet, Inc. Poultry Disease Prevention Research. \$9,625.

J.K. Skeeles. Dr. I.D. Russell, D.V.M. American College of Poultry Veterinarians Residency Program Support. \$5,000. Embrex, Inc. Efficacy of Three Plasmid DNA Constructs Encoding the IBDV VP2 and VP2-4-3 Genes. \$2,415.

M.F. Slavik. Southeastern Poultry and Egg Association. Poultry Microbiology Research. \$17,668.

R.F. Wideman. Degussa Corp. Ascites Research. \$11,300.

A.L. Waldroup. Alcide Corp. Poultry Processing Research. \$2,200.

## **Briefs...**

### **A\*DEC Uplink**

A satellite uplink system is to be installed in the John W. Tyson Building by late summer. Diana Bisbee is principal contact officer for the Center in the Agricultural Distance Education Consortium (A\*DEC), which develops and delivers distance education programming.

### **Ascites Conference**

The Center will host the International Ascites Symposium January 15-17, 1997.

Ascites research leaders will speak in the general sessions, and other invited papers will be presented in breakout sessions.

For more information or a registration packet, write D. Bisbee, POSC O114, Univ. of Arkansas, Fayetteville, AR 72701.

### **Children's Week**

John Marcy, Amy Waldroup, Judy McGinnis and Jennifer George participated in an Arkansas Children's Week event at West Helena's Central High School.

The UA crew served turkey hotdogs donated by Hudson Foods and Butterball and staffed exhibits of baby chicks and proper hand-washing for food safety.

### **Vital Link**

Twelve Fayetteville 8th graders spent their mornings the week of April 22 with Center faculty members Nick Anthony, Dustan Clark, John Marcy, Wes Jamison, Kirk Skeeles, Amy Waldroup, Park Waldroup and Susan Watkins and USDA/ARS faculty Bill Huff, Gerry Bayyari, Janice Balog, Narayan Rath, Philip Moore and Tom Sauer.

They were participating in the Vital Link Program sponsored by the local Chamber of Commerce and Public Schools to give students work-place experiences.

### **Virtual Cook-Off**

The Honeysuckle White Virtual Turkey-Chili Cook-Off was held in the John W. Tyson Building March 28.

Five finalists in the cook-off were selected from hundreds of recipes submitted by e-mail to Honeysuckle White.

Andrew Neurer of Cincinnati won the ground turkey category with "Farm Hands Turkey Chili." Gary and Tracey Dean of Pryor, Ok., won the chopped turkey category with "Gobbledygood Chili."

### **Science Fair Projects**

Amy Waldroup advised students in Alma and Ft. Smith on Science Fair projects on topics related to poultry and food safety.

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